

Kalahi-CIDSS Impact Evaluation Third Round Report

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Executive Summary

This report summarizes the four-year impact findings of Kapit-bisig Laban sa Kahirapan (“Linking Arms Against Poverty”) – Comprehensive and Integrated Delivery of Social Services (Kalahi-CIDSS or KC), a nationwide, government-run, community-driven development (CDD) project in the Philippines. KC aims to achieve three goals: reduced poverty, improved participatory local governance, and improved social capital. In order to reach these goals, KC pairs community training with block grants at the barangay (village) level, which are meant to enable communities to address their self-identified development needs, largely through financing and building public infrastructure and public services called “subprojects.” Through facilitators hired by the Department of Social Welfare and Development (DSWD), the government entity implementing KC, KC trains community members and their local governments at the barangay and municipal levels in choosing, designing, and implementing subprojects. KC is implemented through a five-stage process known as the Community Empowerment Activity Cycle (CEAC).

The KC project is part of the five-year Compact that the Government of the Republic of the Philippines (GRP) signed with Millennium Challenge Corporation (MCC) for \$434 million. The agreement was signed on 23 September 2010 and entered into force (meaning implementation started) on 25 May 2011. In addition to KC, the Compact includes rehabilitation of the Wright-Taft-Borongon-Guiuan Road in Samar province and a Revenue Administration Reform Project that aims to improve tax collection. MCC invested \$120 million in KC.

These evaluation findings are based on a randomized control trial in which a sample of 198 municipalities across the Philippines’ three main island groupings were randomly assigned to participate in KC or to remain part of a control group for three years. The findings reflect data collected between 2011 and 2015 through a variety of methods, including extensive questionnaires administered to nearly 6,000 households, *barangay* (village) leaders and project staff. Baseline data collection took place April-June 2012, interim data collection February-June 2014, and third round data collection July-October 2015. We undertook qualitative research at baseline and endline to deepen our findings. We also conducted structured community activities to observe whether KC practices were carried over into other areas of local governance. Our results thus reflect approximately four years of project implementation, and we have focused our analyses on outcomes linked to the project’s theory of change that could have plausibly materialized over this timeframe. Toward the end of this time period, the Government of the Philippines introduced several related programs in both our treatment and control municipalities; the analyses in this report have adjusted for these programs’ influence.

We analyze results across three domains that align with the project’s three goals: socioeconomic, institutional, and community empowerment. Each domain includes multiple hypotheses. Each hypothesis makes up an index or group of indicators. These indices reduce the number of unique chance outcomes, since if we examined the hundreds of unique outcomes we want to study, some would be statistically significant due to mere chance. Results for each

hypothesis are presented in standard deviation units. Our overview of results is shown in Table 1. The table includes the regression coefficient in standard deviation units and statistical significance.

In the socioeconomic domain, we find that KC achieved implementation goals and was effective at delivering benefits to residents via subprojects. The socioeconomic domain examines impacts of investments in transport and water infrastructure, reducing the time and cost to travel to key services, transport farm product to the market, and to obtain water for domestic use. Our analysis shows benefits from several types of subprojects: road improvements reduced the time and cost to reach key local services (H1a) and to get farm products to market (H1b), education projects improved enrollment in elementary and secondary schools (H1e), and water projects substantially reduced the time and cost to obtain water (H1h). At the same time, we find evidence that barangay-level roads subprojects counterintuitively reduced agriculture productivity (H1c_ag), and had no effect on fisheries productivity (H1c_fa) or livestock and poultry productivity (H1c_lp).¹ More generally, we do not find evidence that KC affected households' overall poverty status, as captured by their consumption, assets, or housing quality (LT1), or households labor force participation and earnings (LT2), although we recognize that such gains may yet occur in the coming years (outside of the four years of project implementation captured by our data).

Our economic rate of return (ERR) analysis considers the magnitudes of the socioeconomic gains from these subprojects relative to their costs. The large gains from roads, water, and education subprojects are offset by very large losses in rice production due to the roads projects, limiting the project's overall cost effectiveness.² We estimate an ERR of 3%, low by most standards. Excluding the rice losses raises the ERR to 28%.

In the institutional domain, KC improved the responsiveness of local government to community needs and increased community members' knowledge and awareness of local governance. This domain looks at the quantity and quality of participation in governments and decision-making related to KC and beyond KC, residents' confidence and self-efficacy, knowledge and awareness of local governance, and the degree to which local development projects correspond to preferences stated at baseline. As a result of KC, development funds (including those from non-KC sources) were more closely aligned with residents' preferences in more intensely treated areas (H5). This means that KC was not only effective at delivering services to communities, but that it also was effective at delivering services that communities preferred. KC

¹ We plan to explore the agricultural productivity reductions in greater detail in an appended analysis.

² We assessed agricultural production of a wide range of crops in addition to rice, such as banana, camote, cassava, coconut, corn, and eggplant, but the bulk of overall productivity changes stem from rice cultivation.

also improved knowledge and awareness of local governance (H4). As a result of the KC process, residents in KC communities were more familiar with local officials and local governing bodies. This outcome was significant at interim and at third round and increased between the two rounds.

At the same time, this improved knowledge was accompanied by worsening perceptions of confidence and self-efficacy, or individuals' belief that they have the agency and ability to improve a situation (H3c). KC projects were more responsive to community needs and people knew more about local government, but in the end felt less empowered to make changes.

Additionally, KC did not have an effect on the quality and quantity of participation in governance around decision-making and implementation *related* to KC (H2). We found this result significant and positive at interim, but by the third round survey, it was no longer significant, possibly because in 2015 control groups began to implement the successor project to KC, the KC-National CDD Program (KC-NCDDP). At the time of the third round survey, control municipalities had begun to implement the early stages of the CEAC. Participation in governance related to KC, such as participating in or knowing about barangay assemblies, is an early milestone of CEAC implementation, and thus one potential explanation for the lack of significant difference between treatment and control groups at third round. We also find no effect on participation in and knowledge of formal structures *beyond* KC (H3a, H3b). KC's participatory processes do not appear to have been carried over to other local governance activities, measured both through survey interviews and through our structured community activity.

In the community empowerment domain, we find that KC encouraged communities to engage in development activities. Because the KC process requires a good deal of community participation, reasonable concerns arise about the project's potential to crowd out other civic activities. We find that having been exposed to KC actually led these residents to contribute to other civic activities at greater levels, allaying such concerns about crowding out (and even suggesting some crowding in) (H7). This result endured by the third round – it was significant at interim and third round, albeit there was a slight decline between second and third rounds.

However, we find no evidence of changes in interactions among peers, meaning the intensity and frequency of interaction with neighbors generally and specifically about problems in the barangay (H6). This result was significant and positive at the interim survey. There are several possible reasons that this result ended up no longer significant (and slightly negative) at third round. First, baseline levels of interaction among community members were very high at baseline, so there wasn't much room for improvement. Improvement may have happened in the initial years of the project, but perhaps it wasn't possible to expand on this further. By third round, as mentioned above, some of the control group communities had already started the early stages of CEAC, so it's possible that the control group had already started interacting with more with peers by the third round, eliminating any detectable difference between treatment and control groups.

We also find no effect of KC on the ways communities deal with hardships or natural disasters (H8). At interim, we considered the potentially buffering effects of KC of communities dealing with the hardship of Yolanda and other natural disasters. Specifically on helping communities deal with the effects of natural disasters, KC had a significant and large effect at interim. When considering all forms of hardship—including losses and difficulties experienced by individual households as well as broader natural disasters—we observe no buffering effect of KC by the third round.

Overall, we find, consistent with earlier work, that CDD is effective at delivering public goods to community members. It is clear that KC delivered public goods; and those that met citizen priorities. Projects implemented in KC areas, even those not funded by KC, were more reflective of residents' stated priorities than projects implemented in non-KC areas. Services like roads, education, and water delivered benefits to residents like improved travel time and cost, improved agriculture transport cost, increased enrollment, and reduced time and cost to obtain water; although roads projects reduced agricultural productivity. Consistent with these findings, residents' satisfaction with the program was extremely high.

However, KC was not as effective at generating broader social changes related to improved governance or community empowerment, or changes that persist or spill over beyond the project. Initial indications of KC implementation, such as participation in local governance, increased knowledge or awareness of local governance, and peer interaction, had materialized by the interim data collection, demonstrating early implementation progress. (Although indicators related to participation in local governance and peer interactions were no longer statistically different between treatment and control groups by third round, perhaps because of KC-NCDDP implementation.)

Yet the expectation that KC would generate participation in local governance or improve barangay information sharing and inclusiveness beyond KC or affect in the long run how individuals coped with hardship or natural disaster did not materialize. Although the coefficient is small, residents in KC areas felt *less* confident or self-efficacious compared to communities that had not implemented KC. One exception to this is the finding that KC actually strengthened participation in community organizations. Contrary to an earlier study of KC that found that participation in KC was crowding out participation in other community activities, residents in KC areas actually participated more intensely in community organizations as a result of KC.

From a methodological perspective, the analysis shown in this report is one of the first to show impacts of funding for certain subproject types on specific related outcomes, in addition to the average effect across all treatment barangay. For example, we show that education subprojects specifically improved enrollment in elementary and secondary schools. This is a methodological advancement in terms of understanding the effects of CDD programs.

Table 1: Results of KC across Three Primary Domains

Hypothesis	Indicator and index components	Coeff/ sig
H1a	SPs improve access to related key services	0.14*
H1b	Roads subprojects reduce agriculture, fisheries and livestock transport costs	0.17**
H1c	Roads SPs improve productivity in agriculture, fisheries, and livestock sectors	-0.20* -0.04** 0.01
H1e	School subprojects increase school enrollment and improve student/ teacher ratios	0.42***
H1h	Water SPs reduce time and costs spent obtaining water	0.15**
LT1	KC raises household consumption and asset holdings	-0.03
LT2	KC raises household labor force participation and earnings	0.02
H2	KC increases quantity and quality of participation in local governance around decision-making and implementation related to KC activities	-0.03
H3a	KC increases participation in and knowledge of formal structures beyond KC	0.04
H3b	KC improves barangay information sharing and inclusiveness beyond KC	-0.06
H3c	KC increases confidence and self-efficacy beyond KC	-0.07**
H4	KC increases knowledge and awareness of local governance	0.28**
H5	KC improves degree to which barangay projects correspond to ex-ante preferences	0.09***
LT3	KC improves perceptions of local governance	0.02
LT4	KC raises capacity of barangay government	0.23
H6	KC increases interactions among peers	-0.03
H7	KC increases participation in community organizations	0.31**
H8	KC improves how well communities deal with natural disasters and other hardships	0.04

* denotes significant at 90% confidence level, ** denotes 95%, *** denotes 99%

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List of Acronyms

2SLS	Two-Stage Least Squares
BA	Barangay Assembly
BC	Barangay Captain
BDC	Barangay Development Council
BUB	Bottom-Up Budgeting
CBIS	Capacity Building and Implementation Support
CDD	Community-Driven Development
CDR	Community-Driven Reconstruction
CEAC	Community Empowerment Activity Cycle
CSOs	Civil Society Organizations
DBM	Department of Budget and Management
DFID	Department for International Development
DILG	Department of Interior and Local Government
DSWD	Department of Social Welfare and Development
ERR	Economic Rate of Return
GRP	Government of the Republic of the Philippines
IP	Indigenous Persons
IPA	Innovations for Poverty Action
IRA	Internal Revenue Allotment
IRC	International Rescue Committee
ITT	Intent-to-Treat
Kalahi-CIDSS/KC	Kapit-bisig Laban sa Kahirapan – Comprehensive and Integrated Delivery of Social Services
KC ACT	KC Area Coordinating Team
KC-NCDDP	KC-National CDD Program
KIIs	Key Informant Interviews
KIs	Key Informants
LGPMS	Local Governance Performance Management System
LGU	Local Government Unit
LT	Longer-term outcomes
MCA-P	Millennium Challenge Account—Philippines

MCC	Millennium Challenge Corporation
MDC	Municipal Development Council
ME	Municipal Engineer
MIBF	Municipal Inter-Barangay Forum
MPDO	Municipal Planning and Development Officer
MSWDO	Municipal Social Welfare and Development Officer
NAPC	National Anti-Poverty Commission
OLS	Ordinary Least Squares
PHP	Philippine Peso
PSA	Participatory Situation Analysis
SCA	Structured Community Activity
SDS	Sustainable Development Solutions
SPI	Subproject Implementation
SUR	Seemingly Unrelated Regression
SWS	Social Weather Stations
TOT	Treatment effect on the Treated

1. Background

1.1 Overview

Innovations for Poverty Action (IPA) prepared this third-round report to present short-term output and longer-term impact findings of a nationwide, government-run, community-driven development (CDD) project in the Philippines: Kapit-bisig Laban sa Kahirapan (“Linking Arms Against Poverty”) – Comprehensive and Integrated Delivery of Social Services (Kalahi-CIDSS or KC). These impact findings were generated from a randomized control trial implemented by IPA using data collected between 2011 and 2015. The report focuses on the effects of KC in barangays (villages) across the Philippines’ three main island groupings -- Luzon, Mindanao, and Visayas -- after approximately three cycles of CDD programming. The findings are presented in three main outcome streams or domains: socioeconomic conditions, governance, and community empowerment. The principal goal of this report is to serve as an independent assessment of the impact of KC generally, and specifically of the returns to the Millennium Challenge Corporation’s (MCC) investment in KC. Simultaneously, the report aims to offer lessons to improve CDD-related policy in the Philippines and beyond, and to contribute to broader research about the impacts of CDD programs.

The KC project is part of the five-year Compact that the Government of the Republic of the Philippines (GRP) signed with MCC for \$434 million. The agreement was signed on 23 September 2010 and entered into force (meaning implementation started) on 25 May 2011. In addition to KC, the Compact includes rehabilitation of the Wright-Taft-Borongon-Guiuan Road that passes through 15 municipalities in Samar, one of the poorest provinces in the Philippines. The Secondary National Roads Development Project (SNRDP) is expected to lower vehicle operating costs and improve residents’ access to commercial activity and basic services. The Compact also includes a Revenue Administration Reform Project (RARP) that aims to improve tax collection. It will redesign and computerize business processes which will allow the Department of Finance to detect and deter corruption and ultimately increase tax revenue (MCA-P M&E Plan, 2011). MCC invested \$120 million in KC.

1.2 KC goals, implementation process, and financing

KC aims to achieve three goals: “(a) reduced poverty; (b) improved participatory local governance; and (c) improved social capital” (Department of Social Welfare and Development – DSWD, 2012). Box 1.1, below, provides additional details on these goals.

Box 1.1: Project Goals

Empower local communities by developing capacities of community members and instituting community-based mechanisms that will allow the people to decide on issues affecting their own development. Vulnerable groups such as women, Indigenous Peoples, farmers, fisherfolk, and communities in conflict are given priority by including them in the decision-making process, especially on matters pertaining to allocation and use of resources.

Improve local governance, (both at the barangay and municipal levels), by revitalizing mechanisms that encourage community consultation, transparency and, accountability, especially on processes around local development planning and the use of limited resources to address community-identified local priorities, following the principles of good governance as mandated by the Local Government Code or LGC (Republic Act 7160).

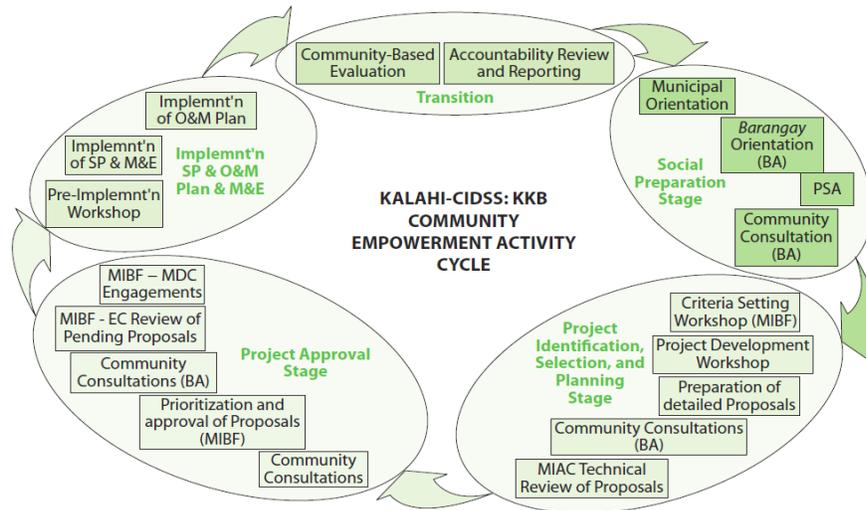
Reduce poverty by providing funds for projects that the community itself identifies, designs, and implements, based on priority needs identified by the communities themselves. It is assumed that with empowered communities and improved local governance, development projects implemented by communities will be relevant, successful and sustainable.

Source: all text in this box is quoted directly from DSWD, 2012.

In order to reach these goals, KC involves community training paired with block grants at the barangay level, which is common to many CDD programs around the world. These two key components are meant to enable communities to address their self-identified development needs, largely through the building of public infrastructure and/or the provision of public services and investments called “subprojects.” The materials provided to the facilitators of KC state that “[t]he CDD approach ensures that development priorities are addressed in a participatory, collective, inclusive, and in demand-driven way” (DSWD, 2012, p.6).

More specifically, through facilitators hired by the Department of Social Welfare and Development (DSWD), the government entity implementing KC, KC trains community members and their local governments at the barangay and municipal levels in choosing, designing, and implementing subprojects. KC is implemented through a five-stage process known as the Community Empowerment Activity Cycle (CEAC), summarized in Figure 1.1.

Figure 1.1 The Community Empowerment Activity Cycle



Source: DSWD, 2012.

Most subprojects were implemented within six months, meaning that the full five stages, from preparation to funding and implementation, generally took nine to twelve months, termed a cycle. The first phase, social preparation, was condensed in cycles two and three since, after the first cycle, communities were already familiar with the KC project and process. The same CEAC process was repeated over three one-year cycles in the municipalities covered in this evaluation. Details of the CEAC process are summarized in Box 1.2 below.

Box 1.2: CEAC Main Stages

1. Social preparation:

The social preparation stage consists of roughly six months of training and facilitation from DSWD facilitators in order to prepare subproject proposals. It begins with a municipal orientation, gathering DSWD representatives and municipal officials to introduce the project objectives and sign an agreement with DSWD representatives and local institution officials. Afterwards, barangays organize an assembly of residents in which DSWD facilitators explain KC’s goals and mechanics to members of the community. Here, the community selects volunteers to be part of the teams that identify subprojects, manage the funds, participate in construction, and perform other functions for the subproject’s implementation. Barangay representative teams perform a participatory situation analysis (PSA) and develop a barangay action plan, which outlines the types of poverty and challenges to be addressed by the proposed subproject. The communities gather in several assemblies throughout the process to

receive performance updates, provide feedback, approve of the teams’ decisions, etc. All barangays within a beneficiary municipality receive this preparation.

2. Subproject identification and conceptualization

Each barangay forms a team of representatives. The team receives technical training to design and package the subproject proposal. The team is tasked to set criteria that will be used to select the subproject proposals to seek KC funding, research and identify the key poverty-related problems in the community, meet with the community through consultations and assemblies to get feedback, and then finally submit the proposal for approval.

3. Subproject prioritization

The representative teams from each barangay assemble at the municipal level at a Municipal Inter-Barangay Forum (MIBF), during which they evaluate proposals and prioritize subprojects for the year. Each barangay representative team presents its subproject proposal, and the other teams in the barangay give scores to the subproject according to criteria selected in advance of the MIBF by barangay resident teams. The scores are compiled and the barangays are ranked according to the scores their proposals received. Subprojects are then financed based on the barangays’ ranking and the availability of funds. For instance, a large road project from one barangay may not receive funding if the teams at the MIBF decide that they would like to more equally distribute funds across barangays, supporting smaller projects in more barangays. Funding is allocated to prioritized subprojects until annual funds are exhausted. The cost of each subproject varies, but in order to be funded, barangays must contribute at least 30% of subproject costs (in cash and/or in kind).

4. Subproject implementation

Funded barangays take responsibility for the implementation of their subprojects, including the construction and maintenance of public infrastructure and/or the provision of public services and investments.

5. Transition

At the end of the cycle, the communities wrap up and attempt to gauge the progress made since the beginning of the CEAC process. At the community-based evaluation, barangay resident volunteers are asked to identify and evaluate any changes within the community, especially towards the goal of alleviating poverty. At the barangay level, communities then record the lessons gained and their recommendations for the next cycle. The results of this self-assessment are consolidated at the municipal level along with an assessment of the participation and engagement of the municipal local government unit (LGU). The findings are then included in the preparation and conduct of activities in the next KC cycle.

Source: all text in this box is quoted directly from DSWD, 2012.

KC was implemented at the municipal level, and selection was based on poverty levels. (See Section 2.1 for more information on eligibility and selection.) Each municipality includes many barangays, the smallest unit of government. Eligible municipalities have on average 24 barangays and 30,305 residents. All barangays in each participating municipality were invited to participate in the first three of five CEAC stages, which focused on training. Thereafter, all of these barangays, in a process led by resident volunteers, were invited to propose infrastructure or services subprojects focused on meeting poverty reduction goals. (The list of eligible subprojects is in Box 1.3.) Barangay teams presented these proposals at the municipal level, and representative teams from each barangay in the municipality voted for the subprojects they deemed most deserving of funding. Subprojects were given scores based on the voting. Funds were designated to the barangays according to their scores until the municipal allocation, PHP 450,000 (about US\$11,250) times the number of barangays in the municipality, was exhausted. Due to this process, roughly one-third of barangays in KC municipalities received subprojects in a given year, although some barangays received multiple subprojects across years and others none.

Box 1.3: List of subprojects KC barangay residents could propose under KC ³
Road
Footbridge/small bridges
Access trail / Footpath
School Building
Water system
Health Care Center
Electrification
Day Care Center
Tribal housing/shelter
Community transport
Economic/livelihood support (training/trading center, market, miniport/wharf)
Multi-use building/facility
Small scale irrigation
Drainage structures (culverts, overflow, spillway)
Environmental preservation (artificial coral reef/ marine sanctuary)
River control/flood control
Pre and post-harvest facility
Community Economic Enterprise Training, Equipment & Materials Support subprojects

³ This list of subprojects classification was done exclusively for KC funded by MCC. There is a slightly different classification for KC NCDDP that we will discuss below. This list is not exhaustive. Projects are listed loosely from top to bottom in the order of most common to least common.

Feasibility Study
Skills Training and Capability Building subprojects
Sanitation facilities (toilets, solid waste management system)
Sea wall
Soil protection (riprap/slope protection/protection railing)
Eco-tourism
Lighthouse

As mentioned above, KC is implemented at the local level by DSWD. The Millennium Challenge Account-Philippines (MCA-P) is the implementing entity in the Philippines, established by the Government of the Republic of the Philippines (GRP) with support from MCC, and the main point of contact supporting DSWD in implementation. Building on an earlier phase of KC from 2003-2009 that targeted the poorest communities across the Philippines, GRP expanded KC in 2011. Financing for this second phase was provided by the World Bank (a US\$59 million loan) and the MCC (a US\$120 million grant), with MCC funding the Visayas and Luzon island groups and the World Bank funding KC in Mindanao.⁴ (The World Bank’s support of KC in Mindanao is also known as Pamana.) In addition to international funders, local governments (region, municipality, and/or barangay) contributed at least 30 percent of costs of the KC subprojects implemented in their areas, in cash or in kind.

From 2011 to 2016, KC provided training and grants to 336 municipalities as detailed in Table 1.4, including 160 municipalities and 3,764 barangays funded by MCC. The total number of estimated individual KC beneficiaries supported by MCC is 5,215,000 (Millennium Challenge Account-Philippines – MCAP, 2016).

Table 1.4: KC funding sources, duration of funding, and areas covered				
Funding source	Duration	# of covered municipalities	# of covered barangays	# of barangays in evaluation sample
World Bank	2011 – 2014	176	4,058	38
MCC	2012 – 2016	160	3,670	160
Total	2011-2016	336	7,728	198

KC ended in late 2016, but its successor, the KC-National CDD Program (KC-NCDDP) is still ongoing. KC-NCDDP was designed to be very similar to KC, with a few modifications to support community-driven post-disaster response and development. Specifically, in addition to

⁴ Municipalities in Mindanao received fewer KC cycles because security concerns slowed implementation.

subprojects that are traditionally eligible under KC, subprojects eligible for funding under NCDDP also include shelter and resettlement. Activities such as the social preparation and subproject implementation under the first KC-NCDDP cycle lasted 19 months for Typhoon Yolanda⁵ affected municipalities and 14 months for unaffected municipalities. The total cost of KC-NCDDP is 43.9 billion PHP (approximately US\$ 985 million), with 19.4 billion PHP from the World Bank, 15.1 billion PHP from the Asian Development Bank and 9.4 billion PHP from the Government of the Philippines (DSWD, 2016). KC-NCDDP covers a total of 847 municipalities with a combined total of 19,657 barangays located in 58 provinces and 14 regions, covering approximately 5.3 million households. KC-NCDDP overlapped with KC starting in June 2014. See more below in section 2.4 on the implications of KC-NCDDP's implementation for the impact evaluation.

1.3 What does the literature say about CDD and its effects?

A dozen years ago, almost no rigorous evaluations of CDD programs such as KC existed, despite widespread implementation of such programs (Mansuri and Rao 2004). Since then, a number of studies in different parts of the world have used rigorous experimental and quasi-experimental designs to assess the impacts of CDD programs on socioeconomic welfare (including access to various services), governance, and social capital or cohesion (see, for example Fearon, Humphreys, and Weinstein 2008 ; Casey, Glennerster, and Miguel 2011a; Beath, Christia, and Enikolopov 2012 ; Barron et al. 2009 ; Humphreys, Sanchez de la Sierra, and van der Windt 2012; Avdeenko and Gilligan, 2015) and some are ongoing (Beath, BenYishay, d'Adda, Grosjean, & Weber, 2017).

