Election, Implementation, and Social Capital in School-Based Management:

Evidence from COGES Project in Burkina Faso

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Abstract

In this paper, we investigate the role of School Management Committees (COGES) in Burkina Faso in facilitating voluntary contributions to public goods among community members and teachers. We adopt a hybrid evaluation method of randomized controlled trials and artefactual field experiments with which we can approach unexplored issues on sustainability of voluntary provision of local public goods closely and identify the mechanisms at least partially. We find that the COGES project increased social capital significantly: with the treatment of the COGES project, the amount of people's voluntary contributions to public goods increased by around 8.5%-24%, which can be explained by 0%-14.7% of the election effect of COGES members and 8.5%-9.4% of the COGES project implementation effect. Our findings are inconsistent with learning or repeated game hypotheses but are supportive of other-regarding preferences, such as altruism, trust, and social norms. Community management projects also seem to improve local cost recovery, potentially leading to better fiscal sustainability of community-driven projects.

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1. Introduction

To achieve universal primary education in developing countries, a variety of policy interventions have been proposed on both the supply and demand sides, ranging from expansion & improvements of school infrastructure to deworming, information sharing, free school lunch, free school uniform and conditional cash transfers (Kremer, 2003; Miguel and Kremer, 2004; Jensen, 2010, Duflo and Kremer, 2003; Banerjee and Duflo, 2006; Duflo, Glennerster, and Kremer, 2008; Glewwe, 2002). Also, policy-makers and researchers regard School-Based Management (SBM), which is defined as a particular form of decentralization of various decision-making powers and forms of budgetary control from the central government to the school level, as one of the key instruments to deliver effective educational services (Barrera-Osorio, Fasih, and Patrinos, 2009; Westhorp, et al., 2014). However, estimated policy effects of SBM on various outcomes are still mixed: while a set of studies has found positive impacts of SBM (Barrera-Osorio et al. (2009), Gertler et al. (2006, 2007), Blimbo, Evans, and Lahire (2011), Bruns, Filmer, and Patrinos (2011), Pradhan et al. (2011), Duflo, Dupas, and Kremer (2012), other studies report negligible impacts of SBM (Banerjee et al., 2010; De Laat, Kremer, and Vermeersch, 2008; Kremer and Holla, 2009).

Another issue is sustainability of voluntary provision of local public goods including education services, school buildings & other infrastructure at local schools, which are to some extent characterized by non-rivalry and non-excludability within each school. By the 1990's, international development strategies of delivering public services have shifted from top-down central government driven strategies to decentralization strategies under which budgets and decisions are delegated to local communities and other stakeholders to sustainably provide their own public goods (Miguel and Kremer, 2007). The hope is that bringing decision-making power and accountability closer to those who benefit will make the service delivery system more

efficient, effective, and sustainable (Mansuri and Rao, 2013). In fact, development policy makers and researchers have begun to realize that the quality of social sector programs will improve when such programs are governed by an autonomous entity involving beneficiaries (Bardhan, 2002, 2004; Bardhan and Mookherjee, 2005). While the reasoning is compelling, the evidence on the effectiveness of the decentralized public projects is only beginning to emerge. This is partly due to the difficulty in designing and implementing rigorous evaluations of decentralized policies to facilitate the community's voluntary provision of public goods. In a set of small-scale interventions in Kenya, Kremer and Miguel (2007) found that a number of interventions, such as local cost-sharing and verbal commitment intervention were all ineffective, concluding that it may be difficult for a onetime infusion of external assistance to promote the indefinitely sustainable voluntary provision of most local public goods. However, evidence may not be strong enough yet to support such a conclusion and it is still important to approach the question of whether the formation of user committees by donors can be effective in delivering social services in rural developing countries.

This paper aims at filling a part of these two gaps in the existing literature by evaluating an SBM program in the elementary education of Burkina Faso, a.k.a., Comites de Gestion dans des Ecoles Primaires (COGES) project, in a rigorous manner. We adopt a hybrid evaluation method of randomized controlled trials and artefactual field experiments (Levitt and List, 2009). By doing so, we also examine the fiscal sustainability of the SBM program. While we employ reduced-form econometric models, our unique evaluation setting also enables us to partially disentangle the channels of the project impact.