Across these existing studies, positive effects in the socioeconomic domain, broadly conceived, are most common, although far from guaranteed or uniform. For instance, in Indonesia, Olken et al. (2014) find health and education improvement—most significantly school enrollments, frequency of weight checks for young children, and malnutrition—resulting from the *Generasi* block grant program. In a 2012 review of CDD interventions by the World Bank, Wong found that there is generally robust evidence for improved access to services such as education and water, and, where expected, some improvements in economic welfare.

While a generalized theory of change for CDD would hold that improved socioeconomic welfare, governance, and social cohesion—commonly the three outcomes of interest—are mutually reinforcing (King 2013), this is not supported by existing evidence. Drawing on a broad review of participatory development projects and approaches, Mansuri and Rao (2013) point to often disappointing results of participatory projects designed to build long-term improvements in governance or social cohesion. In a synthetic review of CDD and community-driven

⁵ Typhoon Yolanda (Haiyan) struck the Philippines on November 2, 2013. It is the deadliest typhoon on record in the Philippines and killed over 6,000 people. KC and NCDDP were utilized to assist municipalities affected by the typhoon.

reconstruction (CDR) evaluations in conflict-affected contexts, King wrote that “[a]s currently designed, implemented, and evaluated, CDD/R [community driven development or reconstruction] is better at generating more tangible economic outcomes than it is at generating social changes related to governance and social cohesion, although even economic effects are found in just a few studies” (2013, p.3). Moreover, reviews also show that CDD is generally more successful in producing outcomes directly related to the project as opposed to “durable and transferable change in attitudes and behavior” (King and Samii 2014, p.72) beyond the duration or scope of the project (King 2013, Mansuri and Rao 2013).

In the Philippines, Labonne and Chase (2011) studied the effects of the first phase of KC on social capital in particular using a design that matched eight treatment municipalities with eight control municipalities composed of a total of 66 treatment and 69 control barangays. The authors conducted their survey after treatment communities had received the social preparation phases of CEAC and one third of treatment communities had received subprojects. Labonne and Chase investigated a variety of dimensions of local government participation and community characteristics but did not study socioeconomic welfare, including access to services. Their results show positive effects on an index intended to measure “formal social capital”, including increases in the number of barangay assemblies and the number of residents participating. The researchers also found negative effects on “informal social capital” including participation in *bayanihan* (voluntary collective action) and group membership, leading the authors to suggest that the time spent in barangay assemblies may have substituted for participation in groups (2011, p. 356). Having focused largely on what might be called outputs and short-run outcomes, the authors suggest that “it would be interesting” to explore more durable and transferable change, for instance, “to assess if, in light of the benefits associated with the project, municipalities adopt the CDD approach in allocating some of their resources” (2011, p.357). In this study, we focus on short-run outputs, outcomes, and longer-term outcomes.

The existing body of research leaves open a number of possible explanations for the mixed, and oftentimes disappointing, outcomes of CDD projects and opens many avenues meriting further consideration. These include questions of implementation strength and integrity, program design (length of project, size of grants, quality and intensity of training, structure of local governance and integration with higher levels of government, etc.), and evaluation strategy (King 2013). Regarding evaluation strategy, even among randomized control trial evaluations, one might ask numerous questions of the existing body of research.

First, while a number of strong studies are based on household surveys, an important trend is a move towards the inclusion of real-world behavioral activities that may better capture behavior than self-reports. For example, in a CDD study in Sierra Leone, researchers implemented a “Structured Community Activity” (SCA) that permitted direct participant observation of community members engaged in a concrete, real world activity such as deciding what to do with a gift or small grant. Since the activities are standardized across communities, researchers can observe the way different communities handle the same decision or opportunity (Casey,

Glennerster, & Miguel, 2011a). Similar behavioral assessments have been conducted in program evaluations in a range of countries, such as the Democratic Republic of Congo (Humphreys, Sanchez, & van der Windt, 2012) and the Solomon Islands (Beath, BenYishay, d’Adda, Grosjean, & Weber, 2017).

Second, a number of analytical strategies open possibilities to improve on early studies. For instance, there is an emerging best practice in the use of indexes rather than a battery of individual measures (Casey, Glennerster, and Miguel 2011b; Fearon, Humphreys, and Weinstein 2008, 36; Fearon, Humphreys, and Weinstein 2014). Related, there is a growing best practice of developing and registering pre-analysis plans (see Humphreys, de la Sierra & van der Windt, 2013). Finally, while the dominant approach to analysis is to focus on average treatment effects, heterogeneous effects may complicate findings and the implications thereof. For instance, in Indonesia, Voss (2008) found substantial gains in per capita consumption and access to outpatient health care as a result of the program, but much smaller or insignificant gains for female-headed households and other disadvantaged groups. In a study of an NGO-implemented CDD intervention in the Democratic Republic of Congo that found largely no or weak effects, the authors write that “it is...possible that there are positive effects for some and negative effects for others, with small or no effects on average” (Humphreys, Sanchez de la Sierra and van der Windt 2012, p. 74).

While the study of CDD and knowledge surrounding it has come a long way, there is still much that can be investigated further. This impact evaluation of KC endeavors to contribute to the informed policy development of KC and other CDD projects and to the literature on the different socioeconomic, governance, and community empowerment impacts that CDD programs may have in the communities where they are implemented. Wherever possible, it attempts to address shortcomings and build on developing best practices in evaluation design.

2. Randomization and Implementation

This impact evaluation uses mixed methods, combining a randomized control trial design with quantitative behavioral and observational data and qualitative research to undergird and offer explanations for key findings. At the early stages of KC, DSWD had insufficient funding to implement KC in all municipalities that may have benefited from it. Given this resource constraint, MCC and IPA supported a lottery that randomly selected beneficiary municipalities among those that met DSWD's eligibility criteria. While providing fairness and transparency to communities, this feature also provided a unique opportunity to rigorously evaluate the KC program by randomly assigning eligible municipalities into treatment and control groups.

2.1 Eligibility for random assignment and selection for KC

DSWD, MCC, and IPA collaborated to carry out a series of public lotteries across the Philippines in May and June 2011 to determine which municipalities would participate in KC and this associated evaluation, and which would not, enabling the latter to serve as comparison communities (the lotteries were carried out by HGM Management and Technologies, Inc., hired by MCC).

The randomization and eligibility process was carried out in the following manner (see details in Beatty et al. 2013): DSWD set municipal eligibility criteria principally based on poverty levels and prior experience with KC. Within 48 of the country's poorest provinces targeted by KC, municipalities with a poverty incidence of 70 percent or more automatically received KC, while municipalities with a poverty incidence of less than 33 percent were ineligible. Thus, municipalities with poverty levels between 34 and 69 percent were selected for participation in KC via lottery. DSWD only granted KC funding to half of the municipalities in the province minus one, which meant that if a province included many municipalities with a poverty incidence of 70 percent or more, all of the eligible funding may have been taken up by municipalities who were guaranteed KC funding, leaving no funding for the municipalities between 34 and 69 percent poverty. So, for each province, the number of funding slots available for the municipalities that entered a random draw to receive KC was determined by the 50 percent minus one rule, minus the number of municipalities that automatically received the project. This means that the probability of being selected for KC differed by province. Prior participation in KC also affected eligibility. Municipalities were excluded from the evaluation sample if they received funding during the earlier round of KC (2005-2009).

The combination of these criteria left 313 municipalities in 26 of the 48 provinces targeted by KC eligible for random selection into the project and impact evaluation study. These municipalities stretched across the three main island groupings of the Philippines (Luzon, Visayas, and Mindanao).

Initial power calculations (detailed in Beatty et al., 2013) determined that a sample of 99 "treatment" municipalities (those participating in KC) and 99 control municipalities was

necessary in order to statistically detect the impacts expected by MCC prior to its investment. These expected impacts were laid out in MCC's ERR calculations and primarily centered on an expected eight percent change in income among households in participating municipalities due to KC. The target evaluation sample was thus set at 198 municipalities, split evenly between treatment and control groups.

The 313 municipalities that were candidates for KC were invited to participate in public lotteries to receive the KC program (or "treatment") and be included in the evaluation. HGM Management conducted the selection events, organized by province, in eleven different locations to minimize travel distance and time for municipal mayors or their representatives. The final inclusion criterion in the evaluation sample was the municipal mayors' expression of interest and presence during the municipal selection event for each province. Out of the 313 municipalities invited to participate in the lotteries, 23 either chose not to participate or were disqualified for not sending a mayoral representative to the municipal selection event. Thus, the final evaluation sample frame included 290 municipalities.

Just prior to each lottery (and not beforehand, so as to only include municipalities that had authorized representatives present), the IPA team matched municipalities within each province in order to ensure basic comparability of what would ultimately become treatment and control communities. The matching was conducted based on four variables: (i) poverty incidence, (ii) population, (iii) land area, and (iv) number of barangays. Municipal poverty incidence was included because it is a key variable determining project eligibility and an outcome of interest. The number of barangays was incorporated because grants are made and subprojects are implemented at the barangay level. Population and municipality land area were included because they are factors in determining the Internal Revenue Allotment (IRA) of a municipality, which largely determines the financial resources available to the Local Government Unit (LGU) and affects counterpart contributions that must be made to the implementation of KC in the municipality.⁶

The randomization events produced a sample of 198 municipalities (99 pairs). Of the original 99 pairs selected for the impact evaluation sample, one pair was dropped because the treatment municipality was unable to provide the counterpart funding required by KC. The dropped pair was replaced with another pair in a manner consistent with the randomized design and in

⁶ A minimum of 30 percent of the total project cost comprises local counterpart contributions from the community, local government units, congresspersons, non-governmental organizations, and other stakeholders for the implementation of the project. The local counterpart contributions can come in two types: contributions for Capacity Building and Implementation Support (CBIS) and contributions for subproject implementation (SPI). The local counterpart contribution for SPI can be in the form of cash or in-kind.

advance of the baseline data collection. The baseline report provides additional details on the dropout pair and its replacement (Beatty et al., 2013, p.20).

2.2 KC implementation

In this section we offer a general overview of implementation progress through October 2015, the end date of our data collection. Overall, KC was successfully executed and barangay residents were satisfied with the project.

Table 2.1 shows the types of KC subprojects completed in our sample and in all the KC areas at the national level. The evaluation’s 99 treatment barangays completed a total of 82 subprojects (spread over 62 barangays, with 12 barangays completing two subprojects and four barangays completing three). Both in the evaluation sample, and across all KC areas nationwide, the most common types of subprojects were roads, flood prevention measures, school buildings, and access trails and footpaths. As discussed in further detail below, 7 control barangays completed subprojects.

Table 2.1: Subprojects completed by type			
Subproject type	Evaluation Sample		All KC areas
	Treatment Bgys (n=82 SPs)	Control Bgys in (n=7 SPs)	All (n=15,760 SPs)
Flood Control / River Control (including Box Culvert/Drainage/Canal)	17 (21%)	0	15%
Road	13 (16%)	0	21%
School Building	13 (16%)	0	11%
Access Trail / Footpath	11 (13%)	1 (14%)	11%
Water System	9 (11%)	2 (29%)	7%
Day Care Center	6 (7%)	0	8%
Economic/Livelihood Support	4 (5%)	0	N/A
Electrification	2 (2%)	3 (43%)	7%
Health Care Center	2 (2%)	0	5%
Post-harvest Facility	2 (2%)	0	4%
Foot / Small Bridge	1(1%)	0	2%
Capability Building / Training / Feasibility Studies	1 (1%)	0	1%
Boat	1 (1%)	0	0%
Community Center / Multi-Purpose Building	0	1 (14%)	4%
Training & Learning Center / Facility	0	0	1%

Source: DSWD, Evaluation sample data from KC Area Coordinating Team (KC ACT) datasets. Data from DSWD’s KC project monitoring database, 2011-2015.

As assessed by targets set by DSWD and MCA-P, KC implementation fared very well. The MCA-P monitoring and evaluation plan set out the five key performance indicators for KC: the percentage of municipalities that provided their KC local counterpart contributions, the number of subprojects completed with 100 percent physical accomplishment, and the number of barangays that completed social preparation, environmental management, and gender training. DSWD exceeded all targets (MCC, 2016). Moreover, we calculated the performance of KC on several indicators outlined in Appendix B of the MCA-P M&E Plan. These indicators and results are found in Appendix 3.

2.3 Non-compliance of the treatment group

There were four municipalities assigned to the treatment group that did not comply with the randomization and thus did not participate in the KC program. The reasons for non-compliance were inability to raise counterpart funding (two municipalities) and governance issues such as conflict (two municipalities). In these cases, we continue to conduct intention-to-treat analysis and include these municipalities (and their paired control municipalities) in our evaluation sample.

2.4 Non-compliance of the control group

There was also some non-compliance in the control group. Four municipalities originally assigned to the control group were nonetheless allocated funding by DSWD as part of the initial KC allocation. As in the case of non-compliance with treatment group assignment, we continue to conduct intent-to-treat analysis using the original group assignment as an indicator for treatment.

In addition to control non-compliance, there were two external threats to the validity of our study with regard to potential contamination: the Bottom-up Budgeting (BUB) Program and KC-NCDDP. These two new initiatives, which the GRP rolled out over the course of this evaluation, have aims and features similar to KC.

First, BUB aims to encourage municipalities to produce annual development budgets through greater barangay-level engagement. Because budgeting and planning are also an objective of KC, we were concerned that BUB could be a KC-like intervention. However, we find that the BUB implementation process and goals somewhat different from KC. The primary reason BUB is not like KC is that subproject prioritization and implementation takes place at the municipality level, while in KC the decision-making process is done at the barangay level. In BUB, unlike KC, civil society organization (CSO) representatives participate at the municipal-level in a local poverty reduction action plan workshop to identify poverty reduction projects. Once CSOs prioritize projects, municipalities request funds for these projects, and they are funded through the budget of relevant national government agencies, or through other mechanisms. Moreover, unlike KC, the community does not implement the project. Instead, the national government agency or the

municipality bids out project implementation (DBM-DILG-DSWD-NAPC, 2012). (Note that average BUB annual allocation is equivalent to average KC annual allocation.)

Data from the Department of Interior and Local Government (DILG) show that the BUB intervention (which refers to the process of planning, mobilization and selection of CSOs, and implementation of subprojects) started in 2012, and all the treatment and control municipalities received BUB during the third round of data collection for this study. The third-round data analysis indicated that BUB was implemented at similar funding levels in the evaluation sample’s treatment and comparison groups. (See Table 2.2 below.) Thus we do not deem BUB to be a significant threat to the validity of this study.

Table 2.2 Amount of BUB funding received by treatment and control municipalities (PHP, USD)		
Year	Treatment Group	Control Group
2013	10,302,191 201,204	9,728,509 189,846
2014	12,400,114 241,981	12,360,243 241,283
2015	10,010,368 195,411	11,267,105 220,007

Source: KC third round municipal survey. In 2012, only 5 treatment and 4 control municipalities received BUB funding. Statistical tests of the differences between the treatment and control group means indicate that these differences are not distinguishable from zero in any of the three years.

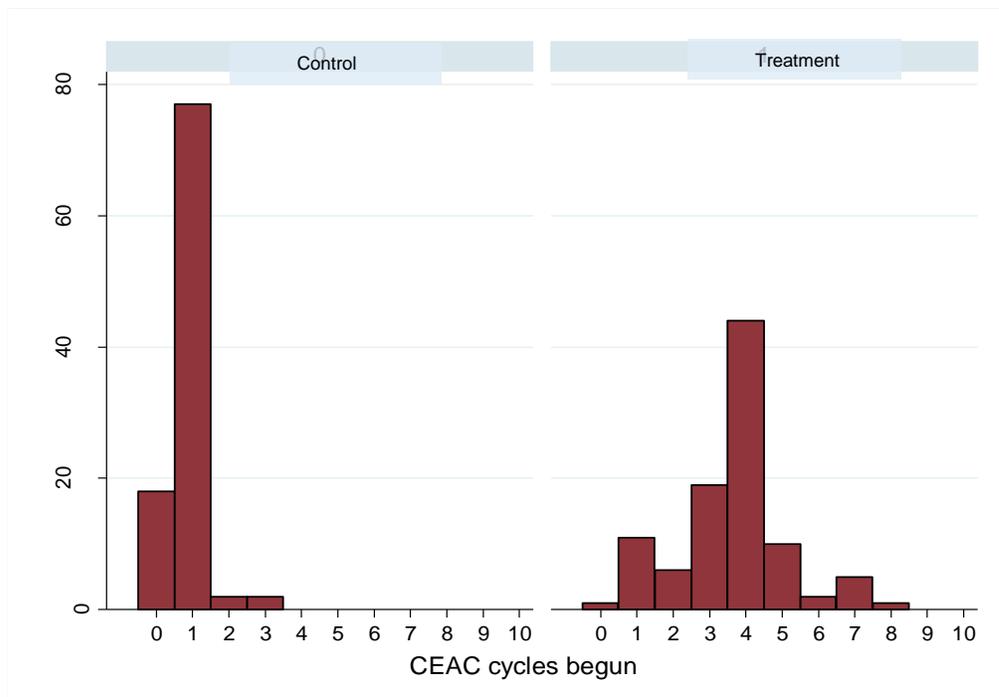
Second, and more significantly, in June 2014 (several years in to the implementation of KC), the GRP officially launched KC-NCDDP. This nationwide scale-up of KC included treatment and control communities in the evaluation sample, potentially confounding treatment effects and altering the evaluation results. At the time of the third round data collection that informs this report, 88 of the 99 treatment group municipalities were also served by KC-NCDDP, while 79 of the 99 control group municipalities were affected. However, large differences in the duration and extent of overall treatment by either KC or KC-NCDDP remained across the treatment and control groups. Treatment group municipalities had, on average, initiated four CEACs (three funded by KC, one by KC-NCDDP). By contrast, control group municipalities had initiated only one cycle, on average (the cycle funded by KC-NCDDP). Figure 2.1 below shows the extent of treatment under these modalities across these groups.

We thus re-cast the non-compliance in our control group as a result of KC-NCDDP as a dose-response comparison, assessing differences between the treated group and the partially treated

comparison group. This requires us to make adjustments in our analytical approach, as detailed in subsequent sections.

For our research design, we primarily rely on the differences in the average number of CEACs initiated as a summary measure of the extent of treatment. The difference in the averages reflects more extensive differences in the fuller distribution of CEAC initiation, as shown below. While there is somewhat more variation in the number of CEAC initiated in the treatment group than in the control group, this is an expected feature of most programs.

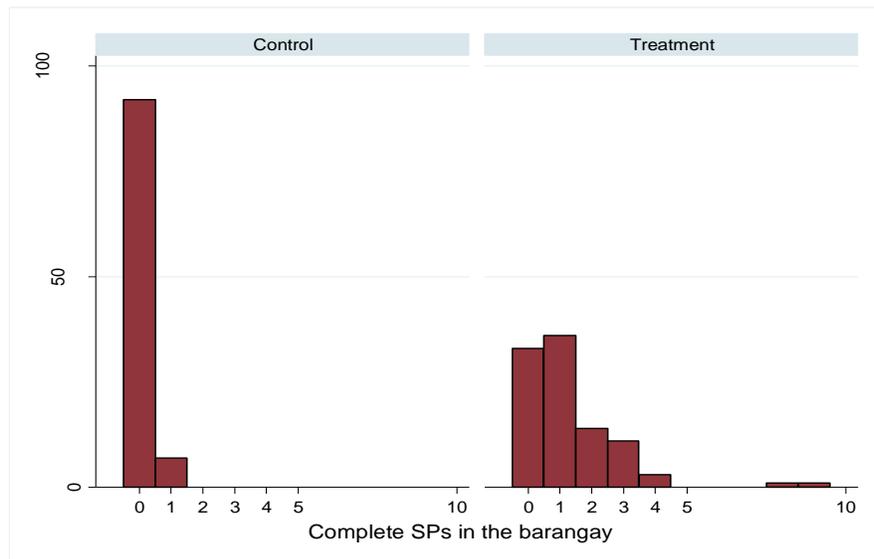
Figure 2.1: By the third round of data collection, many control barangays had started their first CEAC, but there remained a large difference in the number of CEAC cycles initiated in treatment communities.



In addition to the initiation of CEACs as a measure of treatment, we also consider the number of subprojects completed, since these are the channels through which many of the socioeconomic outcomes may arise (we detail the related theory of change and hypotheses in the following section). Seventy percent of barangays in the treatment group completed one subproject or more at the time of the third-round survey. Fewer than 10 percent in the control group had done so. In addition to this difference in the share of barangays that have any completed SPs, we observe important differences in the fuller distribution of the number of SPs completed, as shown in Figure 2.2 below, with treatment barangays more likely to complete multiple SPs than control barangays. Moreover, the cost for these completed SPs in treatment

barangay averaged 1.1M PHP, slightly more than the 840,000 PHP average cost in the seven control barangay subprojects. This confirms the differences in the extent of treatment along multiple dimensions in our evaluation sample.

Figure 2.2: By the third round data collection, very few control barangays had completed SPs

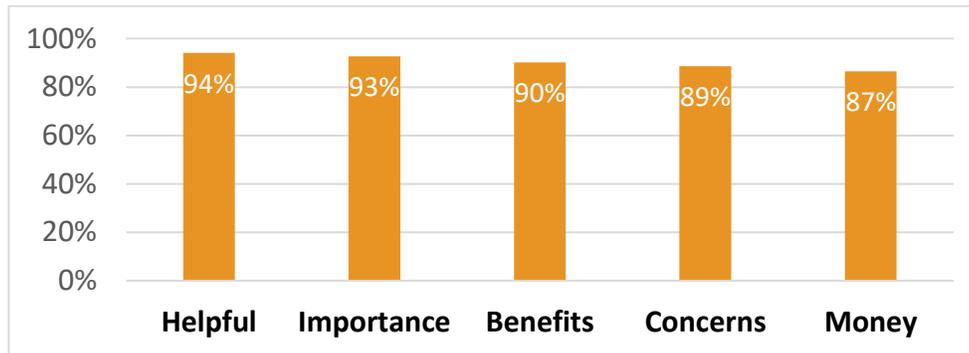


2.5 Project satisfaction among participants

We assessed how households in KC-participating municipalities viewed their own experiences with the project. In the third round, we asked respondents in treatment municipalities a series of questions about their perceptions of how KC benefited their community and how they felt about the process. Overall, the responses to these questions indicated general satisfaction with KC. Here, we describe these responses without causal attribution or comparison with experiences in control municipalities.

Many of the questions were phrased in the negative, so for example asking respondents for an agree or disagree answer to the statement “projects selected through KC weren’t the most important ones for my barangay,” and overall there was strong support for KC, as shown in Figure 2.3.

Figure 2.3: Overall respondents indicated high levels of support for KC



When asked if they perceived KC as helpful, harmful, or neither helpful nor harmful, 94 percent of respondents reported it was helpful. Ninety-three percent of respondents disagreed with that statement that projects selected through KC weren't the most important; 90 percent disagreed that projects selected through KC did not benefit many people in the barangay; 89 percent of respondents disagreed that KC didn't reflect their personal concerns; and 87 percent of respondents disagreed with the statement that KC subproject funds weren't spent well. The perception that the subprojects selected under KC were reflective of community needs is consistent with the findings below under Hypothesis 5 about the correspondence between baseline project preferences and actual subproject implementation.

Despite the strong support for KC, when asked about the comparison between KC and the standard municipal-level implementation, most respondents (52 percent) felt that projects implemented by the municipality or other government agencies reflected respondent concerns and interests as well as KC and were as well implemented. About 33 percent of respondents reported that KC was superior in terms of reflecting interests and quality of implementation.

The main criticisms of KC centered on the time burden of the process. When asked to rank their most serious concerns about KC, speed of the process was the most frequently ranked top concern (identified by 31 percent of respondents). When asked whether they agreed or disagreed with the statement that the whole KC process was too slow, 45 percent of respondents agreed and 52 percent disagreed. The second most commonly reported concern was that KC staff assigned to the barangay were not competent; but when asked if the staff working in the barangays on KC were not competent, only 24 percent reported yes and 71 percent reported no. Similarly, when asked whether the KC process was too much of a burden, 86 percent of respondents said no while only 11 percent of respondents reported yes.

Likewise, during the qualitative focus groups, while participants shared few negative thoughts on KC, the most commonly mentioned critical response was in relation to the arduous bureaucratic nature of the project and the consequent delays in project implementation. However, participants generally recognized the trade-off to ensure transparency. In two of the 12 barangays that we visited for the qualitative research, specific local dynamics resulted in

problems with KC. In one barangay, the subproject remains unfinished and unusable because, according to FGD participants, the barangay council used the subproject funds and some materials from the municipal government for their own purposes. In another, the barangay members lamented frequent turnover of DSWD facilitators and the consequent insufficient facilitation in the early stages of CEAC. Overall though, participants report to have been very satisfied with KC and its implementation.

3. Theory of change and hypotheses

We developed research hypotheses based on KC's goals: "(a) reduced poverty; (b) improved participatory local governance; and (c) improved social capital" (detailed in DSWD, 2012). The logic underpinning these priorities is cited in Box 1.1. Simultaneously, we considered a generalized CDD theory of change (King and Samii 2014), deemed suitable based on our research team's interactions with DSWD, MCA-P, and MCC, that focuses first on outputs and outcomes directly related to KC, then expands to examine wider community-level changes beyond KC. Moving beyond KC, "it is assumed that with empowered communities and improved local governance, development projects implemented by communities will be relevant, successful and sustainable. [...] With reference to Kalahi-CIDSS, viability and sustainability reflect the capacity of community projects to continue to deliver intended benefits over a long period beyond the life of the project" (DSWD, 2012).

We group hypotheses into three domains:

1. **The socioeconomic domain** considers impacts related to economic welfare improvements resulting from the implementation of KC subprojects in the community;
2. **The governance domain** considers the changes in awareness of, participation in, and responsiveness of local governance caused by the KC experience;
3. **The community empowerment domain** explores changes in community interactions and collective action caused by KC.

The procedures we use to test each hypothesis are specified in a registered pre-analysis plan.⁷ We hypothesized that based on the program logic, the changes described in Table 3.1 could materialize over the course of the three rounds of KC, with the exception of those marked "longer-term outcomes" or LT. The time between the implementation of KC and the third round of data collection may not have been sufficient for LT hypotheses to materialize. As such, we specified in our pre-analysis plan that should our estimates indicate no statistically significant

⁷ Available at <https://www.socialscicenter.org/trials/171/history/13679>

differences between treatment and comparison groups for the LT hypotheses, we would not interpret this as a shortcoming of the program to achieve expected improvements.

Table 3.1: Research hypotheses tested for the KC evaluation, by domain

Socioeconomic domain

	Indicator and index components
H1a	SPs improve access to related key services
H1b	Roads SPs reduce agriculture, fisheries and livestock transport costs
H1c	Roads SPs improve productivity in agriculture, fisheries, and livestock sectors
H1d	Daycare SPs increase daycare enrollment and female labor market participation
H1e	School SPs increase school enrollment and improve student/ teacher ratios
H1f	Health SPs increase visits to health facilities and adult labor force participation
H1g	Health SPs improve prenatal and birth services
H1h	Water SPs reduce time and costs spent obtaining water
LT1	KC raises household consumption and asset holdings
LT2	KC raises household labor force participation and earnings

Institutional domain

	Indicator and index components
H2	KC increases quantity and quality of participation in local governance around decision-making and implementation related to KC activities
H3	KC increases quantity and quality of participation in local governance around decision-making and implementation beyond KC activities
H3a	KC increases participation in and knowledge of formal structures beyond KC
H3b	KC improves barangay information sharing and inclusiveness beyond KC
H3c	KC increases confidence and self-efficacy beyond KC
H4	KC increases knowledge and awareness of local governance
H5	KC improves degree to which barangay projects correspond to ex-ante preferences
LT3	KC improves perceptions of local governance
LT4	KC raises capacity of barangay government

Community empowerment domain

Hypothesis and index components	
H6	KC increases interactions among peers
H7	KC increases participation in community organizations
H8	KC improves how well communities deal with natural disasters and other hardships

There are several subgroups of particular interest to the project funders and implementers. In its aim to “empower local communities,” KC holds that “[v]ulnerable groups like the women, Indigenous Peoples, farmers, fisher folk, and communities in conflict are given priority by including them in the decision-making process especially on matters pertaining to allocation and use of resources” (DSWD, 2012). In consultation with DSWD, we pay special attention to the effects of KC on Indigenous Persons, women, and households classified as poor and include these subgroups in our analysis.

4. Overview of data sources

In order to assess the impact of KC on these outcomes, this evaluation draws on six primary and secondary data sources: a quantitative household questionnaire, a quantitative barangay questionnaire of the barangay captain or other relevant official, a mixed qualitative and quantitative municipal questionnaire, a mixed qualitative and quantitative KC Area Coordinating Team questionnaire, a Structured Community Activity, and a range of qualitative data collection efforts with barangay members. Table 4.2 below provides an overview of instruments, research type, and dates for each round of data collection. The IPA team designed the instruments with input from MCC, MCA-P and DSWD, and shared oversight of data collection with MCA-P.⁸

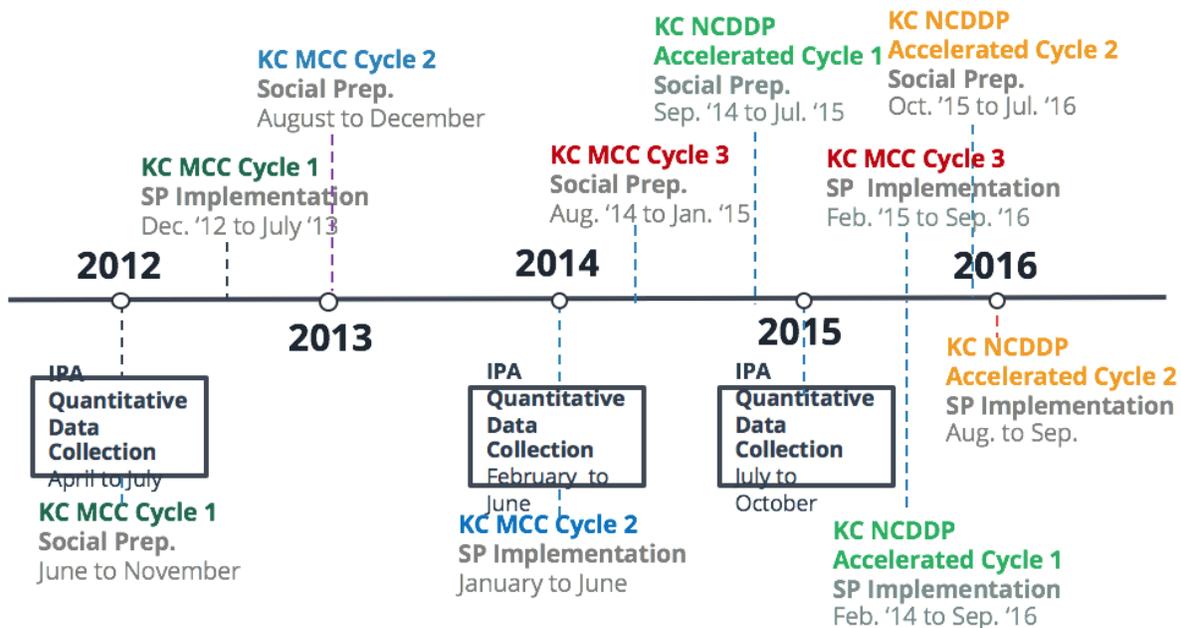
⁸ At baseline, Sustainable Development Solutions (SDS) carried out the quantitative data collection (household and barangay surveys). Cristina Lim and Clarence Pascual from the Ateneo Social Science Research Center at Ateneo de Naga University conducted the qualitative data collection. Katie Degendorfer helped with analysis. Social Weather Stations (SWS) carried out the interim and third round quantitative data collection activities (household, barangay surveys and SCA). SWS also conducted the Barangay Assembly observations at interim. Aries Arugay, from University of Philippines, undertook the third round qualitative fieldwork with the assistance of Aletheia Valenciano. Dr. Arugay’s findings are incorporated into this report; he did not produce a separate published report.

Table 4.2: Overview of quantitative and qualitative data collection instruments and data collection timing

Data collection round	Instrument	Data type	Dates
Baseline	Barangay survey	Survey; self-reported quantitative	April-June 2012
	Household survey		
	Key informant interviews with barangay and municipal officials	Qualitative	April-May 2012
	Focus group discussions with barangay residents		
Interim	Barangay survey	Survey; self-reported quantitative	February-June 2014
	Household survey		
	Structured Community Activity	Observational, qualitative and quantitative data	March-April 2014
	Barangay Assembly Observations	Observational, qualitative and quantitative data	
Third round	Barangay survey	Survey; self-reported quantitative	July-October 2015
	Household survey		
	Structured Community Activity	Observational, qualitative and quantitative data	
	KC Area Coordinating Team survey	Qualitative, quantitative and secondary data	
	Municipal survey		
	Focus groups with KC volunteers and barangay residents	Qualitative	

Figure 2.1 presents a timeline of data collection activities and KC implementation from April 2012 (start of IPA quantitative data collection) to September 2016. At the time of the third round fieldwork, treatment areas had just completed their third round of KC. Some treatment and control areas had also had one round of KC-NCDDP. Note that Typhoon Yolanda took place in November 2013, prior to both the interim and third round surveys. Our results thus reflect approximately four years of project implementation, and we have focused our analyses on outcomes linked to the project’s theory of change that could have plausibly materialized over this timeframe.

Figure 2.1: Timeline of data collection activities and KC implementation (April 2012-Sept 2016)



Social Preparation: Community volunteers receive 6-month training on subproject proposal preparation from DSWD facilitators.

SP Implementation: The funded barangays start implementing the subprojects including the construction and maintenance of public infrastructure.

4.1 Household and barangay surveys

All three quantitative household survey rounds were very similar in terms of questionnaire content and drew on the same pool of questions. The survey content is the basis for testing our research hypotheses discussed above, and thus focuses on questions related to socioeconomic status (e.g., consumption, assets, employment, dwelling attributes), service access and travel time, household participation in government and non-government groups and meetings, impressions of government quality, inclusion and responsiveness, individual feelings of

confidence and self-efficacy, knowledge and awareness of local government, individual priorities for local projects, perceptions of barangay government effectiveness, frequency of peer interactions, and responses to natural disaster and hardship. The baseline and third round surveys were nearly identical, with some minor changes in questions about KC implementation. The interim included a smaller set of questions focused on governance, empowerment and community participation that were largely identical to the baseline questions. We focused on the smaller set of questions at interim because these indicators were expected to materialize over a shorter timeframe than, for example, the questions about consumption or employment that we included in the third round. This also saved cost and minimized respondents' time burden.

The survey was targeted at the head of household, and, in cases where this person was not available, another person in charge of managing the household. For questions relating to perceptions and empowerment, half of the households in each barangay were randomly assigned a male target respondent and the other half were assigned a female target respondent. When this did not coincide with the principal survey respondent, a different respondent answered these survey sections. However, the survey firm Sustainable Development Solutions (SDS) did not implement this with integrity at baseline. (See more details in section 2.4.1 Attrition and replacements below.) It was implemented properly at interim and third round.

The main respondents for the barangay-level survey were barangay captains and other officials involved in barangay-level government. Similar to the household survey, the barangay survey asked barangay captains about their attitudes and experiences regarding socioeconomic conditions in the barangay (baseline and third round), governance, empowerment, and community participation in the barangay (all rounds). The survey also collected data on the barangay's budget and development projects, among other topics.

The barangays to be surveyed were selected randomly from within the municipality and households were randomly selected within sample barangays. At baseline we did not yet know which barangays in treatment municipalities would ultimately be selected to receive subprojects. In order to identify barangays to survey, we randomly selected one barangay within each of the 198 municipalities participating in the evaluation, with a weighted probability favoring barangays with the highest poverty rates, reasoning that they would be the most likely to receive a KC subproject as had been the pattern in the earlier phase of KC (2005-9), yet maintaining a representative sample. Within each barangay, 30 households were randomly selected from among all households to comprise a total of 5,940 households.

Because the outcome variables of interest in the interim data collection did not include income and consumption measures, the required sample size was considerably smaller. Power calculations indicated that a sample of 80 municipalities (40 treatment and 40 control) was sufficient to precisely identify impacts on governance outcomes of interest. The interim sample of 80 barangays, in 80 municipalities, was a subset of the baseline sample. To select the sample of municipalities for the interim data collection, IPA implemented a simple random sampling of

municipality pairs roughly proportional to the baseline sample for each island and with six municipality pairs from the baseline qualitative study. (See more below about the qualitative sample.)

4.2 Structured community activity and barangay assembly observations

During the interim and third rounds of data collection, we complemented surveys with SCAs, creating the opportunity to directly observe barangay decision-making processes in real-world settings. Each barangay in both the treatment and control groups was offered a small sum of money (PHP15,000, US\$350) and the discretion to use it to repair, maintain, or improve a local public building with the goal of comparing observed participation between the two groups. Presented as a thank you to the community for their participation in the survey, the community members were not prompted that this activity was also a data collection activity. The data collection teams observed the community members’ decision-making process and the outcomes of this activity and measured each community’s level of engagement, inclusiveness, and collective action.

Specifically, during the community meeting in which community members decided how to spend the funds, the field team collected quantitative data by capturing the type and quantity of interactions made by meeting participants. Box 4.1 summarizes the SCA process. The team collected two data points on each meeting participant’s interventions (the number of times people spoke) by having two field team members observe the same active meeting participants. Having two field team members collecting the data on the same group of respondents improved the reliability of the observational data collected. In order to best achieve accuracy, we took the average of the two data points for each person speaking. (The average inconsistency between the two data points was 0.8 interventions per person.) The field team also collected qualitative data by recording the content of interactions. At the end of the meeting, the field team collected some basic information about the project the barangay had chosen, including the materials they were planning to purchase, which building they would develop, how they would develop the building and who would be responsible for recording contributions.

Box 4.1: SCA process and implementation
<p>Process</p> <p>The SCA was conducted at the same time and by the same field teams implementing the quantitative surveys. Upon arriving in each barangay, the field supervisor informed the barangay captain about a PHP15,000 (US\$350) grant from IPA. The field supervisor explained that the funds were part of a research project on decentralized governance and development, intended to help policy-makers better identify and respond to the community’s priorities and needs, and that the research project also included surveys of households and barangay officials. The field supervisor told the community that the funds had to be used to repair, maintain, or improve a local public building, such as a school, health clinic, community hall, or</p>

other building open to all barangay residents. IPA would provide the barangay with PHP15,000 in credit at a hardware store selected by the community. These funds could only be used to purchase paint, wood, and/or ingredients for cement. The community needed to provide voluntary labor to complete the works, as well as contribute any additional materials or equipment needed. If the barangay captain agreed to participate, he/she had to organize a meeting in two days' time (from the day the field supervisor informed him/her about the project) open to all members from the community to attend and identify a project for using the small grant.

Implementation

On the day of the barangay meeting, the field team arrived at the meeting location early to begin taking attendance. From the start of the meeting to its conclusion, the team collected observational data on community member participation and decision-making. Prior to leaving the barangay, the field supervisor told the community that he/she would conduct a follow-up visit in two months. During the field supervisor's follow-up visit he/she verified project completion. Verification entailed visiting the project site, taking pictures and collecting data on project implementation including labor, materials and other in-kind contributions made by community members to the project. Follow-up visit data enables us to measure quantitative outcomes such as co-contributions to the project and project implementation quality and completion. These outcomes are important since collective action and contributions to community projects are intrinsically linked with community participation.

4.3 Qualitative focus groups and key informant interviews

At baseline, we conducted focus groups and key informant interviews to better understand how community members understood their situations as they related to the study's main outcomes of interest, giving them the opportunity to discuss and elaborate rather than being constrained by a survey's parameters. We also sought to understand how people understood key terms and measures from our quantitative study to improve our ability to assert that we were measuring what we believed we were measuring.

Research teams conducted 72 focus groups across a subsample of barangays in 24 municipalities (12 municipality treatment and control pairs) from the study's 198 municipalities. The qualitative sample covered 12 provinces (one pair per province) spread over the three island groups of Luzon, the Visayas and Mindanao, randomly selected to vary by poverty, land area, a series of measures for local government units, and their scores on the Local Governance

Performance Management System (LGPMS).⁹ The teams also collected data in its corresponding control barangay. In each barangay, there were three FGDs: one with male participants, one with female participants, and one with both male and female participants. Each focus group had an average of 15 varied participants and did not include barangay officials. Residents were asked their opinions on various topics including the socioeconomic and demographic characteristics of their communities, the quality, and practice of governance, the strength of their social networks and ability to use them to operate in the barangay, and others. Themes were addressed through discussions, individual and collaborative rating exercises, mapping and more.

Figure 4.1: Research tools from mixed focus groups at baseline



Source: Lim and Pascual 2012.

At the same time, researchers also conducted key informant interviews (KIIs) to get a sense of the perspectives of existing officials on issues within the communities. We ultimately interviewed 188 respondents with a breakdown of eight key informants (KIs), six municipal and two barangay officials per municipality. At the municipality level, the KIs were the municipal mayor, vice-mayor, representatives from the Municipal Development Council (MDC), municipal engineer (ME), municipal planning and development officer (MPDO), and municipal social welfare and development officer (MSWDO). At the barangay level, the KIs interviewed were the Barangay Captain (BC), and representatives of Barangay Development Council (BDC) if one existed. The total number of KI interviews (188) is slightly less than the targeted 192 since some

⁹ The LGPMS is a self-assessment and web-based development management tool for provinces, cities and municipalities capable of providing information on the capacities and limitations of LGUs in the delivery of essential public services. (DILG-National Capital Region website, 2017).

KIs were on official travel or vacation leave. The various interviews covered eight topics: socioeconomic and demographic characteristics, access to basic social services, participation processes in the barangay and presence of representation of organized sectors, project prioritization and budgeting, development projects, revenue, monitoring and evaluation, and peace and order.

In the third round, a qualitative team of two researchers conducted 28 focus groups in 12 barangays. The barangays in this sample were all KC treatment barangays funded by MCC that had received at least two rounds of CEAC and one subproject. The two researchers conducted all of the focus groups themselves, leading at least two focus groups in each barangay: one with KC volunteers and one with community members not directly involved in KC. As applicable, they conducted a third focus group with IPs. The focus groups aimed to answer six research questions (see Box 2.4) arising out of the interim data collection and to help explain emerging third round findings. It is important to mention the challenges of social desirability bias that the team experienced while conducting the FGDs: while the researchers made every effort to make clear that the qualitative work was only for research purposes, and that no KC or other funding decisions were contingent on participation in the FGDs or the opinions expressed therein, many of the barangays our team visited remained hopeful that they will continue to receive KC projects in the future.

Box 4.2: Third round qualitative research questions

1. Can we reconcile discordance between generally favorable baseline perceptions of and participation in barangay governance with important gaps in public good provision?
2. Are there specific mechanisms or measurement issues behind the first follow-up data collection findings that perceptions of commissions are higher in treatment barangays?
3. How can we explain the interim report finding that contributions to community decrease with treatment? Is this a substitution effect, as previous research finds?
4. Do residents report governance and participation gains from KC treatment that we may not have captured with the quantitative instruments?
5. What mechanisms underlie differential gains in barangays with indigenous persons (IP) present (found in the first follow-up data collection)?
6. What more can we learn about calamities (i.e. typhoon Yolanda) and our interim findings that Yolanda-affected treatment communities were better able to respond than Yolanda-affected control communities?

4.4 Quality control

IPA and our partners made every effort to produce the highest quality datasets possible, using consistent data quality assurance methods across all three survey rounds (see Beatty et al., 2013,

p.22). In brief, field supervisors from the survey firm Social Weather Stations (SWS) back-checked 10 percent of interviewed households and sent enumerators to redo surveys in cases where 30 percent of the answers were inconsistent. For the third round, IPA hired a team of nine survey observers to observe interviews and perform their own back-checks. Survey observers also observed SWS's implementation of the SCA. IPA staff and researchers also visited sites and provided oversight during the central training, surveying, and the implementation of the SCAs.

SWS performed data entry twice for the quantitative surveys and the SCA meeting quantitative data forms. The first data entry of the household and barangay surveys was performed in the field by field data editors who entered the data into an offline database. The first and second data entry of the SCA meeting quantitative data forms was performed in SWS' Manila office by data editors using the paper copies of the completed forms. The second data entry of the household and barangay survey was also performed in the SWS's Manila office. SWS implemented the same process for resolving discrepancies and cleaning the data as the baseline survey firm followed during the baseline. SWS submitted each data file to IPA for review. IPA performed data consistency checks on the data and then provided SWS with feedback on errors and other issues with the data to be remedied.

4.5 Attrition and replacements of households

Since the design of the evaluation is based on panel surveys at the household and barangay levels, SWS surveyed the same barangays and re-interviewed the same household as in the baseline. At interim and third round, in each barangay, attempts were made to re-survey all of the 30 households included in the baseline sample. IPA provided SWS with household tracking information collected at baseline in order to track any household no longer living in the same location. If a household no longer lived in the barangay but still lived within the municipality, SWS attempted to locate and re-survey the household. If the household had moved outside the municipality, SWS replaced the household with another, according to IPA's replacement guidance. The interim survey had a 6.3 percent attrition rate, which represents those households SWS was unable to re-contact during the interim data collection and who were randomly replaced with other households in the barangay. Likewise, the attrition rate between baseline and third round is 7.3 percent and represents the households that were randomly replaced with other households in the same barangay at the third round. The attrition rate between interim and third round is 0.3 percent. We did not experience any attrition with the SCA (since this was sampled at the barangay level). The qualitative research was not based on returning to the same communities at multiple time-points.

Within the sample households, SWS made every effort to re-contact the same respondents interviewed at baseline. This was especially important for the respondents of the governance and empowerment sections, who were randomly selected to achieve a gender mix. SDS, the baseline survey firm, only implemented the social network module (one small fraction of the governance and empowerment questions) using the designated gender respondent. At interim, SWS

attempted to identify these specific respondents and re-administer the rest of the governance and empowerment questions, but this was largely impossible. 82 percent of gender respondents match between interim and third round of surveys.

We used the analytic sample to assess whether attrition affected the comparability of treatment and control groups. These models had the same structural form as the models that were used to estimate impacts. We tested whether attrition rates and attriter characteristics are comparable across treatment and control status. To assess this comparability more formally, we re-estimated the baseline levels of outcomes across treatment and control groups across both attrited and non-attrited households via both seemingly unrelated regression (SUR) and ordinary least squares (OLS) specifications.

5. Analytical approach

In this chapter, we discuss our analytical approach and how we will present results shown in Chapter 6. Specifically, we discuss our intent-to-treat and treatment-on-the-treated estimates due to noncompliance; the dose-response analysis due to the fact that treatment and control barangays were exposed to the project with different intensities; how we analyze the impact of the project by the specific type of subproject a barangay received; and subgroup analysis.

5.1 Unit of Analysis

Our primary interest is in testing the effects of the KC program at the relevant unit of assignment, in this case the municipality. However, several factors lead us to analyze survey data at the household level: First, in order to maximize precision, we use baseline values as covariates at the household level whenever available. Second, because we consider within-barangay subgroups, we use data at the household level to construct these groups and analyze their differential impacts. When we use household-level data, we cluster our standard errors at the municipality level (the unit of assignment). In cases where hypotheses are entirely tested using barangay data, we use the barangay as our primary unit of analysis.

5.2 Intent-to-treat effects

Most of our hypotheses relate to the average treatment effects associated with a municipality's participation in KC (socioeconomic domain hypotheses are exceptions, discussed below). For these hypotheses, we estimate the average treatment effects across our full baseline sample. These should be interpreted as intent-to-treat (ITT) estimates due to two-sided non-compliance discussed in section 2.4. Moreover, among those municipalities receiving treatment, all of our sample barangays will have completed the initial phases of CEAC known as "social preparation," but only a portion will have received funding for their requested subprojects. The ITT effects across our full sample should thus be interpreted as averaging the effects across these sets of barangays, irrespective of whether a subproject was funded and, in cases where

subprojects were funded, which type. (Below, we discuss the subgroup analysis that attempts to separately identify the effects of each type of subproject).

The following OLS regression will be used to estimate the ITT:

$$y_{ist} = \alpha + \beta_1 T_{is} + \beta_2 y_{ist-2} + D_s + \epsilon_{ist}$$

where i indexes either *barangay* or individual (as discussed above), s indexes strata (or municipal pair), and t indexes data round.

Following [Bruhn and McKenzie \(2009\)](#), we include strata (pair) dummies (based on the matched pairing completed prior to randomization), and baseline values (y_{ist-1}) as regressors (where the latter are available). Our main coefficient of interest is β_1 , the average treatment effect.

To account for multiple comparisons arising when we test hypotheses based on multiple outcome variables, we estimate overall average treatment effects and overall subgroup-specific treatment effects pertaining to all variables related to each hypothesis following Kling, Liebman and Katz (2007). That is, we standardize all outcome variables, then estimate the aforementioned specification for each of these outcome variables. For example, H2 is comprised of 17 variables that are standardized and comprise the overall H2 index looking at participation in local governance. The overall treatment effect for each hypothesis is calculated as the mean of the variable-specific treatment effects. That is, the overall effect for the hypothesis averages the separate treatment effects estimated for each individual outcome variable. The standard error of this effect is estimated using seemingly unrelated regression (SUR) estimation, with clustering at the municipality level.

5.3 Non-compliance and treatment-on-treated effects

As discussed in section 2.4., 88 treatment and 79 control barangays received KC-NCDDP. In cases of two-sided non-compliance, the ITT will differ from the treatment effect on the treated (TOT), and policymakers will often be more interested in the latter, which describes the impacts of actual participation in the program rather than assignment to the program. In our case, the TOT will reflect both program attrition among the treatment group and the roll-out of KC-NCDDP among the control group. Addressing this non-compliance requires that ITT estimates be corrected for the actual differences in program implementation rates between the treatment and control groups. That is, the overall ITT is adjusted for the difference in treatment rates between the groups. Estimating the TOT precisely thus requires that the two groups continue to differ in their rates of program implementation. We confirm that this is the case in section 2.4.

For many of our socioeconomic hypotheses, we focus only on barangays that completed a specific type of SP (say, road improvements). In such cases, we effectively eliminate non-compliance in the treatment group by definition. The TOT estimates then only adjust for non-compliance in the control group, wherein the paired control barangay also completed an SP of

the same type. Because this is very rare, we expect our TOT estimates for these hypotheses to be quite similar to our ITT estimates. In the more general cases of our long-term socioeconomic outcomes and our institutional and empowerment domains, where we estimate ITT effects in the full sample, it is more likely that TOT and ITT estimates will differ. We therefore discuss TOT estimates only where we find effects that are materially different from the ITT estimates.