There are three novel aspects of our study. First, we provide the first evidence on an SBM program *per se* as opposed to existing studies which investigate sub-components of SBM programs (Pradhan et al., 2014; Barr et al., 2012; Beasley and Huillery, 2012; Blimpo, Evans, and

Lahire, 2013). Because there are still few rigorous evaluations of SBM in low income communities, we believe we make an important contribution to the literature. Second, we adopt a hybrid evaluation method of randomized controlled trials and artefactual field experiments. Such an evaluation strategy allow us to approach unexplored issues on sustainability of voluntary provision of local public goods closely. Third, while our evaluation places a particular focus on the impacts of SBM on social capital, eliciting levels of social capital precisely by artefactual field experiments, we also identify the mechanisms at least partially by utilizing the timing of different aspects of the intervention and data collection through panel structure of our hybrid experimental data. More specifically, we estimate differentiated treatment effect in the different project phases; one impact for the direct effects of SBM elections and the other impact for the project implementation itself.

To preview our results, we find that the COGES project increased social capital significantly: in the villages treatment with the COGES project, the amount of people's voluntary contribution to public goods increased by 8.5%-24%, which can be explained by 0%-14.7% of an election effect of COGES members and 8.5%-9.4% of the COGES project implementation effect. Community management project seems to enable significant local cost recovery, potentially leading to better fiscal sustainability of a community-driven project. Our findings are inconsistent with learning or repeated game hypotheses but are supportive of other-regarding preferences, such as altruism, trust, and social norms.

The rest of this paper is organized as follows. In Section 2, we explain basic features of the COGES project as well as our hybrid experimental strategies. Section 3 shows our estimation results which is followed by the final section for concluding remarks.

2. A Hybrid Experiment of COGES Project

Background

Burkina Faso is one of the countries lagging behind in achieving universal primary education.[1] To address these deficiencies, the government of Burkina Faso adopted the Poverty Reduction Strategy Papers (hereafter PRSP) in 2000 and stated that one of the most important goals of the PRSP is to "guarantee that the poor have access to basic social services." To achieve this goal, Ministry of Basic Education and Literacy or Ministere de l'Enseignement de Base et de l'Alphabetisation (hereafter MEBA) drew up the Basic Education Ten-Year Development Plan or Plan decennal de developpement de l'education de base (hereafter PDDEB) from 2000 which comprised Phase I until 2006 and Phase II from 2007 until 2010. In the latter phase, strong emphasis was placed on improving the quality of basic education by decentralizing the education system. During Phase II, a presidential decree in July 2007 mandated tuition-free primary and lower middle education. The government also adopted the Education Policy Law (Lettre de politique educative) in July 2008 to specify concrete strategies to achieve the MDGs in the education sector. In the decentralization process, each district was divided into the lowest administrative levels for basic education or Circonscription d'education de base (hereafter CEB). Each CEB has an office, staffed with inspectors (inspecteur) to facilitate teacher training programs. In 2009, the government issued a decree (2009-106) to delegate the right to manage infrastructure in preschool, basic education, and literacy programs to CEB.

[1] The education system of Burkina Faso comprises three years of preschool, six years of primary, four years of lower secondary, and three years of upper secondary education, followed by tertiary education. Multi-grade classrooms are also common, especially in rural schools.

Since the initiation of PDDEB, enrollment at public primary schools has increased 9.7% annually, but discrepancies between boys and girls are widening, especially in the poorer regions. Moreover, dropouts and grade repetitions are still major constraints to achieving universal completion of a full course of primary schooling. To tackle these problems, the government enacted a decree to initiate Comité de Gestion de l'Ecole (hereafter, COGES) in May 2008. In 2009, with technical assistance from Japan International Cooperation Agency (JICA), MEBA started the "School for All" project or, more formally, "Support for the Improvement of School Management through a Community Participation Project" to improve the quality of basic education in Burkina Faso. Hereafter, we call this project "COGES project."