To estimate the TOT effects while using household-level covariates and accounting for the multiple steps of estimation appropriately, we use a two-stage least squares (2SLS) approach. In the first stage, we estimate the effect of treatment group assignment on the subproject completion (for socioeconomic outcomes; for other outcomes, we estimate effects on CEAC completion). In the second stage, we estimate the effect of subproject completion (or CEAC completion) on the outcome of interest. The equations are as follows:

$$SP_{st} = \lambda + \gamma_1 T_s + \gamma_2 y_{ist-2} + D_s + \mu_{ist}$$

$$y_{ist} = \alpha + \beta_1 \widehat{SP}_{st} + \beta_2 y_{ist-2} + D_s + \epsilon_{ist}$$

As before, we cluster standard errors at the municipality level when estimating this system via 2SLS.

5.4 Dose-Response analysis

An alternative interpretation of the TOT effects is as estimates of a dose-response function, allowing us to understand how the effects vary with the number of completed CEACs. Rather than comparing treatment with no treatment, we compare the effects of a large dose of a community-driven development program to a small dose, using our original treatment assignment as a valid source of exogenous variation. This provides insight into an important policy question – how many cycles of KC (or similar CDD programs) are in fact needed for impacts to occur?

The dose-response also allows us to put to the test a widespread belief that more rounds of CDD programming are likelier to bring about the intended effects. Study authors focusing on DRC, Aceh, and Afghanistan, for instance, all wonder whether their lack of results on some or all of their hypothesized outcomes may be explained by the relatively short length of the project (King 2013, p.36). Indeed, the authors of a study of the KDP project in Indonesia found that impacts on social relations were stronger in the third and fourth year of the project than earlier (Barron 2010, 21). Fifty-two percent of respondents in a survey of World Bank Staff suggested that the “average number of years needed for project support of community groups initially formed under the process to reach a level of sustainability of community processes” was 6-10 years, with only 25 percent suggesting one to five years and the remainder predicting eleven or more years (Kumar 2005, 101).

The TOT estimates imply a linear dose-response function, in which the impacts are proportional to the number of completed CEACs. However, it is possible that this function is non-linear, with impacts increasing at higher dosages (as would be the case if the aforementioned explanations of prior programs’ non-impacts are true). To account for non-linearities, we need to consider additional randomly assigned variation in dosage—which we obtain from our midline data collection. At the midline, no control municipalities had yet completed a CEAC, and treatment municipalities had completed fewer cycles, providing additional variation in dosage. We can thus estimate a similar 2SLS specification, but now including two rounds of follow-up outcomes (we add controls for round to account for the overall differences in effects over the rounds of data collection):

$$SP_{st} = \lambda + \gamma_1 T_s + \gamma_2 y_{is0} + D_s + \mu_{ist}$$

$$y_{ist} = \alpha + \beta_1 \widehat{SP}_{st} + \beta_2 y_{is0} + D_s + D_t + \epsilon_{ist}$$

We conduct this analysis for all hypotheses in which we find significant impacts at the third round, as we are unlikely to detect impacts at lower doses if these larger dose effects are insignificant.

5.5 Treatment effects for individual subproject types

Many socioeconomic outcomes of interest are likely to be affected by only a subset of subproject types (or to have been disproportionately affected by certain subprojects). For example, prenatal care may have improved in barangays that received funding for health care improvements, but such an improvement is less likely in barangays where subproject funding was for an agricultural project. In fact, by estimating the average treatment effects on such outcomes across the full sample, we are likely to mute the estimated impacts. This approach has been prevalent in prior CDD evaluations (King 2013), and our method thus makes an important advance over this limitation.

We therefore seek to estimate the impacts of funding for certain subproject types on specific sets of related outcomes in addition to the average effect across all treated barangays. The challenge in doing so is that funding for subprojects of specific types may have been endogenously determined in the KC program. Specifically, while eligibility for KC participation was randomly determined via lottery, funding for specific subprojects was potentially shaped by which subproject the community requested and whether the MIBF prioritized this particular proposal. In fact, the needs assessment aspects of KC suggest that subproject proposals *should* have differed across communities based on the conditions in these communities and indeed, it is a premise of KC and CDD more generally that “development priorities are addressed in a ... demand-driven way” (DSWD, 2012). This feature could bias our estimates if we limit our analysis to subproject-specific treatment effects only in the communities that received each subproject type (and their previously matched control barangay).

To address this potential endogeneity bias, we followed a multi-step process, as described below. The approach essentially attempts to test whether the original control barangays are the best match for each treatment barangay in terms of their likely subproject type; when this is not the case, we re-pair the treatment and control barangays to better control for differences in subproject types (in any cycle).¹⁰ This re-pairing uses the baseline preferences of barangay residents to construct a likelihood that the barangay received each type of subproject, based on the observed relationship between these characteristics and subproject type in the full sample.¹¹

Our process was thus as follows:

1. Estimate a model of subproject type on baseline preferences in the barangay. The sample for this estimation is restricted to barangays that received treatment (including control barangays that received funding for at least one subproject). Formally, we follow McFadden’s (1973) choice model and estimate a multinomial logit model of the form¹²:

$$\Pr(S_{ik}) = f(\alpha_k + X_{ikt-1}B_k)$$

where S_{ik} is an indicator of whether barangay i completed implementation of at least one SP of type k , X_{ikt-1} is a vector of barangay-level baseline variables (including summary measures of household preferences for subproject type k and baseline governance conditions), and B_k is a vector of coefficients indicating the responsiveness of SP implementation to each baseline variable. Because some barangays completed multiple subprojects, we weight the estimation by the inverse of the barangay’s total completed subprojects to reflect the overall cross-barangay effects of preferences.

Moreover, because some project types were implemented by only a few barangays, using project types as choice alternatives causes non-convergence when estimating a multinomial logit model. Therefore, we categorized the project types into five categories:

¹⁰ We find that the original pairings actually successfully matched barangays in terms of their likelihood to receive specific types of subprojects. This analysis validated the original pairings, and thus, repairing was not necessary.

¹¹ In the socioeconomic section of the third round household survey, in an effort not to unduly overburden respondents, we did not ask modules related to *all* possible areas (infrastructure, education, water and electricity, etc.) to each respondent, rather focusing on the most relevant. As such, the re-pairing also requires that matched pairs are administered the survey modules related to each subproject type, such that outcomes are observed in both treatment and paired control.

¹² Our pre-analysis plan also specified that baseline outcome measures would be used as predictors of SP type. However, the dimensionality of these measures drains the variation (and degrees of freedom) available to confidently estimate the effects of one of the strongest predictors – the baseline preferences of residents (and the multinomial logit thus does not converge). We are therefore forced to exclude them from our analysis. Again, the preference measures we use are stronger predictors of SP type than are the initial physical conditions.

1. Infrastructure (Trail, footbridge or road)
2. Education or health (day care, health care, or school)
3. Water and electricity (electrification, water system, or drainage structures)
4. Water protection (River/flood control, sea wall, or soil protection)
5. Support (economic support, multi-use building/facility, or skill training).

We find that the initial preferences of the barangay residents (as reflected in the share of household respondents who ranked the subproject type among their top priorities) is a strong predictor of the type of subproject actually implemented in the barangay (with p-value < 0.001).

2. We then predict among our full sample the likelihood that a given barangay received funding for a subproject of each type (formally, $\Pr(\widehat{S}_{ik})$).
3. We confirm that the treatment and control groups of barangays are similar in their predicted likelihood of receiving each subproject type (because they are balanced on the observable characteristics used in our multinomial logit model to predict this likelihood, we expect them to be balanced on the predicted probabilities). No p-value for any of the five project type categories is below 0.4, suggesting predicted likelihoods are indeed similar.
4. We check whether the original pairs of barangays are sufficiently similar in their predicted probabilities for each subproject category. Specifically, we test whether the average difference in predicted probabilities for each subproject type is less than or equal to 0.2 standard deviations, as 0.2 standard deviations is a commonly accepted threshold for a substantial impact. Formally, we test

$$H_0: \frac{1}{N} \sum_{i=1}^N (\widehat{S}_{ik} - \widehat{S}_{jk}) \leq 0.2 \widehat{\sigma}_{S_k}$$

$$\frac{1}{N} \sum_{i=1}^N (\widehat{S}_{ik} - \widehat{S}_{jk}) \leq 0.2 \sigma_{\widehat{S}} \cdot k$$

Where \widehat{S}_{jk} is the predicted probability of the paired control.

We find that only for category 4 (subprojects related to water protection) is the difference larger than 0.2 standard deviations with 95% confidence. We thus retain our original pairings for all of the other four categories, but re-match barangays for our analysis of hypotheses related to category 4 subprojects. We do so by re-matching barangays (with replacement) separately for each subproject type, again conditioning on the requirement that both members of the pair are administered the modules relevant

for that subproject type.¹³ Following Imbens (2015), we trim the sample for each subproject type so that the predicted probabilities for all barangays are on a common support.¹⁴ We then form pair dummies P_{2ik} . We use these new pairs in step #5 below.

5. Because the original assignment to treatment and control and barangay pairing achieves both balance and satisfies the aforementioned pair distance condition for categories 1, 2, 3 and 5, we estimate the ITT and TOT for hypotheses related to these subprojects as in section 3.3 but restricting the sample to only treatment barangays that implemented the relevant subprojects and their originally paired control barangay.¹⁵
6. Because for category 4, the original assignment to treatment and control and barangay pairing does not achieve both balance and sufficiently small pair distance, we instead estimate the ITT and TOT using the new pair dummies.

Finally, because many outcomes we observe are based on modules of the household survey and we did not administer all modules to every household but rather sampled modules, we correct for this sampling to achieve population-level treatment effects. We do so via inverse probability weighting. We calculate the probability of module k being sampled as a function of the subprojects implemented in barangay i (also considering that random modules are added). Then we use all observations for which module k was administered but weight by $1/\text{prob}(\text{module } k \text{ sampled})$.

5.5 Subgroup analysis

A key research question posed by DSWD is not just the impact of KC on all residents, but specifically on the most vulnerable groups – indigenous persons, women, and poor households. Here we discuss how we analyze the impacts on these groups.

¹³ This re-matching is done for analysis purposes only and does not otherwise affect our sample construction.

¹⁴ This common support represents the range over which propensity scores vary (and may not overlap) for municipalities with and those without these types of SPs.

¹⁵ In our pre-analysis plan, we specified that we would analyze these effects by interacting treatment status with completion of SP type k in our full sample. This was a conservative approach that assumed many SPs would be completed in control barangay. Instead, the completion of SPs in control barangay has remained quite low. This means that a more direct test of the effects is now available by restricting our sample to only treatment barangay completing these SP (and their paired control barangay).

5.5.1 Within-barangay subgroups

For all subgroups of individuals within barangays, we conduct our analysis at the household level. We examine the following within-barangay subgroups:

1. Indigenous Persons (IP)¹⁶
2. Female respondents
3. Households officially classified as poor at baseline. This means that the household fell below the official regional per capita income poverty threshold. Specifically, we calculate the total monthly expenditures per capita, including food and non-food expenditures (value spent in cash or credit and value received as gifts or own produced), and we classify as poor those HHs whose monthly per capita income is below the 2012 Philippine official regional poverty threshold.

Our OLS estimation for these subgroup effects uses the following specification:

$$y_{ist} = \alpha + \beta_1 T_{is} + \beta_2 z_{ist-2} + \beta_3 T_{is} * z_{ist-2} + D_s + \epsilon_{ist}$$

where z_{ist-2} denotes a baseline indicator of this subgroup status, and β_3 denotes the differential treatment effect for this subgroup.

5.5.2 Between-barangay subgroups

For all subgroups of barangays, we conduct our analysis at the barangay level. The between-barangay subgroups of interest are the following:

1. Barangays with higher values of baseline outcome variables. For each outcome measure, we group barangays into those in the top 50% of the outcome measure (thus comparing them to those in the bottom 50% for that specific outcome). These regressions take the following form:

$$y_{ist} = \alpha + \beta_1 T_{is} + \beta_2 y_{ist-2} + \beta_3 T_{is} * y_{ist-2} + D_s + \epsilon_{ist}$$

2. Barangays with higher shares of poor households at baseline. These regressions take the following form:

$$y_{ist} = \alpha + \beta_1 T_{is} + \beta_2 P_{ist-2} + \beta_3 T_{is} * P_{ist-2} + D_s + \epsilon_{ist}$$

¹⁶ We use the third round data collection to identify households as IPs, as IP status had been, unfortunately, misinterpreted and miscoded in prior rounds.

where P_{ist-2} denotes the share of barangay households who are classified as poor at baseline.

- Barangays with higher levels of baseline governance. These regressions take the following form:

$$y_{ist} = \alpha + \beta_1 T_{is} + \beta_2 G_{ist-2} + \beta_3 T_{is} * G_{ist-2} + D_s + \epsilon_{ist}$$

where G_{ist-2} denotes the share of barangay in the top 50% of the aforementioned baseline measure.

Finally, we also test whether treatment effects are larger for barangays located in Luzon and Visayas (relative to the full sample, which also includes Mindanao). We do so because areas in Mindanao received fewer CEACs, and thus were exposed to treatment for shorter durations. We did not pre-commit to this specific test in our Pre-analysis Plan, as the extent of differences in treatment was not fully clear prior to analyzing the KC ACT data we collected.

6. Results

In this chapter we focus on presenting results in two main areas: 1) implementation and implementation process; and 2) impacts, using the analytical approach outlined in Chapter 5.

6.1 How to interpret results figures

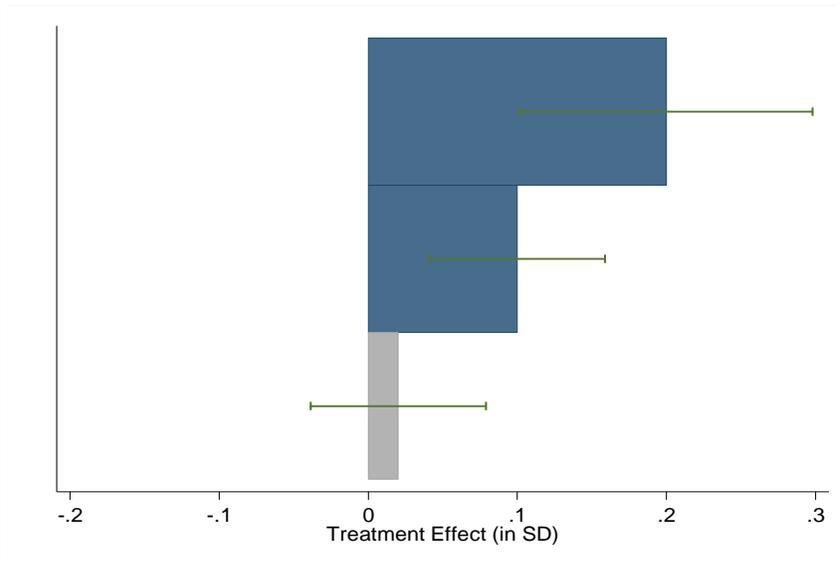
When reviewing and interpreting the results, it is important to remember, as discussed in Chapter 3, that we analyze data at the household level and present results using ITT estimates.

Figure 6.1. below is an example of how results will be shown for each domain or set of hypotheses. Recall that each hypothesis has many outcomes, as detailed in Table 6.1. In presenting results in this chapter, we show the overall hypothesis result using one blue or gray block, aggregating the effects across all outcomes for the hypothesis. Blue indicates statistical significance at the five percent level, while gray indicates that the finding is not statistically significant. Because each indicator may use different units (PHP, minutes, etc.) and to keep units consistent across hypotheses, we show outcomes in standard deviations compared to the control. The size and direction of the boxes therefore indicate the magnitude of the effect in standard deviation units above or below zero. Bars the right of zero are positive results.

The horizontal lines over each block indicate the confidence interval, which is the interval estimate or the range of values for the outcome. For example, if the confidence interval for the top bar in Figure 6.1. is between 0.1 and 0.3 standard deviations, we are 95 percent confident that the estimate of that hypothesis is within that range. When the confidence intervals do not span zero, this indicates a statistically significant result at the five percent level.

When results are presented in standard deviations, effects larger than 0.2 units are typically considered “large,” while those between 0.1 and 0.2 units are “moderate” in magnitude.

Figure 6.1. Impacts in standard deviation units, with colors indicating statistical significance



6.2 Socioeconomic domain

The socioeconomic domain covers hypotheses related to the livelihoods, health and economic well-being of potential KC beneficiaries. The hypotheses under this domain shown in Table 6.1 range from proximate outputs such as improving travel time and cost to services like education, health, and water sources to long-run outcomes like consumption and household earnings. Table 6.1 also shows the component variables that make up each hypothesis index, and the data source – household survey, barangay survey, or SCA.

Table 6.1: Hypotheses, indexes, index components and questionnaire sources included in the socioeconomic domain hypotheses

	Indicator and index components	HH	Bgy	SCA
H1a	SPs improve access to related key services			
	Travel time and cost to nearest schools ¹⁷ due to education subprojects	X		
	Travel time to all facilities outside of barangay due to roads subprojects	X		
H1b	Roads SPs reduce agriculture, fisheries and livestock transport costs	X		
	Palay/rice average transport cost to market in the last month	X		
	Share of crops sold at market (relative to farmgate)	X		
	Share of livestock sold at market (relative to farmgate)	X		
H1c	Roads SPs improve productivity in agriculture, fisheries, and livestock sectors			
	Crop-specific yields	X		
	Fish and livestock production	X		
H1d	Daycare SPs increase daycare enrollment and female labor market participation			
	Number of students enrolled (current or in last 12 months)	X		
	Female labor market participation rate	X		
	Number of daycare facilities in the barangay		X	
	Infeasible, as few daycare SPs implemented			
H1e	School SPs increase school enrollment and improve student/ teacher ratios			
	Number of elementary and secondary facilities		X	
	Number of students enrolled in elementary and secondary		X	
	Student-teacher ratio in elementary and secondary		X	
H1f	Health SPs increase visits to health facilities and adult labor force participation			
	Infeasible, as few health SPs implemented (see footnote below)			
H1g	Health SPs improve prenatal and birth services			
	Infeasible, as few health SPs implemented (see footnote below)			

¹⁷ In our pre-analysis plan, we also specified that we would examine improvements in access due to health care and education projects. However, very few barangay implemented health care projects (only two in our treatment sample and 5 percent nationally), making such analysis infeasible. Actually running the household survey data estimates shows insignificant effects for both H1f and H1g. Moreover, most education subprojects did not construct new school buildings but rather expanded or improved existing ones, so no improvements in travel to the nearest facility were likely.

	Indicator and index components	HH	Bgy	SCA
H1h	Water SPs reduce time and costs spent obtaining water			
	Whether household has improved water source/ level of water access	X		
	Time spent collecting water per month (overall household)	X		
	Weekly average cost of drinking water	X		
	Whether household pays for drinking water	X		
LT1	KC raises household consumption and asset holdings			
	Monthly household consumption (food and non-food) per adult equivalent	X		
	Whether household expenditures are above the poverty threshold	X		
	Aggregate value of household assets (including land area for business or agriculture, number of and value of assets)	X		
	Dwelling attributes (including roof, wall, floor materials; housing area; electricity; tenure status; kitchen status)	X		
LT2	KC raises household labor force participation and earnings			
	Employment rate	X		
	Adult labor force participation rate	X		
	Class of worker	X		
	Monthly income	X		
	Hours worked	X		

Theory of change. Hypotheses H1a, H1b and H1c relate to access to key services, the construction of new roads, and the resultant consequences. If the subproject entailed the construction of a new school, for example, or supported the construction of roads generally, travel time and cost to key services is expected to decrease. We present two related outcomes in H1a. First, we assessed how the time and cost of access to services changed if subprojects focused on these services were implemented in the barangay. As discussed in Chapter 3, we estimated effects based on the type of SP the barangay received—if a barangay used KC funding to construct or rehabilitate a school, we estimated how much less time and money (PHP) respondents in that barangays spent to get to school.

We also measured how time and cost to travel to key facilities outside of the barangay changed as a result of roads subprojects. Here, for barangays that implemented roads projects, we examined the overall changes in transport time and cost to services outside of the barangay. Keep in mind that some subprojects didn’t support new construction but rather improvements, e.g. rehabilitation, in services like schools or health centers, which would not affect travel time or cost. Since we aggregated results across all variations within a subproject type, and are unable to distinguish a new school from a rehabilitated one, our estimates of the effects on travel time and cost could be biased downwards.

Hypotheses H1b and H1c focus on the effects of roads SPs specifically on the agriculture, livestock, and fishing sectors. In H1b we assess transport costs for the primary agriculture output, rice, and the share of crops and livestock sold at markets relative to at the farm gate. The logic underlying the hypothesis is that road improvements make transport overall less expensive, reducing the costs farmers and vendors pay to transport their crops, leading to higher proportions of crops and livestock sold at markets. With lower transport costs, producers can bring their own goods to market rather than selling them to vendors at the farm gate and earn more for their products. Roads can also support the overall productivity (H1c) of the sector, meaning that as transport costs for agricultural inputs and outputs decrease, productivity of fisheries and farms improves.¹⁸

Hypotheses H1e and H1h encompass intermediate outcomes from all other SPs aside from roads. The barangay surveys provided information on the number of education facilities, elementary and secondary enrollment, and elementary and secondary student/teacher ratios (H1e). Improved access to water is theorized to reduce the time that household members, especially women and children, spend collecting water, and reduce household costs of collecting water (H1h). Data from the household surveys included the type of water facility households have access to, whether households pay for drinking water, time spent collecting water per month, and weekly average cost of drinking water.

The subprojects and their intermediate outcomes such as improved agricultural productivity, or increased visits to health facilities, included in H1a through H1h, according to the KC operations manual (2011), are hypothesized to ultimately lead to improved economic outcomes, as measured by household consumption and the value of household assets (LT1), and labor force participation and earnings (LT2). Individuals with better access to services may have improved health, and thereby be more able to work, to be productive in their work, and to earn more. Similarly, families with greater access to daycare can participate more actively in the labor force, work more hours or engage in higher paying work and work more. Such improvements are believed to lead to increased earnings and spending on household goods and assets. LT1 and LT2 utilize household survey data on consumption (including food and non-food expenditures, and whether expenditures were above the poverty threshold¹⁹), assets (including land), dwelling attributes, and labor force participation rates (including employment rate, labor force participation rate, labor class, monthly income, and hours worked).

¹⁸ We do not report productivity in the fishery sector due to insufficient observations in this sector.

¹⁹ We use the “First Semester Per Capita Poverty Threshold and Poverty Incidence among Population, by Region and Province: 2006, 2009, 2012 and 2015” from the Philippine Statistics Authority, found here: <https://psa.gov.ph/poverty-press-releases/data>.

As discussed in Chapter 3, long-term hypotheses included indicators that were part of KC's long-term theory of change, but are not those that we practically expected, based on literature and DSWD's experience, to change over three or fewer cycles of implementation. For example, it could take many years for a rehabilitated road to affect household assets value, if the channel through which household assets value increases is reduced travel time. Consumption savings from reduced travel time could take time to accumulate, and then the household may take years to accumulate higher value assets using increased income to devote to consumption. We measured indicators included in LT1 and LT2 because seeing changes in them was plausible albeit unlikely, and we didn't want to forego the opportunity to measure such significant outcomes that may have materialized over the course of our data collection efforts.

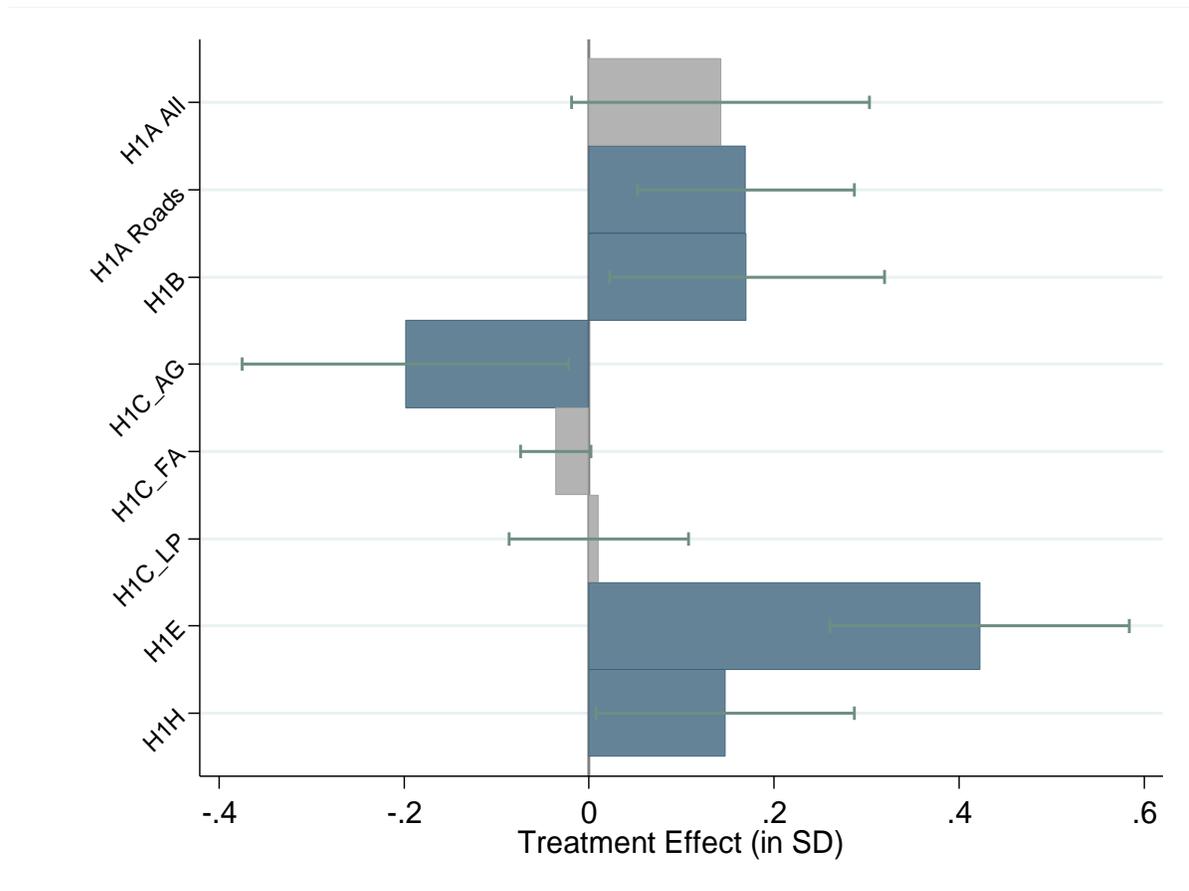
Results. The results for the hypotheses discussed in Table 6.1 are presented in Figure 6.2, with the exception of the long-term hypotheses. Figure 6.2 shows that KC roads SPs significantly improved overall travel time and cost by nearly 0.2 standard deviations (H1a). (Refer back to section 6.1 for guidance on how to interpret figures.) Recall that this hypothesis examines the travel time and cost to facilities outside of the barangay commonly accessed by the community, so this looks at the effect of having a roads SP on travel time and cost to a range of facilities. KC roads SPs also significantly improved (ie, lowered) transport costs for agriculture and livestock by nearly 0.2 standard deviations (H1b). This result is calculated using reports from household respondents who engaged in agriculture about the transport costs of rice, and the share of crops and livestock sold at market versus at the farm gate. The significant impact for H1b is largely driven by the share of crops sold at market compared to the farm gate. (There is also a positive but not significant impact on rice transport costs and the share of livestock sold at market compared to farm gate.) Surprisingly, there is a significant negative effect (0.2 standard deviations) on agriculture productivity as a result of roads SPs (H1c AG). This is largely due to a decline in rice productivity. Thus, transport costs for agriculture and livestock went down but so did agricultural productivity, especially in rice. We find no impact on productivity in livestock and poultry production (H1c LP), or fisheries and aquaculture (H1c FA).

We find a large (0.42 standard deviations) and significant effect of KC on educational outcomes (H1e). The data from the barangay surveys revealed that the number of facilities and students increased, and the student-teacher ratio decreased in KC areas compared to controls. This means that the ratio of students to teachers went down, meaning that there were fewer students per teacher, which education experts generally believe is positive for student learning. This result is largely driven by the significant change (nearly 0.4 standard deviations) in the number of students enrolled. This is a remarkable finding given that student enrollment was already quite high across the country and was further bolstered by the 4Ps (conditional cash transfer) program. Many of the construction subprojects sought to improve the physical infrastructure to ensure safety or enhance learning environments but not necessarily enrollment.

KC also significantly improved households' time and cost of obtaining water by nearly 0.2 standard deviations. The main drivers of this significant result were reductions in time

households spent collecting water and in the proportion of households that paid for water in the barangay.

Figure 6.2: Intent-to-treat effects for roads, education, and water SPs



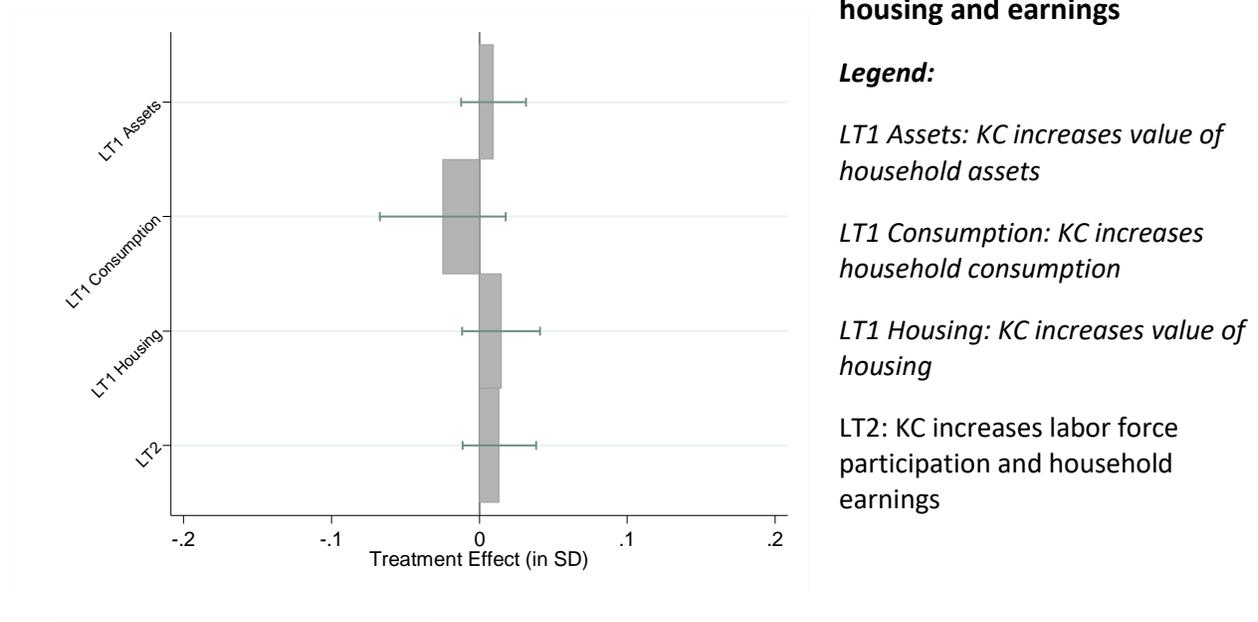
Legend:

- H1A All: Roads SPs reduce travel time and distance to all key services*
- H1A Roads: Roads SPs reduce travel time and costs to nearby roads*
- H1B: Roads SPs reduce transport costs for agricultural products*
- H1C_AG: Roads SPs raise agricultural productivity*
- H1C_FA: Roads SPs raise productivity for fisheries and aquaculture*
- H1C_LP: Roads SPs raise productivity for livestock and poultry*
- H1E: Education SPs increase enrollment and reduce student/teacher ratios*
- H1H: Water SPs reduce time and financial costs to obtain water*

We find no impact of KC on longer-term socioeconomic indicators related to household consumption and household assets (LT1), and household labor force participation and earnings (LT2) (Figure 6.3).²⁰ For LT1, expenditures and land area owned actually decreased slightly (not shown), and there were slight increases in the number and value of assets in KC areas, yet these changes are not significant. Similarly, for LT2, there were slight increases in monthly income and hours worked, and slight decreases in the employment rate and labor force participation rate, but again these changes are not significant. Our TOT estimates correcting for noncompliance show similarly sized and insignificant effects.

Despite the finding that there were no significant changes in household consumption, assets, or labor force participation, in the qualitative focus groups in response to an open-ended question regarding the benefits of KC, it is notable that focus group respondents largely perceived the subprojects as improving their lives. Equally notable, many FGD participants discussed the daily wages they were paid for “voluntary work” on KC subprojects, ranging, according to them, from PhP 200-275 (~US\$3-5.40) for unskilled labor and from PhP 300-400 (~US\$5.90-7.80) for skilled carpenters, masons and foremen. Of these amounts, between 10 and 75 (~US\$0.20-1.50) PhP was automatically deducted as either a contribution to KC or in the case of funding shortfalls, for future laborers. In identifying the benefits of KC, this “paid work” emerged in qualitative interviews (albeit not in the survey data) as a source of important income in times of hardship.

Figure 6.4: Intent-to-treat effects for long-term outcomes related to assets, consumption, housing and earnings



²⁰ At baseline, the labor force participation rate among adult women in households in our sample was 47 percent and 87 percent for men.

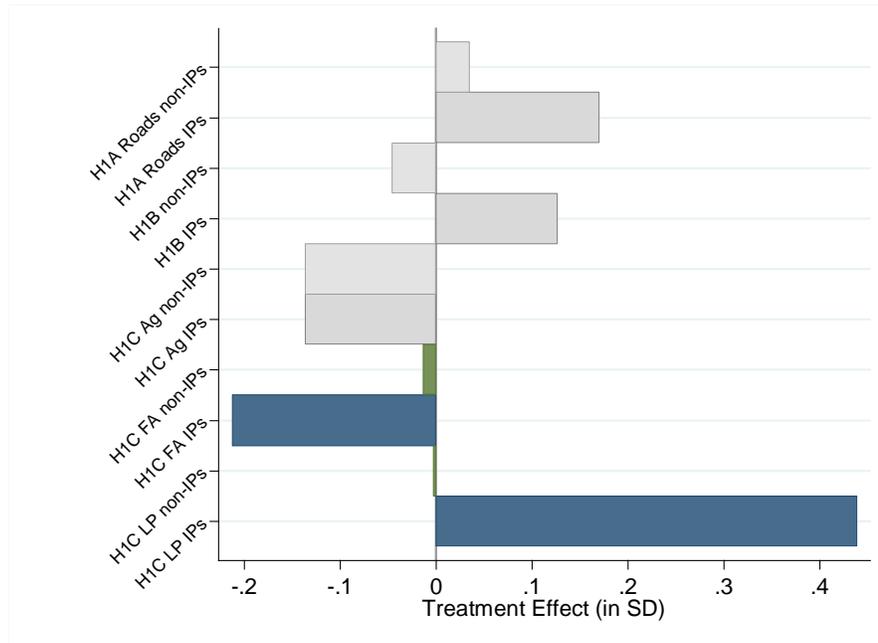
6.2.1 Subgroups

We assess the extent of variation in the treatment effects for each hypothesis across all subgroups.²¹ At the household level, recall that this is women, Indigenous Peoples (IPs), and households classified as poor at baseline. At the barangay level, this is barangays with baseline levels of better governance, barangays whose baseline outcomes were higher, and poor barangays.

For the vast majority of cases, we observe no differential effects in the subgroups. In some cases, these results are due to limited statistical power given that the set of barangay implementing the specific SP type being considered in the hypothesis was too small to reliably estimate impacts after the hypothesis was subset into subgroups. However, even for two of the most common SP types (transport and education), we observe no differential effects for the five out of our six subgroupings. In fact, there are only three cases in which the treatment effects differ significantly between subgroups, all occurring across the IP and non-IP groupings. As shown in Figure 6.5 below, IPs appear to benefit substantially more from improvements in access to education (H1A Education) than do non-IPs (the latter experience effects that are small, negative, and not significantly different from zero). We observe similar differences for improvements in access to services through roads SPs (H1A Roads), although these are not statistically distinguishable. We also note similar differences in H1B, reflecting differential drops in agricultural transport costs among IPs, although again these are not statistically distinguishable despite being substantial.

²¹ In cases where hypotheses were tested using only barangay-level measures, we could not test differences for within-barangay subgroups.

Figure 6.5: Intent-to-treat effects for transport and access to services among IPs & non-IPs



Legend:

- Treatment effects not significantly different across subgroups
- Treatment effects for IPs (which differ significantly from non-IPs)
- Treatment effects for non-IPs (which differ significantly from IPs)

Productivity gains due to roads SPs (H1C) also display quite striking dynamics across the IP and non-IP groups. Both IPs and non-IPs do not experience agricultural productivity gains (H1C AG). However, while non-IPs also do not experience gains due to KC in either livestock and poultry or fisheries and aquaculture, IPs experience differential effects in both cases. It appears that roads SPs led to a decline in productivity in fisheries and aquaculture among IPs but substantially higher gains in productivity in livestock and poultry production. The latter effects are very large (>0.4 SD units) and indicate a substantial shift in the relative productivity of IPs’ diverse modes of production.

Notably, these results are consistent with related findings from the qualitative portions of the evaluation, which indicate that both IPs and non-IPs believed that IPs benefit from KC. It was reported in some FGDs that barangays without IPs made efforts to help barangays with IPs in venues like the MIBF. The other key point is that participants explained KC as just one effort to

improve the lives of IPs alongside a number of other simultaneous efforts all of which were contributing to gradual improvement. For example, there is a National Commission for Indigenous Peoples, a conditional cash transfer program 4Ps that targets IPs, and in at least one barangay a scholarship program for children of IP families and a special health services program.

6.3 Institutional domain

As discussed above in Chapter 2, we measure one of KC’s key objectives – improving the quality of local governance – through indicators captured under the institutional domain shown in Table 6.2. This domain mainly focuses on how KC beneficiaries engage with local government institutions integral and tangential to KC; beneficiaries’ confidence, self-efficacy, willingness to share information, and knowledge and perceptions of local governance structures; how local projects meet the needs of barangay residents; and how KC impacts the quality of governance.

Table 6.2: Hypotheses, indexes, index components and questionnaire sources included in the institutional domain hypotheses

	Indicator and index components	HH	Bgy	SCA
H2	KC increases quantity and quality of participation in local governance around decision-making and implementation related to KC activities			
	Proportion of HHs participation in government group, government institution, or barangay group in last 12 mo	X		
	Total instances, days, and cash/goods HHs participated in or contributed to community chores in last 12 mo	X		
	Number and proportion of HHs attended last BA, BC, and/or BDC meeting	X		
	Proportion of HHs informed about last BA, know about upcoming BAs, who spoke at BA, who think BAs should be open to the public, who reported that BA attendees were consulted about problems	X		
H3	KC increases quantity and quality of participation in local governance around decision-making and implementation beyond KC activities			
H3a	KC increases participation in and knowledge of formal structures beyond KC			
	Number and proportion of HHs who attended a municipal council meeting, met with, called, sent a letter or text message to a politician, participated in a protest or demonstration, participated in an information campaign, informed a newspaper, radio or TV station to a local problem, notified police about a local crime, filed a complaint to the “ <i>lupong tagapamayapa</i> ” (barangay justice system).	X		
	Details about SCA meeting: whether held, number of attendees (female, 4P, IP, age), speaking frequency, BC influence, process of choosing the project and implementation plans. Community ability to carry out project.			X

	Indicator and index components	HH	Bgy	SCA
H3b	KC improves barangay information sharing and inclusiveness beyond KC			
	Proportion of HHs who said community was consulted at last BA, who said no group dominates decision-making in BAs. Barangay captain’s responsiveness to recommendations by HHs of different projects that would benefit the barangay.	X		
	BC, BDC, and (non-KC) BA meeting frequency, attendance, inclusiveness. How BA disseminates information. BA and BDC decision-making and problem-solving processes. Variety in organizations that met with the BDC and were involved in the barangay.		X	
H3c	KC increases confidence and self-efficacy beyond KC			
	HHs confident to participate in community development activities. Comfortable speaking during BAs and to the barangay captain about community issues. HHs think they have an impact in making the barangay a better place.	X		
H4	KC increases knowledge and awareness of local governance			
	Number of BDC and BC meetings with KC volunteer present		X	
	HHs familiarity with municipal and barangay government officials, and knowledge of BDC.	X		
H5	KC improves degree to which barangay projects correspond to ex-ante preferences			
	Degree of correspondence between KC-funded projects and projects named in HH survey at baseline. Degree of correspondence between non-KC-funded projects and projects named in HH survey at baseline.	X	X	
LT3	KC improves perceptions of local governance			
	HH perceptions of officials’ capacity to carry out their duties, officials’ corruption, officials’ honesty, acceptance of corruption and commissions.	X		
	HH support networks, and ability to solve problems and disputes.	X		
LT4	KC raises capacity of barangay government			
	Total number of projects included in BDP in last two years		X	
	Total value of projects included in BDP in last two years		X	
	Total number of development project types in last two years		X	
	Percent of internally generated income in the barangay fund		X	
	Percent of donations in the barangay fund		X	

Theory of change. The theory of change for this domain is that at the most basic level, KC will induce participation in activities and structures that are *related to KC* (H2). This could take the form of participating in any public barangay or local government organization, including the

Barangay Council (BC), Barangay Assembly (BA) or Barangay Development Council (BDC). It would also be seen in measures such as the extent of households' participation in local government institutions, such as the proportion of households that spoke publically at BAs and the number of times they did so, and the proportion of households that reported they were consulted about barangay decision-making during the BA. Additionally, the index to measure this part of the theory of change includes the magnitude of household contributions in the form of time, cash, or materials to community chores or service. This measures households' contributions to their barangay generally, such as helping to fix a neighbor's roof or fix the roof on the barangay hall, or preparing food for neighbors fixing the roofs, and includes labor devoted to subprojects.

The next step in the causal chain after H2 is participation in institutions and organizations *beyond KC*, or what is described in H3. It is hypothesized that participation in KC will lead to greater participation in and knowledge of institutions outside of KC (H3a); that community members will be able to apply the collaboration and inclusion that they learned as part of the KC process to other community projects (H3a); that barangay institutions become more inclusive, share more information and encourage more participation (H3b); and that beneficiaries will be able to utilize the confidence and self-efficacy that they gained from KC and apply it to other situations in which they are improving their lives and their communities (H3c). Self-efficacy is someone's belief that they can excel and succeed, or be efficacious, at a task. One hypothesis of KC is that through the KC process, participants become more confident of their own abilities to improve conditions in their communities.

Participation *beyond or outside of KC* could take the form of engaging politically or civically, such as attending a municipal council meeting, contacting a politician, or participating in a local demonstration. This is what is measured in H3a, along with outcomes of the SCA. As discussed in Chapter 2, the SCA is a behavioral experiment in which the community was given 15000 PHP (350 USD) and invited to use those funds for a small community project of their choosing. Our data collection involved observing the process by which the community decided on the best use of those funds, and how the project was implemented. The purpose of the SCA was to test how communities who have been exposed to KC might carry out the project differently than those communities that did not go through the CEAC process. For example, we looked at whether communities that had been exposed to KC were more inclusive or more efficient in their decision-making processes, and whether they chose projects that best met the community needs. Thus, the data used in the H3a index comes from household reports about their political and civic participation, and from data collected from the SCA.

The hypothesis H3 – related to participation in institutions and organizations *beyond KC* – also posits that carrying out the KC process will promote more inclusive barangay institutions and information sharing (H3b) and individuals' confidence and self-efficacy (H3c). Inclusiveness and information sharing is related to households' perceptions of whether the community is sufficiently consulted about local projects, the barangay captains' responsiveness to recommendations, or who influences decision-making at BAs. It also includes reports from the

barangay officials about BC, BDC, and BA meeting frequency, attendance, inclusiveness, and decision-making processes. Thus, H3b combines household reports with reports from barangay officials. H3c captures how household respondents feel about participating in community activities or speaking up in community forums, whether they feel they would contact the barangay captain about an issue in the community, or generally how much impact they feel they have in making the barangay a better place to live.

It is also hypothesized that the KC process will better educate community members about local government (H4). Getting communities to learn more about local government is indeed a less ambitious goal than H3, improving participation in institutions and organizations *beyond KC*. In H4, we capture household respondents' knowledge and awareness of local government organizations and officials who are tasked with meeting the community's needs by asking household respondents a series of questions about representatives in the municipal and barangay governments, BC and BDC. We also utilize responses from the barangay survey about whether BDC or BC meetings include a KC volunteer. We interpret including KC in local government meetings to mean that KC is a significant project to local government and to the community.

A core tenet of KC, and of many community-driven development projects, is that local (sub)projects—both within KC and outside of KC—better correspond to local needs (H5). To test this hypothesis, we developed an index that compared respondents' preferences for a menu of development projects eligible for KC to what development projects were implemented in the barangay (see the menu in Box 1.3., Chapter 1). During the baseline survey, enumerators showed respondents the list of eligible project types, asked respondents to rank their top three choices, and to indicate the intensity of preference for each choice. We then compared this ranking to data on what projects (KC and non-KC) were actually implemented in the barangay, which we collected with the barangay survey. In this way, we were able to compare the degree of correspondence between household preferences and project implementation.

Results. Our analysis reveals significant impacts in H4 and H5. This means that KC had a significant positive impact on households' knowledge and awareness of local governance institutions and officers. (The survey asked if respondents closely knew specific officials.) The impact of KC on H4 was over 0.2 standard deviations. Within the index, this impact is driven by several variables: close familiarity with anyone in the BDC, knowledge of whether a BDC exists in the barangay, knowledge of BDC members, and whether a KC volunteer attended the BC and BDC meetings. All of these variables showed positive and significant changes while familiarity with the other five key officials were a mix of positive and negative (and not significant). One possible way familiarity with BC and BDC members increased was through KC volunteers. In the focus groups with KC volunteers, the volunteers said that they created more ties with the community. In at least two of the twelve sample barangays, KC volunteers had been successful in getting elected to the barangay council or appointed to a position within the barangay.

There is also a large impact on the degree to which barangay projects reflect resident preferences (H5). As discussed above, at baseline we asked residents about the types of projects they wanted to see in their barangay. In KC areas, subprojects turned out to be highly reflective of resident preferences as compared to non-KC areas (by nearly 0.2 standard deviations). The correspondence between citizen preferences and barangay projects not funded by KC was also higher in treatment areas (by 0.1 standard deviations) which suggests that KC had the spillover effect of helping to make other projects supported by treatment barangays better correspond to individual preferences.

Interestingly, we find a small but significant (about 0.05 standard deviations) negative effect on H3c, confidence and self-efficacy. Within the measurement index, this result was largely influenced by households in KC areas reporting feeling slightly less confident participating in community development activities, and less comfortable speaking at BAs. Households also reported being less likely to talk to the barangay captain about any issues in the community, and slightly more likely to say they felt they had an impact on making the barangay a better place to live (not significant).

Regarding the areas in which KC showed no impact (H2, H3a, H3b), the result for H2 is perhaps the most surprising. The focus of H2 is on improving governance around decision-making and implementation *related to KC*. This is an intermediate indicator upon which we would expect to see movement as a predecessor to the other higher-level hypotheses. Part of the CEAC process is BA attendance. This was hypothesized to lead households to attend more BAs, BDCs or BCs, or speak at and actively participate in BAs; and for households to participate more in community chores and improvement. We actually see mostly negative (but not significant) changes to variables included in the H2 index. For example, the instances of participation and total days of participation in community chores declined among households in KC communities. Results for this indicator (H2) were actually positive and significant at the interim data collection but results appear to have faded. See section 7 for more discussion comparing interim and third round findings.

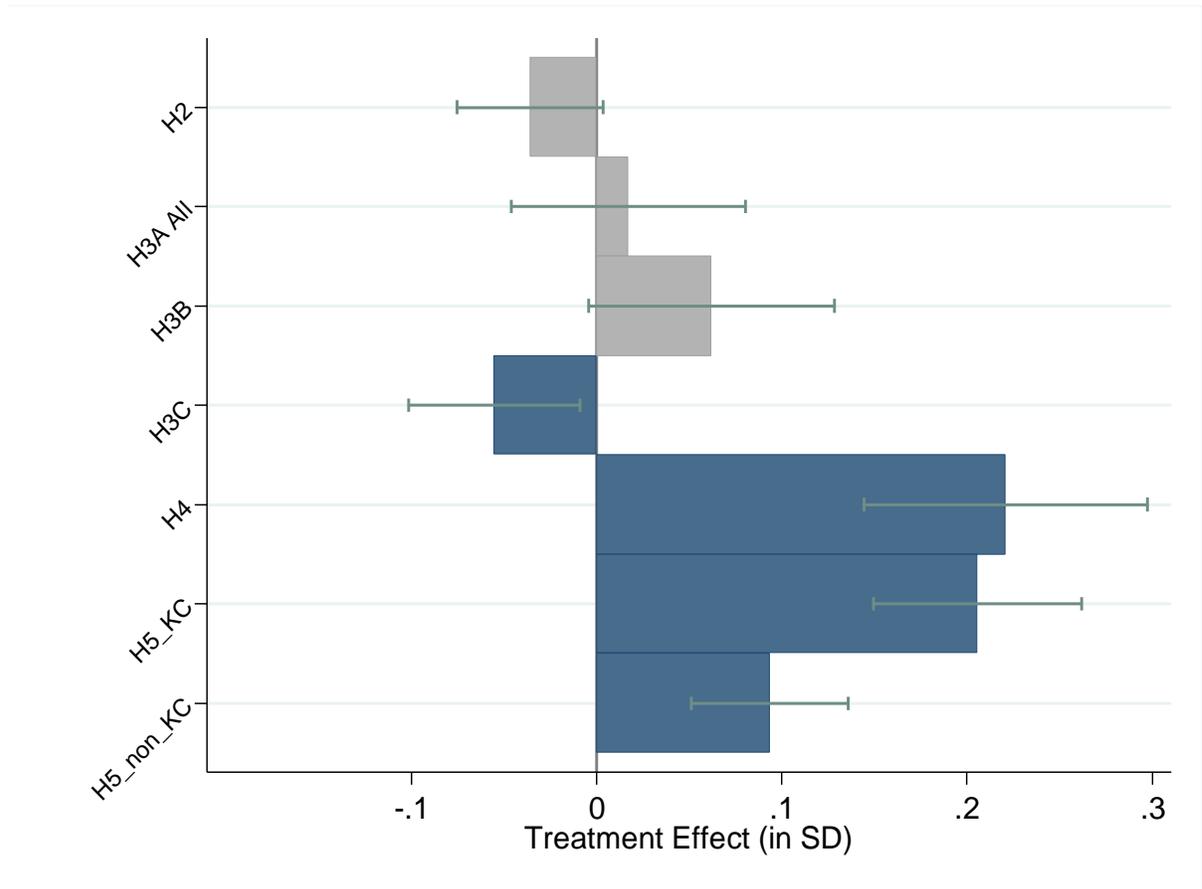
There were also slight declines in the number of people attending BCs and BDCs (but not BAs), the frequency of BC and BDC (but not BA) attendance. The number of people attending BAs and the frequency of BA attendance went up, yet the proportion of households attending BAs declined. This suggests more intense participation within but not across households. There were also slight declines in the proportion of households speaking at BAs, the frequency of speaking publically at the BA, and the proportion of respondents who reported that the BA attendees were consulted about problems in the barangay. Our qualitative research suggests that it may be that, unlike early KC meetings where new funds are being considered, these subsequent meetings occurred without the promise of large new funding, thus offering less compelling reasons for members to attend.

In FGDs, we found that many of the barangays we visited were recipients of several anti-poverty programs, including most prominently, the conditional cash transfer program 4Ps. 4Ps recipients are required to attend all barangay assemblies or face a reduction in their stipend. They also self-describe as the default group to whom the barangay leadership turns to render voluntary services like clearing and cleaning operations. In these instances, participants reported that participation is out of a sense of duty and fear of sanction rather than more organic valuing of the experience.

Because there was no significant change for H2, it is not surprising that there was also no change in H3a, which is related to improving governance around decisionmaking and implementation *beyond KC*. Hypothesis H3b, which relates to barangay information sharing, participation, and inclusiveness, also showed no impact.²²

²² In terms of the SCA results alone, the average effect for the SCA across its many different dimensions were small and not statistically significant.

Figure 6.6: Intent-to-treat effects for participation in local governance



Legend:

H2: KC improves participation in local governance related to KC activities

H3A ALL: KC increases participation in and knowledge of formal structures beyond KC

H3B: KC improves barangay information sharing and inclusiveness beyond KC

H3C: KC increases confidence and self-efficacy beyond KC

H4: KC increases knowledge and awareness of local governance

H5_KC: KC SPs correspond to ex ante preferences

H5_non_KC: KC improves degree to which all barangay projects correspond to ex ante preferences

In the long-term, the hypothesis is that through institution building and community empowerment work, KC eventually leads to improvements in local governance (LT4) and to households' improved perceptions of that governance (LT3). This means that barangay planning, execution and fundraising improves, and that households' perceptions of the quality of their local and national leaders improves, while their perception of the acceptability and frequency of corruption declines. The institution building is also thought to lead to a greater safety net and support network in times of tragedy or challenge. We measure the capacity of local government through questions in the barangay survey about planning and fundraising, and perceptions of local government through household survey questions, such as perceived honesty of officials and acceptable levels of corruption and commissions.

We find no impact on long run outcomes LT3 and LT4. Our estimated coefficient for LT4 (effect on barangay government capacity) is large, but there is a great deal of variability in the outcome measures, making these effects indistinguishable from zero (they remain large and noisy in our TOT estimates, omitted for brevity).

LT3 concerns changes in perceptions of local governance by examining government officials' honesty and willingness to take a commission. Interestingly, the proportion of respondents reporting that it is typical for a politician to take a commission from a government-funded project went down in KC areas, although this result is not significant. This (albeit insignificant) is consistent with the survey questions about project satisfaction. Eighty-four percent of respondents disagreed with the statement that corruption caused money allocated for KC subproject implementation to go missing, and approximately 30 percent of respondents felt KC was superior regarding corruption and nepotism. Yet despite this perception of superiority, just over half of respondents felt that there was no difference between KC and the standard municipal project implementation channels in terms of money going missing or projects benefiting family and friends of community leaders. Results in our interim survey led us to devote attention during the qualitative fieldwork to this issue, discussed in further detail in Appendix 2.

When considering governance outcomes, it is notable that baseline values of perceptions of local governance in both treatment and control communities were quite high. In qualitative FGDs as well, participants generally held satisfactory assessments of their barangay council's performance. This may be, in part, due to the fact that many community members have familial and kinship ties with the barangay council and it is culturally uncommon to speak out against people with whom one has such ties. Being connected, enduring through difficulty and "trying hard" mattered to participants in their evaluation of barangay government, seemingly more so than track record of performance on service delivery. Moreover, though, FGD participants acknowledged the efforts of their barangay officials but they also recognized the limits of what they can do to improve service delivery given the powers of municipal government, and also, to a lesser extent provincial and national levels. They conceded that when there are antagonistic relations between the barangay council and the municipal mayor, service delivery is hampered, even if the barangay council is working hard towards its provision. The provision of public

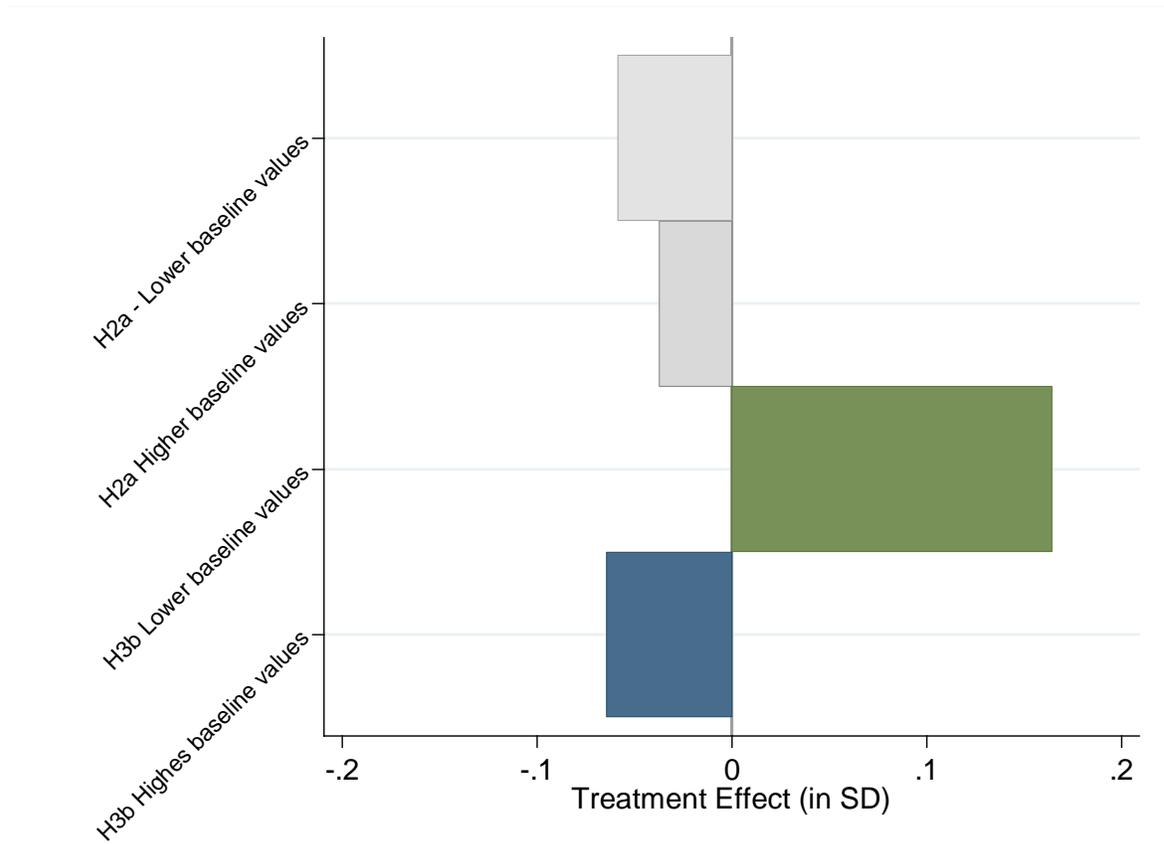
infrastructure is generally dependent, expressed FGD participants, on funds from LGUs beyond the barangay. People understood the provision of such funds to be a form of clientelistic good, contingent on voter loyalty. From their side, some of the mayors we visited in meetings to solicit permission to conduct the FGDs wanted to make clear that, as one stated, “there is no KC without the municipal government.”²³ A few clearly did not appreciate the direct connection between DSWD and the barangay. So, there may be meaningful limits to the replicability of the KC experience beyond KC.

6.3.1 Subgroups

We test for differential treatment effects across six subgroups in each of the institutional domain hypotheses. We find virtually no differential effects for any of these groupings. These are not limited by sample size to the same extent as the socioeconomic effects, as the institutional hypotheses are not specific to SP types and thus reflect the full sample. The only instance in which we find statistically different effects across subgroupings is for the H3B (information sharing and inclusiveness beyond KC), for which barangays with worse conditions at baseline saw large positive treatment effects, whereas those with better initial conditions do not (see Figure 6.8 below). These dynamics indicate substantial “catching up” due to KC, in which barangays where households were initially less well-informed experienced improvements that make them more comparable to those where conditions were initially better. However, it is important to emphasize that in 53 out of the 54 subgroup tests for this domain (9 hypotheses x 6 subgroups), we find no statistically distinguishable differences. These overall findings indicate one should not draw broad conclusions from the H3B subgroup results, as the latter may be due to statistical chance. This result is not necessarily negative. One could also interpret the fact that poor households, women, and IPs were not disproportionately affected by KC means that they were also not left behind.

²³ It is possible that such statements reflect municipal officials’ view that they are important contributors to KC rather than that barangay leaders are too constrained to successfully implement KC processes.

Figure 6.8: Intent-to-treat effects for participation in local governance across baseline values



Legend:

- Treatment effects not significantly different across subgroups
- Treatment effects for higher baseline values (which differ significantly)
- Treatment effects for lower baseline values (which differ significantly)

6.4 Community empowerment domain

KC sees community engagement and empowerment not just as a means to poverty reduction but an overall objective of the program. The expectation is that the KC process will support community members—especially women, IPs and people living in conflict communities—in becoming more empowered to participate in community decision-making, particularly regarding resource allocation (Field Guide 2012). In this domain, we explore how KC increased interactions

in the community, socially and civically, and how communities were able to shoulder the burden of unexpected hardships (Table 6.3).

Table 6.3: Hypotheses, indexes, index components and questionnaire sources included in the community empowerment domain hypotheses

	Hypothesis and index components	HH	Bgy	SCA
H6	KC increases interactions among peers			
	Proportion of other households a respondent knows, number of people respondent knows in households	X		
	Whether discussed barangay problems with households. Frequency of discussions of barangay problems with other households	X		
H7	KC increases participation in community organizations			
	Total minutes HH members spent participating in civic, political, volunteer groups (average duration of meeting x number of meetings)	X		
	Value of cash and goods contributions to these groups.	X		
	Number of civic, political, volunteer groups in the barangay		X	
H8	KC improves how well communities deal with natural disasters and other hardships			
	What types of people that helped others who experienced financial hardship as a result of a natural disaster (total number of types of people sought help from)	X		
	If helped by someone inside the barangay	X		
	Number of types of support received	X		

Theory of change. For H6, we sought to measure household respondents’ social networks by assessing the proportion of other household respondents each respondent knew and the frequency with which they discussed problems confronting the barangay with these households. While KC did not explicitly seek to promote residents’ familiarity with each other, we measure this outcome as an indicator of the extent to which KC induced residents to have more contact with people they already knew or those they did not. Greater familiarity with neighbors could lead to greater community cohesion and ability to work together. This outcome was high at baseline. At baseline, respondents on average knew 71 percent of barangay residents and had at least one relative in 23 percent of barangay households, meaning social interactions were already widespread.

We also assessed whether KC prompted residents to increase the frequency of interactions they had with fellow residents to discuss problems in the barangay. Another anticipated outcome of KC is that barangay residents generally feel more empowered to discuss challenges in their community with a range of constituents and representatives, including their fellow community members.

We also examined whether KC spawned greater community participation (in the form of time, money or in-kind donations) in new or existing civic, political, or social groups, or the creation of new groups (H7). Our interest in measuring this outcome was based on a previous study of KC that found that participation in voluntary collective action and group membership decreased in KC communities, leading study authors to wonder about CDD projects possibly crowding out participation in existing groups (Labonne and Chase 2011, p. 356). We wanted to understand whether community members were shifting their time from non-KC activities to KC activities, adding KC activities on top of existing non-KC activities, or adding KC activities on top of new non-KC activities. Thus, we asked household respondents detailed questions about in which groups they were participating, frequency of participation, and donations to those groups. We also collected information at the barangay level about the number of groups in the barangay to assess whether this changed as a result of KC.

Individual households experience an array of hardships, coupled with the recurrent challenges caused by natural calamities. Project planners hypothesized a more indirect way in which KC may help communities become more resilient and better equipped to confront hardship. As community members forge deeper connections with each other and feel more empowered to improve their communities, they are hypothesized to be better able to deal with economic or other hardship by asking fellow community members and community institutions for support. We asked household respondents whether they faced disaster-related or other types of hardship; and if so, on whom they relied on for support, where those individuals were located, and how much support the people offering support provided (H8).

Results. In Figure 6.9, our analysis shows that KC had a significant and large impact on participation in community organizations (H7). This index went up by nearly 0.3 standard deviations. This increase was driven largely by cash and good contributions to civic and political groups, not the time people spent in these group meetings or the number of civic, political or volunteer groups in the barangay. KC perhaps made communities more charitable to their community groups.

During the FGDs, we discussed the possibility of a substitution effect wherein community members may have had to make choices between participation in KC and other community activities. Consistent with the survey findings, community members did not believe that participation in KC-activities negatively affected their participation in other activities. Some opined that the barangay council members play an important coordination role in ensuring that the timing of activities didn't coincide. Others discussed dividing participation among members

of the household, with wives, for instance going to certain activities and husbands to others. Other FGD participants explained participation in multiple barangay activities by the social pressure they feel to participate in KC and other projects despite personal activities and chores; they discussed the role of shame in pressuring people to participate.

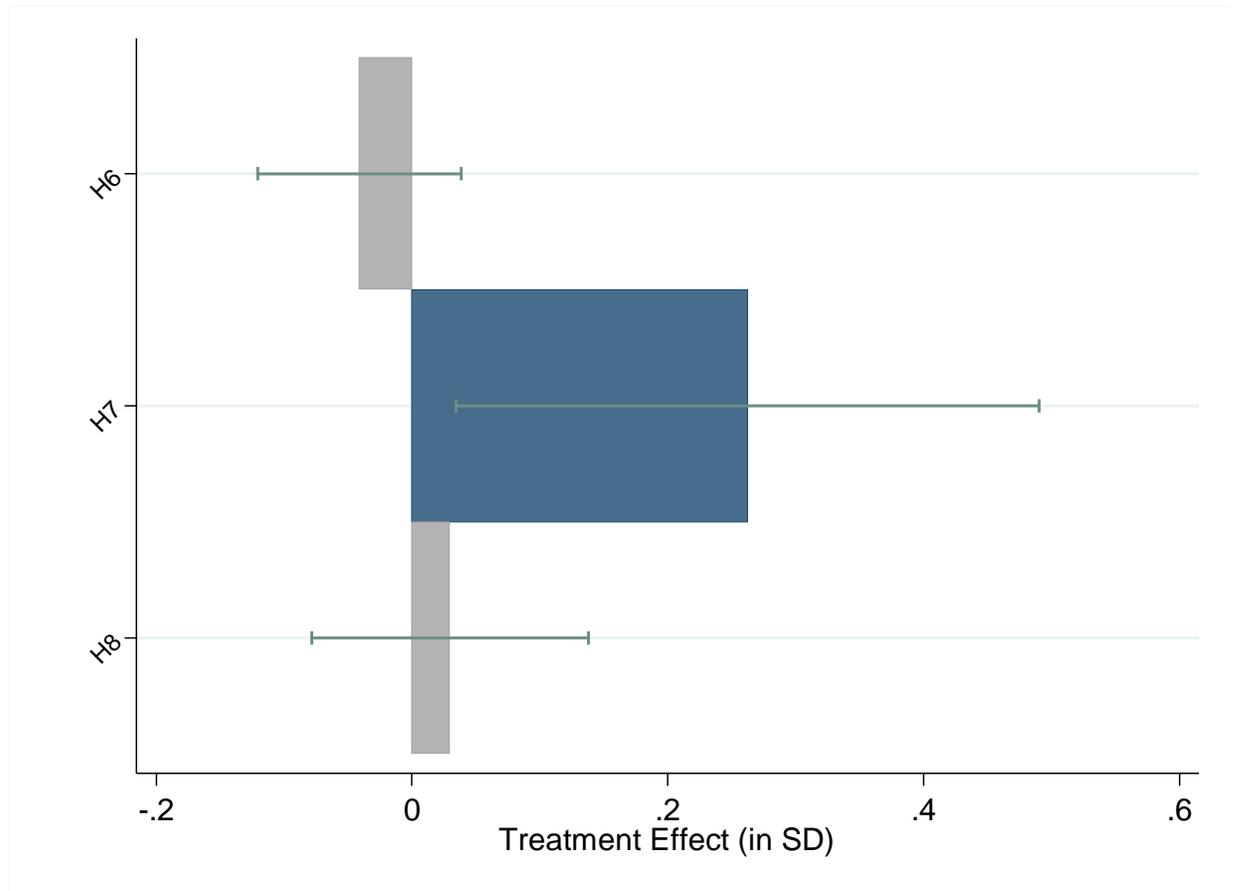
We see no significant change in the level of interaction among peers (H6); in fact, familiarity with fellow community members and the frequency with which people discussed problems with fellow community members declined slightly, although not significantly.

Yet when considering the interactions with volunteers, not captured in the quantitative instruments, the FGDs with KC volunteers suggested that KC enabled them to form social bonds with outsiders, such as the KC staff from DSWD and with municipal government officials. They believed that KC had little impact on forming new bonds within the barangay since almost everyone is related by familial or kinship ties. (This consistent with the point above that respondents on average knew 71 percent of barangay residents and had at least one relative in 23 percent of barangay households.)

We also do not see a significant change in the ability of KC beneficiary communities to deal with hardship (H8). The change in the index was small and positive but not significant. This finding is notable because our interim survey did find significant effects, although these appear not to have persisted into the third round.

There were no long-term hypotheses in this domain.

Figure 6.9: Intent-to-treat effects for community empowerment



Legend:

H6: KC increases interactions among peers

H7: KC increases participation in community organizations

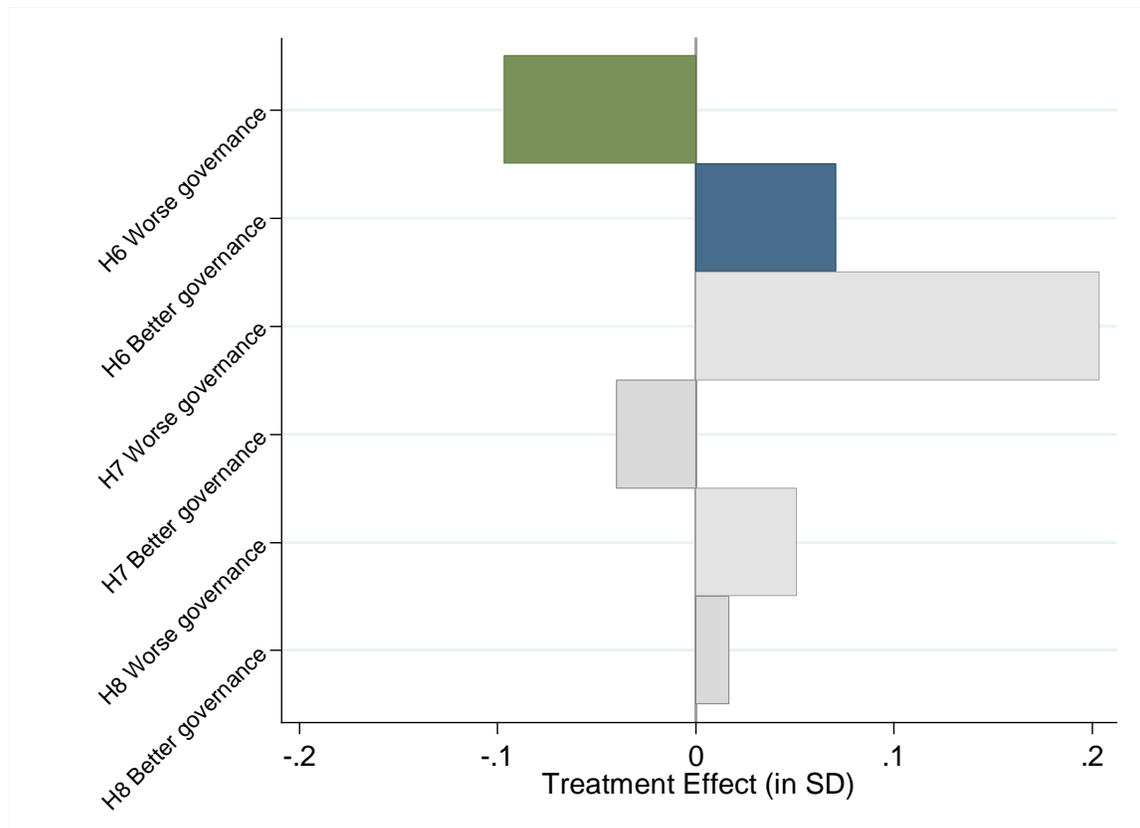
H8: KC improves how well communities deal with natural disasters and hardships

6.4.1 Subgroups

As with the institutional domain, we test our subgroup effects for the empowerment domain in our full sample of barangays. We again find only one hypothesis for which any subgroups exhibit differential treatment effects: KC differentially improves peer interactions (H6) in barangays with better initial governance, while those with worse initial governance experience reductions in these interactions due to KC. These findings are shown in Figure 6.10 below.

However, it is again important to emphasize that in 17 out of the 18 subgroup tests for this domain, we find no statistically distinguishable differences.

Figure 6.10: Intent-to-treat effects for community empowerment across baseline governance



Legend:

- Treatment effects not significantly different across subgroups
- Treatment effects for better governance (which differ significantly)
- Treatment effects for worse governance (which differ significantly)

H6: KC increases interactions among peers

H7: KC increases participation in community organizations

H8: KC improves how well communities deal with natural disasters and hardships

6.5 Additional qualitative insights about KC volunteers' perceptions of KC's benefits

In the FGDs, we asked participants open-endedly about the benefits that they or their communities had received from trainings and subprojects associated with KC. FGDs with KC volunteers, as opposed to focus groups with non-KC volunteers (who live in KC communities), had much more to say on this question. While wary of social desirability biases and the likelihood that community members (and perhaps especially KC volunteers), endeavored to tell us what we wanted to hear, we aimed to give participants the opportunity to raise themes we may not have captured in the quantitative survey. We asked for precise examples in an effort to move beyond responses that may have been learned during the social preparation phase of CEAC, but present these important insights with some reservation.

An analysis of the frequency of key words mentioned in responses reveals that participants appreciated the process behind the implementation of KC, and in particular its transparency. Participants opined that they were allowed to monitor the subproject's status, fund allocation and disbursement and ensure that there would be no commissions involved. They also appreciated the way in which KC built on cooperation that already existed in the barangay and taught new skills. Some KC volunteers spoke about newfound courage to speak to their barangay leaders and to interact with businesses, engineers and entrepreneurs they would have previously considered "above them". One noteworthy response was from a woman who talked about improvements to her self-image and personal presentation. Female respondents spoke to the ways in which their participation in KC sometimes violated cultural norms related to a gender-based division of labor. Women explained how they performed KC-related work that was typically done by men, such as shoveling gravel and sand, finding it simultaneously unconventional and empowering. Finally, another way in which KC skills resonated with participants was expressed on more of an individual level. We heard examples, for instance, of KC-related seminars on managing finances helping people balance their household budgets, while knowledge on procurement and skills related to building construction helped them repair their homes after typhoons.

7. Interpreting third round findings in light of interim results

Our third survey round took place approximately 15 months after our interim survey round, which entailed collecting data in a subsample of 80 municipalities in February to June of 2014. The main focus of the interim survey was to capture short-term outcomes related to governance, empowerment, and community participation while KC was ongoing. Typhoon Yolanda took place in November 2013, so another focus of this survey round was to understand whether households and communities affected by the typhoon made use of KC to support their recovery.

7.1 Comparing main results across rounds

We did not measure many outcomes in the socioeconomic domain at interim because, as noted, the main focus of the survey was governance, empowerment, and community

participation, and we expected improvements in socioeconomic outcomes would take longer to materialize. The only socioeconomic hypothesis we included was a component of H1a, which examined whether newly constructed facilities and roads reduced the travel time and costs to access key services. We estimated a very small and statistically insignificant effect at interim. It is important to note that in the third round, we test a different hypothesis that focuses on the travel time and cost effects only of roads SPs, finding that these are large and significant. As the focus of the interim survey was more institutional and governance outcomes, we were able to compare more outcomes in these areas between interim and third round. Table 7.1 shows this comparison. The green boxes indicate that the coefficient was significant. The white font in the green box indicates that the coefficient was positively significant while the red font in the green box indicates that the coefficient was negatively significant. (This is also indicated by the sign of the coefficient.) The red boxes indicate that the coefficient was not significant. Gray boxes show that the indicator was not measured at interim. Coefficients are in parentheses. The quantity and quality of participation in local governance around decision-making and implementation *related* to KC (H2) was small and significant at interim, but was small, slightly negative, and not significant by third round. H2 looks at households’ knowledge of and participation in BA, BC, and BDC meetings and contributions of labor, cash, and goods to community efforts. These are the most immediate effects of KC, and it’s logical that this indicator would show up as significant at interim. It is possible that the level of engagement in efforts directly related to KC declined after an initial wave of engagement during early CEACs.

Table 7.1: Institutional domain: comparison of interim and third round

Hypothesis/indicator	Interim round	Third round
	Sig (Coeff)	Sig (Coeff)
KC increases quantity and quality of participation in local governance around decision making and implementation <u>related</u> to KC activities	Yes (0.08)	No (-0.04)
KC increases quantity and quality of participation in local governance around decision-making and implementation <u>beyond</u> KC activities*		
KC increases participation in and knowledge of formal structures beyond KC		No (0.02)
KC improves barangay information sharing and inclusiveness beyond KC		No (0.06)

KC increases confidence and self-efficacy beyond KC		Yes (-0.06)
KC increases knowledge and awareness of local governance	Yes (0.132)	Yes (0.22)
KC improves degree to which local projects correspond to ex-ante preferences		Yes (0.21/0.09)**

*There are two gray boxes across both rounds because the indented hypotheses comprise this overarching hypothesis.

** The first coefficient reflects the degree of correspondence between household preferences and KC-funded projects; the second reflects correspondence with non-KC funded projects.

The effects of KC on knowledge and awareness of local governance (H4) were significant at interim and larger (and still significant) by the third round. This is likely because, as communities completed additional CEAC rounds, a greater number of people in the community became familiar with barangay government officials and the BDC. Over time, KC volunteers also participated more in BDC and BC meetings. As discussed in Chapter 6, the qualitative work also noted that in focus groups with KC volunteers, the volunteers said that they helped create greater ties with the community. Sometimes, after their work with KC, KC volunteers ran for barangay council or became appointed as barangay officials. Familiarity with officials could increase if the community was very familiar with the KC volunteer, and then the volunteer went on to become an elected official.

In the area of community empowerment (Table 7.2), the interim analysis examined whether KC increased interactions among peers (H6) and whether KC increased participation in community organizations (H7). KC showed significant impacts on both of these hypotheses at interim. The CEAC process is designed to encourage greater interaction among community members so it’s not surprising that this result materialized by interim. By third round, the coefficient for this hypothesis had declined and was no longer significant. Similar to H2, it is possible that this pattern reflects the ebb and flow of CEAC implementation.

At interim, we observed large impacts on participation in community organizations (H7), equal to nearly 0.3 standard deviations. This hypothesis looks at total time household members spent participating in civic, political, and volunteer groups, contributions to these groups, and the number of these groups in the barangay. As mentioned in Chapter 6, we considered this hypothesis because we wanted to look at whether KC was crowding out non-KC activities. This is clearly not the case. The impact of KC on participation in community organizations was still significant and positive at third round, but slightly lower.

Table 7.2: Community empowerment domain: comparison of interim and third round

Hypothesis	Interim round	Third round
	Sig (Coeff)	Sig (Coeff)
KC increases interactions among peers	Yes (0.15)	No (-0.03)
KC increases participation in community organizations	Yes (0.27)	Yes (0.19)
KC improves how well communities deal with natural disasters and other hardships		No (0.03)

Yolanda and other natural disasters. We estimated the impacts of KC on communities’ capacity to deal with hardships in different but related ways across the interim and third rounds. At interim, we considered the potentially buffering effects of KC of communities dealing with the hardship of Yolanda and other natural disasters.²⁴ We utilized measures of the number of different types of people who gave the household financial and/or moral support, if the person/people offering support resided in the barangay, and whether they received financial and or in-kind support. We found that all the variables that were part of the hardship index were positive and statistically significant. KC improved how people dealt with hardship by 0.433 standard deviation units (statistically significant at the 5 percent level).

By the third round, we expected that the impacts of KC on communities’ capacity to deal with hardship would expand beyond those who had directly experienced natural disasters. H8 thus tests impacts on responses to hardships and tragic events of many kinds. We estimated small and insignificant effects on these outcomes, suggesting that KC had limited impacts on

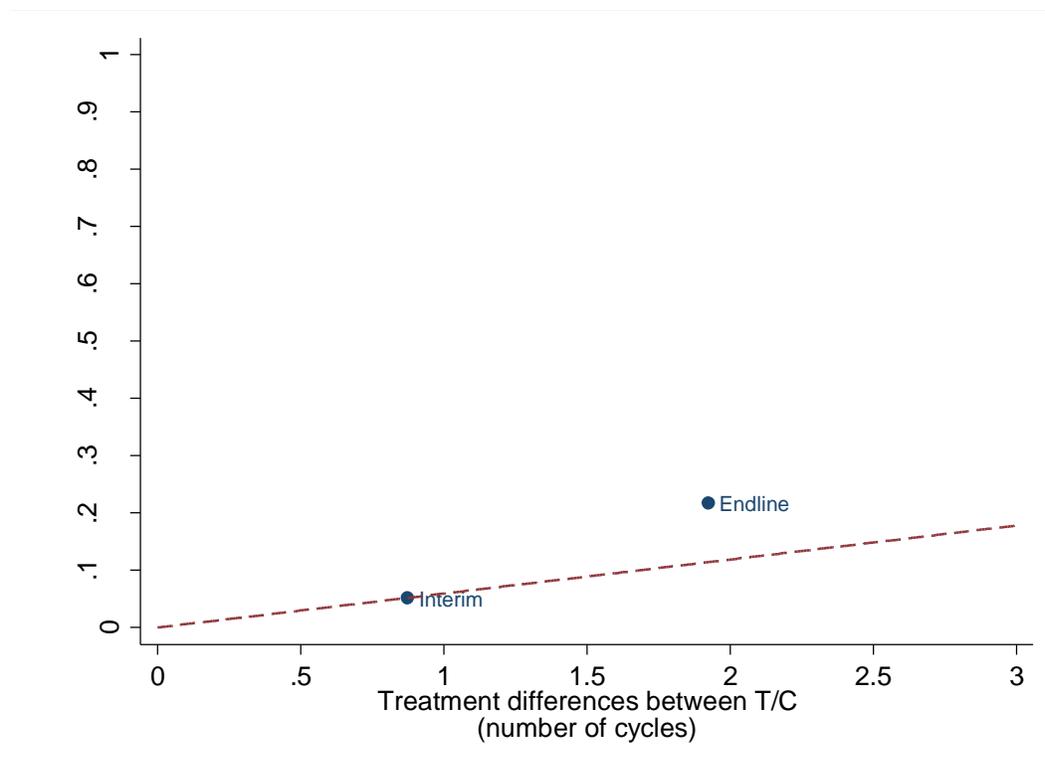
²⁴ We learned from the interim survey that there was no statistically significant difference of the impact of typhoon Yolanda between treatment and control areas. This means that neither treatment nor control municipalities were disproportionately affected by the typhoon, and we could validly use this comparison in our analysis. In both treatment and control areas, 60 percent of households indicated that they had experienced the typhoon, and approximately 45 percent had experienced financial hardship due to it. Typhoon Yolanda severely or completely damaged the homes of approximately 12 percent of households.

communities’ response to hardships, differentially benefitting the worst affected communities in a limited set of interactions.

7.2 Duration Analysis

A core point of debate surrounding CDD projects remains the duration of treatment needed to generate gains in governance and community empowerment. In addition to comparing the main results across rounds, we aim to address this question directly by comparing both the changes in outcomes and the extent of treatment experienced in round. Per our Pre-Analysis Plan, we narrow our focus to the hypotheses on which we have comparable data in both rounds: H4 (knowledge and awareness of local government), H6 (peer group interactions), and H7 (participation in community organizations). We limit our sample to the 80 barangay in which we collected interim data, structure our data in a panel framework, and re-estimate our main specification using both waves. Figures 6.11-6.13 below display the results for each of the hypotheses.

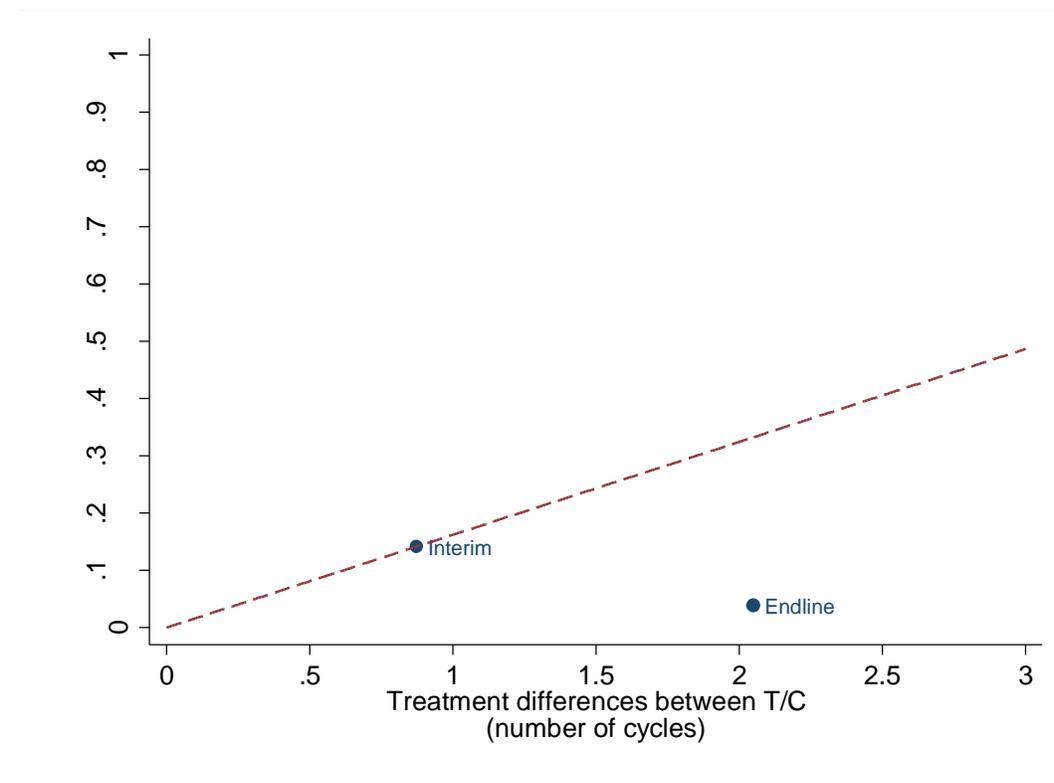
Figure 6.11: Duration Analysis for Impacts on Knowledge of Local Governance (H4)



We observe small impacts on knowledge and awareness of local governance at interim, which grow disproportionately at endline, as shown in Figure 6.11 above. The horizontal axis plots the difference in treatment between Treatment and Control groups (in terms of the number of CEAC

cycles completed). The vertical axis plots the differences in outcomes between Treatment and Control groups (in standardized units, after regression adjusting for baseline values and matched pair fixed effects). The dashed line projects the linear fit of the relationship between outcome differences and treatment differences at interim, suggesting that impacts at endline considerably larger than those predicted by a linear relationship. In fact, impacts at endline in this sample are approximately twice those expected based on the interim gains, showing disproportionate growth between interim and endline. These results suggest that additional treatment—especially the second and third CDD cycles—lead to important and large gains in residents’ engagement with local government officials.

Figure 6.12: Duration Analysis for Impacts on Peer Interactions (H6)



The results for the duration of impacts on peer interactions, shown above, are quite different than those on knowledge of local governance. Here, we see a significant gain at interim that dissipates completely by endline, suggesting that changes in community engagement do not necessarily broaden or deepen social interactions in a lasting fashion. Nor is it the case that additional treatment leads to disproportionately broader or deeper social interactions.

Figure 6.13: Duration Analysis for Impacts on Contributions to Community Organizations (H7)

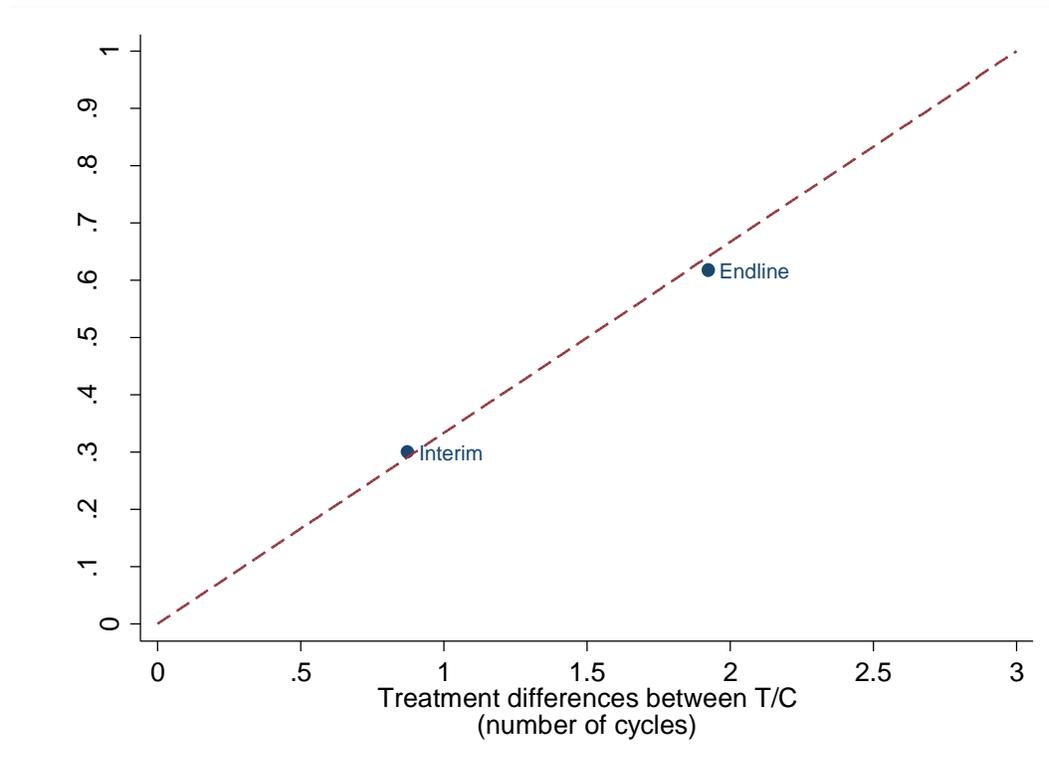


Figure 6.13 displays the relationship between outcome differences and treatment differences for respondents’ contributions to community organizations. We observe large gains in both survey rounds, with the growth between rounds almost exactly proportional. Note that these results are somewhat larger than those in the full sample for the endline. These results suggest that the second and third CDD cycles see continued growth in community engagement, but this growth is not likely exponential or otherwise disproportionately linked to longer programs. That is, such impacts are visible after only one CEAC cycle, and these early impacts are predictive of longer-term impacts.

8. ERR

We compare the magnitude of socioeconomic impacts to the project costs via a benefit cost analysis that estimates an economic rate of return (ERR). At the inception of the project, MCC estimated that KC would have an ERR of 12.6 percent (ERR Sensitivity Analysis - Philippines: Kalahi-CIDSS: The Community Empowerment Activity Cycle (CEAC), March 2012). This ERR model included benefit streams from roads rehabilitation and concreting, water system installation,

expansion of barangay health centers, schools, day care centers and improvement of post-harvest facilities.

As part of this final report, we have constructed a new ERR model that only focuses on the three SP types for which we had a large enough sample to reliably estimate specific effects (roads, water systems, and education). Together, these account for 40% of all funded SPs by frequency. The net benefits from each of these three SP types were aggregated by using their relative shares in the overall KC project portfolio.

For these three SP types, we focused on updating parameters in the ex ante ERR model with new estimates from our evaluation. In several instances, we opted for different benefit streams that were better described by our data. In such cases, we continued to use parameters from the ex ante model as appropriate. As in the ex ante model, we do not explicitly include any benefit streams from impacts on governance or community empowerment.

We calculated the average construction cost for each SP type in the full KC project portfolio, including LGU, DSWD, and MCC contributions, and estimated the on-going maintenance costs. As in the ex ante ERR, the benefits from road improvements and water systems were expected to last 10 years, while school expansion benefits were modeled to last 20 years. We then calculated the benefit streams for each SP type as follows:

Table 8.1: ERR Model Benefit Streams

Roads Upgrading	Calculation and parameters
Increase in livestock & poultry profits	<i>Difference in (revenues – transport costs for livestock & poultry) across T/C x Num of HHs</i>
Travel cost savings	<i>Difference in ave. travel costs to all destinations across T/C x Num of annual trips x Num of HHs</i>
Reduction in rice production	<i>Difference in yields across T/C x Influence area x Plantings per year x Price of paddy</i>
Water System	
Savings in direct costs of obtaining water	<i>Difference in weekly costs of obtaining water across T/C x Num of HHs x 52 wk/yr</i>
Savings in time spent obtaining water	<i>Difference in weekly time spent across T/C x (Mean wage x 25%*) x Num of HHs x 52 wk/yr</i>
School Expansion	
Additional years of school	<i>Difference in elementary & secondary enrolments across T/C x Returns to additional year of school x Labor force participation rate</i>

* Mean wages are discounted to 25% to reflect lower value of non-working time.

Italicized parameters were estimated in the impact evaluation; all parameters in standard font were previously estimated in the ex ante ERR. We updated the latter parameters for inflation and validated them with data from our evaluation sample, where available.

The overall project ERR model including all of these benefit streams is **3%**. Excluding the large negative impacts imposed by the roads SPs on rice yields raises the ERR to 28%. The losses to farmers from the lower rice yields thus dramatically outweigh the benefits from savings in travel costs and improved profits from livestock and poultry. We have validated the parameters for the rice production benefit stream by confirming the share of households planting palay/rice, the average area covered by each harvest, the number of plantings per year, and the price at which these households sell their harvests in our evaluation sample data.

The second largest benefit stream is that from the additional enrolments in elementary and secondary schools. Even at modest returns to these additional years of schooling, the large jump in enrolments generates substantial improvements in the future productivity and earnings for these barangays. We do not account for any general equilibrium effects that might reduce wages in response to the greater supply of better educated workers, nor do we include any complementarities that might improve the average productivity of better educated workers.

An important caveat is that our ERR model excludes benefits and costs for a variety of SP types, including disaster preparedness, environmental, health centers, day cares, community halls, and other facilities. We excluded these types based on sample size, and we do not have reasons to believe that the benefits or costs from these excluded SPs are higher or lower than those included in our analysis. Thus, our ERR estimate is not biased, but substantial uncertainty around the estimate remains.

9. Conclusions

The KC community-driven development project, implemented at the municipal level across the three main island groupings of the Philippines, sought to improve residents' socioeconomic situations, help them become more engaged in local government, and empower communities. This evaluation, a five-year randomized control trial with three rounds of surveying paired with real-world observations and qualitative research, found both marked successes and notable areas where no effects were detected.

The KC project successfully engaged communities in an inclusive process to identify their priority public goods. Our interim results showed substantial participation in this process during its implementation, and the third round findings indicate this participation and the process itself led to a selection of projects that differentially reflects the priorities stated by local residents.

Information sharing and inclusiveness improved in some areas, leading to gains in residents' knowledge and awareness of local governance. Our duration analysis finds these gains are disproportionately larger than those observed at interim, suggesting that later CEAC cycles were important to cementing the contact between residents and local government leaders. At the same, this improved knowledge was accompanied by worsening perceptions of confidence and self-efficacy among residents. It is possible that, although the development projects chosen reflected citizens' priorities more closely, other facets of local governance remained unresponsive to these citizens' interests or engagements (while citizens' expectations grew). It is also possible that these facets became even less responsive.

It is also important to note which aspects of local governance KC did not affect: KC does not appear to have changed the quantity or quality of citizen participation in local governance beyond the project. This is a key aspect of the KC theory of change, in which communities experiencing the KC process—with its extensive meetings and wide community engagement—apply a similar model to other, non-KC efforts. We do not find any evidence that this has occurred, both when measured in household interviews and in our structured community activity explicitly designed to capture these dynamics. One explanation for this is that the current barangay governance structure does not easily allow for KC-like engagement. Citizens can be involved in the BAs, but these typically occur just twice a year and are mainly for reporting purposes, not engagement about project decisions. The BDC, which is more geared towards project selection, is not open to community participation. So in order for KC to affect the quantity or quality of citizen participation in local governance beyond the project, local governance may need to be more inviting of citizen participation.

Because the KC process is relatively involved, reasonable concerns arise about the project's crowding out of other civic activities. We find that having been exposed to KC actually led these residents to contribute to other civic activities at greater levels, allaying such concerns about crowding out (and even suggesting some crowding in).

The actual subprojects constructed by KC appear to have created some gains, and we reliably find impacts associated with several types of projects. Completed roads SPs led to improved travel time and cost to basic services and lower transport costs for agricultural products, although they negatively affected agricultural productivity, and had no effect on productivity for fisheries or livestock and poultry. Education SPs improved enrollment in primary and secondary schools; and water SPs reduced the time and cost spent obtaining water. All gains were important, medium-sized gains. The overall gains from these diverse SPs remain limited when compared to the costs, largely because of losses in rice production associated with roads SPs. The project's overall ERR thus remains relatively low (3%).

The diversity in the mix of SP types in KC does limit the evaluation's ability to identify the gains associated with less common investments, which together still consist of a non-trivial share of the overall portfolio. At the same time, those outcomes which truly span SP type (household

consumption and assets) and thus apply to the full set of municipalities that had completed SPs also do not indicate any impacts due to KC, possibly because it takes longer for improvements in these broader measures to materialize.

From a policy perspective, it is safe to conclude that the KC *process* is better than the status quo at identifying residents' public goods preferences. Residents' needs were clearly better met by KC. We have less to say about whether KC as an *implementation* model is superior to other modalities. We don't have good measures of whether for example a feeder road or a school rehabilitation implemented by KC versus the municipal government offers better outcomes to residents. We recognize that the municipal government play a role in implementing the KC process, but our point here is that KC involves less of a role in implementation for municipal government and a greater role for citizens at the barangay level than projects typically implemented by the municipality. Indeed, just over half of survey respondents in KC areas said that KC and the municipal or other government implementer were equally good at implementing projects that benefit the community (only a third said that KC was superior). Thus it seems sensible from a policy perspective to attempt to replicate the early CEAC stages in terms of project prioritization and gathering community input on what projects to implement. It may also be worth further research to test what implementation modality results in superior implementation quality. One can envision that an implementation model with heavy citizen engagement and input at the outset yet less engagement on the implementation side could still generate projects that met community needs.

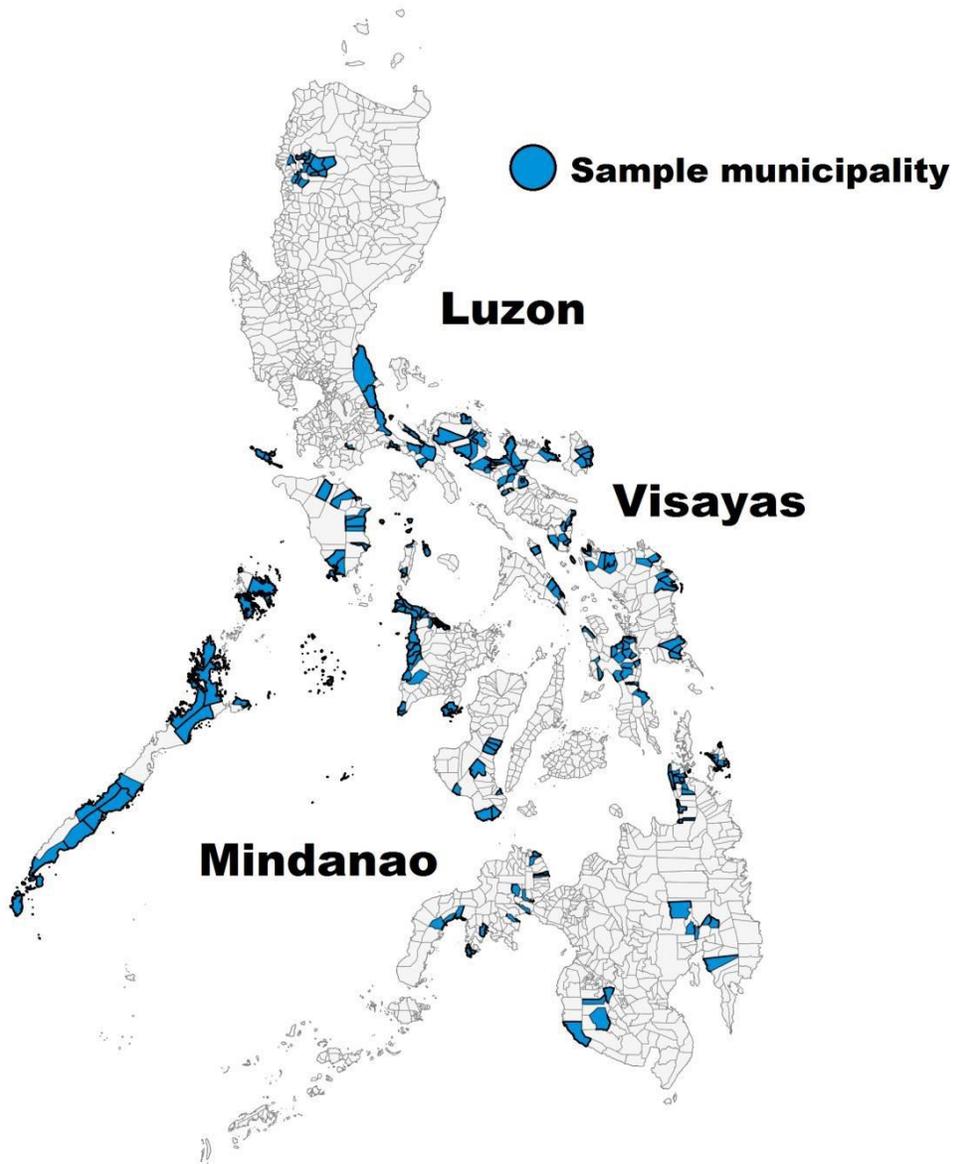
While the KC process generated public goods that residents wanted and preferred, it is important to remember that KC did not achieve long run goals of poverty reduction, as measured by household assets, consumption, warehousing value; or labor force participation or household earnings. However, it may be too ambitious to expect subprojects to translate into changes in consumption and assets over a three-year timeframe.

It is hard to say that KC surely promotes better governance or citizen engagement. Some aspects indicating the early stages of KC – participation in local governance, knowledge and awareness of local governance, peer interaction – all improved. If the policy goal is to improve these indicators, then seemingly the CEAC process could be effective at promoting these goals. However, it may be too much to expect that KC is able to transform how citizens engage with and rely on each other and government. Residents did not buy into the KC process so much as to replicate it in other contexts outside of KC, perhaps because government structures do not allow for that, or because the KC process wasn't yet so ingrained that communities felt the need to apply it in other contexts. In fact, this study shows that being exposed to the KC process *decreased* residents' confidence and expectation that they have the ability to improve their circumstances. This could be because they became engaged but disillusioned by the process, or that it is challenging from an individual perspective to see how one's actions affect long-run outcomes.

Thus while KC met implementation goals of greater community engagement in the KC process and delivering benefits to residents through subprojects, it fell short of some project expectations, namely transforming how communities interact and engage with government. However, it is clear that some of these goals were overly ambitious and perhaps too much to expect of one project. This evaluation, along with others in the CDD field, supports the questioning of the CDD theory of change, and asks whether projects that deliver basic infrastructure should limit costs and aim to focus only on this infrastructure rather than broader, more transformative social processes.

Appendices

Appendix 1: Map of Treatment and Control Areas



Appendix 2: Additional Estimates

Table A1: ITT Treatment Effect Estimates by Hypothesis

Domain	Hypothesis	Treatment Coefficient	SE	t statistic
Socioeconomic	H1A Roads	0.17	0.06	2.84
	H1A All	0.14	0.08	1.73
	H1B	0.17	0.08	2.25
	H1C_AG	-0.20	0.09	-2.20
	H1C_LP	0.01	0.05	0.22
	H1C_FA	-0.04	0.02	-1.86
	H1E	0.42	0.08	5.12
	H1H	0.15	0.07	2.07
	LT1 Consumption	-0.03	0.03	-1.26
	LT1 Housing	-0.03	0.02	-1.25
	LT1 Assets	-0.04	0.03	-1.35
	LT2	0.02	0.01	1.56
Institutional	H2	-0.03	0.11	-0.24
	H3A HH	0.00	0.00	1.48
	H3A SCA	0.09	0.07	1.28
	H3A All	0.04	0.06	0.65
	H3B	-0.06	0.04	-1.45
	H3C	-0.07	0.03	-2.37
	H4	0.28	0.06	4.86
	H5_KC	0.581	0.097	5.96
	H5_non_KC	0.238	0.068	3.47
	LT3	0.02	0.03	0.74
	LT4	0.23	0.19	1.19
Empowerment	H6	-0.03	0.04	-0.75
	H7	0.31	0.14	2.31
	H8	0.04	0.04	1.12

Table A2: Summary Stats by Hypothesis

Hypothesis	Variable	Control Mean [SD]	Treatment Mean [SD]
H1a			
	<i>Average travel cost to reach...</i>		
	Elementary school	1.104 [1.827]	1.073 [1.289]
	High school	13.198 [10.106]	23.028 [14.045]
	Bgy health center	4.241 [5.623]	4.751 [7.669]
	Private health clinic	81.149 [126.221]	42.275 [20.004]
	Public hospital	79.802 [107.464]	47.639 [19.389]
	Paved road (4-wheel passable)	3.788 [5.833]	2.280 [1.999]
	Dirt road (4-wheel passable)	1.615 [3.543]	1.317 [2.017]
	Dirt road (2-wheel passable)	1.484 [2.521]	0.582 [1.134]
	Nearest public transportation	0.761 [1.609]	0.265 [0.579]
	Public market	52.621 [110.303]	31.525 [14.320]
	Municipality poblacion	85.394 [210.190]	33.686 [16.668]

Hypothesis	Variable	Control Mean [SD]	Treatment Mean [SD]
H1b			
	Share of Livestock & Poultry Sold at Market	0.042 [0.193]	0.170 [0.371]
	Share of Agricultural Products Sold at Market	0.446 [0.495]	0.504 [0.495]
	Market Transport Costs (Weighted Ave Across All Crops)	701.767 [795.134]	133.724 [280.753]
H1c			
	Palay/Rice yield per sq.meter, most recent harvest	0.961 [1.857]	0.566 [0.969]
	Banana yield per sq.meter, most recent harvest	1.802 [2.902]	0.593 [0.986]
	Camote yield per sq.meter, most recent harvest	0.455 [0.501]	0.480 [1.135]
	Cassava yield per sq.meter, most recent harvest	0.696 [0.942]	0.455 [0.793]
	Coconut yield per sq.meter, most recent harvest	0.209 [0.553]	0.087 [0.097]
	Corn yield per sq.meter, most recent harvest	0.072 [0.163]	0.252 [0.599]
	Eggplant yield per sq.meter, most recent harvest	0.425 [0.287]	0.348 [0.440]
	Gabi Tubers/Abalong yield per sq.meter, most recent harvest	0.520 [0.601]	1.111 [1.361]

Hypothesis	Variable	Control Mean [SD]	Treatment Mean [SD]
H1e			
	Number of facilities (elementary and secondary)	1.000 [0.000]	1.333 [0.500]
	Number of students enrolled (elem and secondary)	45.000 [13.038]	47.778 [9.484]
	Student teacher ratio (elem and secondary)	13.700 [22.795]	5.204 [2.773]
H1h			
	Rating level of water source (1-3)	1.216 [0.844]	1.250 [0.879]
	Share of households paying for drinking water	0.225 [0.409]	0.318 [0.469]
	Total minutes fetching water per week	112.056 [394.689]	64.904 [139.143]
	Average cost for drinking water per week	32.340 [30.188]	22.783 [24.153]

Hypo.	Variable	Control Mean [SD]	Treat Mean [SD]
H2			
	Participation in governmental group/institution in the last 12 mos.	0.254 [0.436]	0.261 [0.439]
	Total instances of participation in different activities by HHs in the last 12 m	2.349 [2.499]	2.260 [2.096]
	Total days participated by HHs in the last 12 mos	9.426 [32.17]	8.094 [19.362]
	Total contributions of cash and/or goods by HHs in the last 12 mos	34.140 [382.4]	35.254 [339.70]
	Attended a barangay council (BC) meeting	0.085 [0.279]	0.076 [0.265]
	Attended a barangay assembly (BA) meeting	0.770 [0.421]	0.812 [0.391]
	Attended a barangay development council (BDC) meeting	0.096 [0.294]	0.089 [0.285]
	Times attended a barangay council meeting	0.787 [2.855]	0.786 [3.147]
	Times attended a barangay assembly meeting	1.276 [1.317]	1.492 [1.516]
	Times attended a barangay development council meeting	0.346 [1.712]	0.302 [1.512]
	Proportion of HHs who knew when next BA will be	0.137 [0.344]	0.114 [0.318]
	Proportion of HHs who were informed about BA in last 12 mos	0.891 [0.312]	0.885 [0.319]
	Proportion of HHs who think BAs should be open to the public	0.802 [0.397]	0.799 [0.400]
	Proportion of HHs who attended a BA in the last 12 mos	0.724 [0.447]	0.725 [0.447]
	Proportion of HHs who spoke publicly at the last BA attended	0.115 [0.319]	0.087 [0.282]
	Times HHs spoke publicly at the last BA attended	0.125 [0.536]	0.101 [0.508]

Hypo.	Variable	Control Mean [SD]	Treat Mean [SD]
	Proportion of HHs who said brgy resident attendees of BA were consulted in decis	0.746 [0.436]	0.698 [0.459]
H3a			
	Attended a municipal council meeting	0.036 [0.059]	0.031 [0.034]
	Met/called/sent a letter/texted a politician	0.019 [0.029]	0.018 [0.025]
	Participated in a protest or demonstration	0.001 [0.008]	0.001 [0.005]
	Participated in an information campaign	0.006 [0.015]	0.008 [0.019]
	Informed newspaper/radio/tv station to a local problem	0.003 [0.011]	0.002 [0.009]
	Notified police about a local crime	0.014 [0.022]	0.015 [0.025]
	Filed a complaint to the lupong tagapamayapa	0.012 [0.021]	0.008 [0.016]
	Times Attended a muni council meeting	0.109 [0.280]	0.124 [0.221]
	Times Met/called/sent a letter/texted a politician	0.205 [1.014]	0.219 [0.951]
	Times Participated in a protest or demonstration	0.002 [0.011]	0.001 [0.005]
	Times Participated in an information campaign	0.020 [0.067]	0.028 [0.079]
	Times Informed newspaper/radio/tv station to a local problem	0.007 [0.026]	0.005 [0.034]
	Times Notified police about a local crime	0.025 [0.052]	0.030 [0.081]
	Times Filed a complaint to the lupong tagapamayapa	0.015 [0.028]	0.015 [0.046]
	SCA: Total number of attendees	66.825 [48.769]	66.475 [36.213]

SCA: Proportion of female attendees (out of total attendees)	0.706	0.716
	[0.137]	[0.126]
SCA: Proportion of 4Ps attendees (out of total attendees)	0.381	0.431
	[0.191]	[0.159]
SCA: Proportion of IP attendees (out of total attendees)	0.119	0.084
	[0.236]	[0.181]
SCA: Proportion of barangay residents in attendance	0.067	0.064
	[0.064]	[0.043]
SCA: Average attendee age	45.780	45.312
	[3.494]	[3.142]
SCA: Number of interventions (times people spoke)	38.250	41.650
	[24.323]	[28.019]
SCA: Number of female agreement statements	8.988	10.238
	[8.556]	[9.918]
SCA: Proportion of female agreements (out of total agreements)	0.534	0.511
	[0.284]	[0.262]
SCA: Number of female disagreement statements	1.288	1.275
	[1.765]	[1.938]
SCA: Proportion of female disagreements (out of total disagreements)	0.359	0.349
	[0.411]	[0.385]
SCA: Number of female questions	4.362	5.525
	[4.952]	[7.519]
SCA: Proportion of female questions (out of total questions)	0.317	0.382
	[0.299]	[0.352]
SCA: Number of non-SB member agreements	8.775	11.825
	[5.631]	[10.842]
SCA: Proportion of non-SB member agreements (out of total agreements)	0.541	0.562
	[0.238]	[0.229]
SCA: Number of non-SB member disagreements	1.363	1.513
	[1.826]	[1.956]
SCA: Proportion of non-SB member disagreements (out of total disagreements)	0.378	0.438
	[0.419]	[0.408]
SCA: Number of non-SB member questions	3.850	3.587
	[4.827]	[4.656]
SCA: Proportion of non-SB member questions (out of total questions)	0.242	0.210

	[0.244]	[0.214]
SCA: Meeting not dominated by BC member	0.550	0.700
	[0.504]	[0.464]
SCA: Voting occurred	0.575	0.600
	[0.501]	[0.496]
SCA: Decision made during meeting	0.700	0.800
	[0.464]	[0.405]
SCA: Clear next steps	0.800	0.700
	[0.405]	[0.464]
SCA: Meeting duration (minutes)	39.875	39.600
	[21.341]	[27.751]
SCA: Follow-up forms available & complete	0.525	0.525
	[0.506]	[0.506]
SCA: Community implemented planned project	0.775	0.900
	[0.423]	[0.304]
SCA: Total labor hrs contributed by the community	125.675	116.471
	[153.847]	[93.924]
SCA: Total PHP value of community material & other contributions	2763.637	3282.46
	[4787.83]	[5363.3]
SCA: Hardware Store and Community Claims Forms Match	0.875	0.875
	[0.335]	[0.335]

Hyp.	Variable	Control Mean [SD]	Treat Mean [SD]
H3b			
	HH respondents: No issues where community should have been consulted but was not?	0.842 [0.365]	0.844 [0.363]
	HH respondents: No groups dominate decision-making in BAs?	0.845 [0.362]	0.861 [0.346]
	Number of bgy council meetings conducted in the last 12 months	23.808 [7.707]	23.081 [7.392]
	Number of people who attended the last bgy council meeting	10.374 [5.275]	10.838 [6.102]
	Number of bgy development council meetings held in the last 12 months	5.989 [6.871]	5.533 [6.420]
	Number of people who attended the last bdc meeting	26.954 [43.52]	21.382 [29.83]
	Number of bgy assembly meetings held in the last 12 months?	2.909 [2.322]	3.677 [3.120]
	Number of people attended the last bgy assembly meeting	154.14 [106.968]	165.40 [218.812]
	Share of bgy council members that are female	0.304 [0.191]	0.282 [0.170]
	Share of bgy dev council members that are female	0.393 [0.180]	0.406 [0.167]
	Share of attendees that were female at the last bgy council meeting	0.355 [0.193]	0.346 [0.191]
	Share of attendees that were female at last BA meeting	0.601 [0.147]	0.636 [0.174]
	Number of community groups/activities/prgms registered w any authorized agency	5.273 [3.392]	4.960 [3.763]
	Number of times the BDC meet w/ a community act/ prog per year	14.162 [18.669]	18.990 [24.845]
	Number of community grps/activities/prgms that participate in decision-making processes	2.606 [2.885]	3.222 [3.309]
	Number of ways in which people were informed about the last BA	2.293 [1.127]	2.182 [0.962]

Number of orgs involved in creating the brgy dev plan	1.717	1.687
	[1.021]	[1.103]
Decisions were made during the last bgy assembly	0.727	0.768
	[0.448]	[0.424]
Last bgy assembly a decision an inclusive process?	2.208	2.211
	[1.020]	[1.062]
No groups dominate decision-making in BAs?	0.970	0.929
	[0.171]	[0.256]

Hypo	Variable	Control Mean [SD]	Treatment Mean [SD]
H6			
	Know anyone in random reference HH?	0.673	0.662
		[0.294]	[0.294]
	Know anyone in random reference HH, excluding kin?	0.452	0.452
		[0.274]	[0.267]
	How many people do you know from random reference HH?	1.701	1.678
		[0.905]	[0.895]
	How many people do you know from random reference HH, excluding kin?	1.090	1.092
		[0.764]	[0.739]
	How often do you talk to random reference or anyone in HH?	0.970	0.899
		[0.731]	[0.677]
	Discussed problems with random reference or anyone in HH?	0.072	0.058
		[0.185]	[0.154]
H7			
	Total number of groups in each brgy	7.485	8.030
		[2.159]	[2.102]
	Total minutes in meetings during past 12 months for all HH members (average duration x number of meetings)	7278.440	7173.493
		[4515.051]	[4335.702]
	Total value of contributions in cash and goods by HH members to all community groups	153.824	239.946
		[209.789]	[482.845]
H8			
	Help received in case of death	0.616	0.638
		[0.779]	[0.795]
	Help received in case of illness	0.689	0.703

	[0.661]	[0.647]
Help received in case of loss of employment	0.537	0.563
	[0.548]	[0.597]
Help received in case of other calamities	0.625	0.622
	[0.684]	[0.737]
Help received in case of loss of harvest	0.285	0.295
	[0.476]	[0.476]
Help received in case of home burglarized or vandalized	0.132	0.141
	[0.340]	[0.350]
Total number of people that helped	0.805	0.835
	[0.953]	[1.015]
Helped by someone inside the brgy	0.526	0.555
	[0.500]	[0.497]
Total number of types of support received	1.303	1.345
	[0.668]	[0.728]

Appendix 3: Qualitative findings on perceptions of local governance (LT3)

Results in the interim survey suggested that KC may have affected perceptions of local corruption, leading us to devote attention to this issue during the qualitative fieldwork in the third round. While we do not find any impacts on LT3 concerning these perceptions in the third round survey results, our qualitative fieldwork nonetheless provided a number of important insights.

Participants in focus groups were generally most active and intense in the part of the conversation addressing commissions. They discussed the practice as a standard one, least evident at the barangay level, but clear among officials at higher levels of government, including the municipal level. One participant used a helpful metaphor, explaining that the hands of every official need to be smeared by charcoal and that the stain from the charcoal decreases as the charcoal is passed lower and lower. By providing information on how projects are implemented, and their costs, the KC process allowed residents to realize that the practice of commissions has been and is prevalent in non-KC projects. FGD participants made clear that commissions are not included in KC projects.

Conversations typically went back and forth from discussing commission as a bad or corrupt practice, to a good practice if it is shared with the people, to a negative practice to the extent that government officials will demand something in return, such as delivering votes during elections. Commission was simultaneously seen as a corrupt practice, a reward, something critical for project completion, and a reduction in the usable funds for a project. Overall, though, there was a general sense of tolerance for *komisyon*, perhaps as a practice ingrained in Filipino culture that individuals found themselves powerless to counter. It appeared that FGDs with KC volunteers were more critical of commission, as opposed to the FGDs with broader community members, perhaps reflecting key messaging during the early phases of CEAC.

There were nuances raised between the two words that we used in the survey “porsyento” and “komisyon” with the former often considered legal and pegged to a specific amount in a budget (such as 10 percent) and the latter a hidden part of the project, akin to corruption.

Appendix 4: Performance of KC on indicators from the MCA-P M&E plan

Indicator	Definition	2016 results
Percentage of households that report increase in confidence to participate collectively in community development activities compared to project initiation	Percentage of households that report increase in confidence to participate collectively in community development activities between interim and endline surveys.	5 percent Sample: 2400 HHs responding to both interim and 3 rd rd)
Household income	Household income using the Government of the Philippines’ definition. The primary income and receipts from other sources received by all family members during the reference period, as participants in any economic activity or as recipients of transfers, pensions, etc.	12-month labor income: 4,294 PHP Sample: 3,519 HHs (3 rd rd)
Percentage of households with access to sanitation facilities	Percentage of households with access to sanitation facilities (The impact evaluation design was not statistically powered to see changes in access to sanitation services)	88 percent Sample: 3938 HHs (3rd rd)
Travel time savings	Average one way travel time to each of the following basic services: elementary school, high school, barangay health center, private health clinic, public hospital, paved road, dirt road, public transport, public market and municipality poblacion.	Elementary school: 12 min High school: 24 min Barangay health center: 14 min Private health clinic: 49 min Public hospital: 57 min Paved road: 13 min Dirt road (4-wheel vehicle passable): 11 min Dirt road (2-wheel vehicle passable): 9 min Public transport: 9 min Public market: 37 min

		Municipality poblacion: 34 min
Labor force participation	Labor force participation using the Government of the Philippines' definition. It is the percentage of the total number of persons in the labor force to the total population 15 years old and over.	62 percent
School enrolment	Percentage of students currently enrolled or intend to enroll in school (Ages 3-5)	77 percent Sample: 1,098 children(3rd round)
School enrolment	Percentage of students currently enrolled or intend to enroll in school (Ages 6-11)	99 percent Sample: 3099 children (3rd round)
School enrolment	Percentage of students currently enrolled or intend to enroll in school (Ages 12-15)	95 percent Sample: 2234 children (3rd round)
Number of beneficiary farming households	Number of farming households that benefit from agriculture subprojects	2639 HHs
Yield of paddy rice	Quantity of palay/rice harvested (in kilos) divided by the area of land in hectares	7,479 Kilos/Hectare Sample: 1,489 HHs (3 rd rd)
Percentage of household with piped supply as the main source of drinking water	Percentage of households with piped supply as the main source of drinking water in the dry and rainy season.	29 percent Sample: 1314 HHs (3rd round)
Number of visits to health station	Average number of times any household member has gone to the health station or been visited by a health officer from the health station for medical treatment during the last month. (Note if different household members visited the facility, each will count as one visit).	0.6 Sample: 4500 HHs (3rd round)

Works Cited

Avdeenko, A. & M. Gilligan. 2015. "International interventions to build social capital: Evidence from a field experiment in Sudan". *American Political Science Review*, 109 (3): 427-449.

Barron, P. 2010. "CDD in post-conflict and conflict affected areas: Experiences from East Asia" in *World Development Report 2011 - Background Report*. Washington DC: The World Bank.

Barron, P., M. Humphreys, L. Paler, & J. Weinstein. 2009. "Community-based reintegration in Aceh: Assessing the impacts of BRA-KDP" in *Indonesian Social Development Paper No. 12*. Jakarta: The World Bank.

Beath, A., A. BenYishay, G. d'Adda, P. Grosjean, & R. Weber. 2017. *Decentralization, elite capture, and private contributions: Experimental evidence from the Solomon Islands*. Available at: <https://dl.dropboxusercontent.com/u/1562312/Papers/BBDGW%20%28May%202015%29.pdf>.

Beath, A., F. Christia, & R. Enikolopov. 2012. Winning hearts and minds through development: Evidence from a field experiment in Afghanistan. *SSRN Electronic Journal*, 1-32.

Beatty, A., A. BenYishay, E. Felix, E. King, A. Lalian, A. Orbeta, M. Pradhan, & S. Sethi. 2013. Impact evaluation of the Kalahi-CIDSS: Baseline report. Retrieved from the Millennium Challenge Corporation website: <http://data.mcc.gov/evaluations/index.php/catalog/59>

Bruhn, M. & D. McKenzie. 2009. "In pursuit of balance: Randomization in practice in development field experiments". *American Economic Journal: Applied Economics*, 1(4): 200-232.

Casey, K., R. Glennerster & E. Miguel. 2011a. *The GoBifo project evaluation report: Assessing the impacts of community driven development in Sierra Leone*. Berkeley: Brown University, Abdul Latif Jameel Poverty Action Lab & University of California.

Casey, K., R. Glennerster & E. Miguel. 2011b. *Reshaping institutions: Evidence on aid impacts using a pre-analysis plan*. NBER Working Paper No. 17012. Available at: <http://www.nber.org/papers/w17012>

DSWD, KC Area Coordinating Team (ACT). "Evaluation sample data from KC Area Coordinating Team (KC ACT) datasets. Data from DSWD's KC project monitoring database, 2011-2015".

Fearon, J.D., M. Humphreys & J.M. Weinstein. 2008. *Community-driven reconstruction in Lofa County: Impact assessment*. Available at: http://www.columbia.edu/~mh2245/FHW/FHW_final.pdf

Fearon, J. D., M. Humphreys & J.M. Weinstein. 2014. How does development assistance affect collective action capacity? Results from a field experiment in post-conflict Liberia. Available at: <http://www.columbia.edu/~mh2245/papers1/FHW2015.pdf>

Humphreys, M., R. Sanchez, & P. van der Windt. 2012. Social and economic impacts of Tuungane: Final report on the effect of a community driven reconstruction programme in eastern Democratic Republic of Congo. New York: Columbia University.

Humphreys, M., R. Sanchez, & P. van der Windt. 2013. "Fishing, commitment, and communication: A proposal for comprehensive nonbinding research registration". *Political Analysis* 21(1): 1-20.

Imbens, G. 2015. "Matching methods in practice: Three examples". *Journal of Human Resources*, 50(2): 373-419.

IPA (Innovations for Poverty Action). 2014. *Barangay Assembly (BA) Observations: Brief Report*. Presented to MCA-P June 13.

King, E. 2013. *A critical review of community-driven development programmes in conflict-affected contexts*. London and New York: Department for International Development (DFID), Research for Development & International Rescue Committee (IRC).

King, E. & C. Samii. 2014. "Fast-track institutions building in conflict-affected countries? Insights from recent field experiments". *World Development*, 64: 740-754.

Kling, J., Liebman, J. & Katz, L. (2007). Experimental analysis of neighborhood effects. *Econometrica*, 75(1), 83–119.

Kumar, N. 2005. The effectiveness of World Bank support for community-based and -driven development: An OED evaluation. Herndon, VA: The World Bank.

Labonne, J. & R.S. Chase 2011. "Do community-driven development projects enhance social capital? Evidence from the Philippines". *Journal of Development Economics*, 96(2): 348-358.

Lim, C. P. & C.G. Pascual. 2012. Analytical and field report: Qualitative baseline study of the Kalahi-CIDSS Project. Ateneo Social Science Research Center.

Mansuri, G. & V. Rao. 2004. "Community based (and driven) development: A critical review." World Bank Policy Research Working Paper No. 3209. Washington D.C.: The World Bank.

Mansuri, G. & V. Rao. 2013. *Localizing development: Does participation work?*. Washington DC: The World Bank.

Millennium Challenge Corporation. ERR Sensitivity Analysis - Philippines: Kalahi-CIDSS: The Community Empowerment Activity Cycle (CEAC), March 2012.

McFadden, D. L. 1976. Quantal choice analysis: A survey. *Annals of Economic and Social Measurement*, 5(4), 363-390.

Millennium Challenge Account - Philippines. 2016. *Monitoring and evaluation plan*. Manila.

Olken, B. A., J. Onishi & S. Wong. 2014. "Should aid reward performance? Evidence from a field experiment on health and education in Indonesia". *American Economic Journal: Applied Economics*, 6(4): 1-34.

Republic of the Philippines, DBM-DILG-DSWD-NAPC. 2012. *Joint memorandum circular no. 3*. Available at: <http://dilg.org/downloads/TRANSPARENCY%20SEAL/2013%20BUB/BUB%20Guidelines%20for%202014.pdf>

Republic of the Philippines, Department of Social Welfare and Development (DSWD). 2012. *Sub-manual: CEAC field guide for Kalahi-CIDSS area coordinating teams*.

Republic of the Philippines, Department of the Interior and Local Government (DILG), Local Governance Regional Resource Center. 2017. *Local Governance Performance Management System (LGPMMS)*. Available at: <http://ncr.dilg.gov.ph/home/index.php/2012-05-26-06-07-22/capacity-development/local-governance-performance-measurement-system>

Voss, J. 2008. Impact evaluation of the second phase of the Kecamatan Development Program. Jakarta: The World Bank.

Wong, S. 2012. What Have Been the Impacts of World Bank Community-Driven Development Programs? CDD Impact Evaluation Review and Operational & Research Implications. Washington DC: The World Bank.