COGES Project

COGES basically involves setting up a committee in each primary school whose members are elected in a democratic manner from among the parents of the students and community members. Although Parents' Associations (APE) and Mothers' Associations (AME) have existed as school councils in Burkina Faso since the 1960s, they have had limited function in actual school management. In order to involve wider local stakeholders in school management in an attempt to improve child education, health, and nutrition and so that parents and community are empowered, the government issued a decree to establish new school committees (COGES) in 2008, and stipulated COGES to be composed of the mayor, the presidents of APE and AME, the school director, and representatives of teachers, NGOs and teacher union. While COGES has a central role in setting and executing an annual school activities plan, a distinctive feature of the intervention is the introduction of a democratic election to select new COGES members in addition to the members already defined by the decree. These new members include the COGES

president and persons in charge of community participation, girls' enrollment, monitoring, accounting, and auditing. The rationale of the democratic election is to build confidence among the community members by making COGES transparent and representative of the community.

After the election, COGES members organized a series of community meetings in which any community members within the school district could participate. The agenda of the first meeting was to discuss the problems facing the school, and based on the discussion, the COGES members made an action plan to be implemented within the school year. The second meeting was then held to discuss and approve the action plan. A typical plan included constructing and repairing school facilities such as classroom, desks, chairs, and toilets for female students, providing school lunch for students and housing for teachers, and purchasing learning materials for students. Because most of the schools could not expect external resources, COGES also mobilized financial and physical resources within the community in order to implement the school action plan. The third meeting was held to monitor the implementation of the action plan, and the forth meeting evaluated the COGES activities implemented in the year. The same cycle was repeated every year: at the beginning of the new school year, COGES and the community members made a new action plan for the year including a plan to implement, monitor, and evaluate the action plan using their own resources.

RCT-Based Evaluation

To assess the causal effect of the COGES project intervention rigorously, we conducted a randomized controlled trial (RCT) in the form of randomized "roll-out" in all elementary schools of Ganzougou Province. Utilizing the school list provided by Ministry of Basic Education and Literacy, we first partitioned a total of 279 schools in the province into 30 strata in terms of 10

educational districts (CEB) and three school type; public schools, private Islamic schools, and private Catholic schools (Table 1). Using random assignment within each stratum, 141 schools were grouped into first-year COGES schools (or simply, treatment schools) and the other 138 schools were grouped into second-year COGES schools (or control schools). During the data collection, however, we discovered that some schools actually did not exist or had been closed so that the number of the schools was reduced to 134 and 132 for treatment and comparison groups, respectively.

We conducted surveys of stakeholders with carefully-designed questionnaires to the school director, a teacher randomly selected in each grade, 5 randomly selected students of each interviewed teacher and the household head of each of the 5 randomly selected students. The first-round baseline and the second-round end-line survey were conducted in December 2009/January 2010 and in January/February 2011, respectively. For the artefactual field experiments described below, we utilized randomly selected subsets of the schools in first-year and second-year COGES schools.[2] Table 2 reports the test results of pre-treatment balance in observables across interventions on subjects of artefacual field experiments. The results indicate that we cannot reject the null hypothesis of no mean differences in the pre-treatment covariates between these two groups.

The Sequence of COGES Project

To facilitate the COGES elections and project design and implements, the COGES project conducted several types of trainings for stakeholders. The sequence of the COGES project is

[2] In the baseline experiments, there are 41 and 40 schools in the first-year and second-year COGES schools, respectively.

described as follows (Figure 1). First, in order to establish COGES, the school directors in the treatment schools or the first-year COGES schools attended two days training in January 2010 to organize community meetings and to hold an election. Then there were two community meetings in the same month: one for election information sharing and the other for actual election of COGES members by secret voting by all village residents. After the elections, the school directors, COGES presidents and accountants, and representatives from the municipal offices participated in two days training for action plan making, its implementation, monitoring and evaluation. These events were followed by actual implementation of school activities and collective monitoring. Because the project was designed as a randomized roll-out project, it provided the same training interventions for the second-year COGES schools starting from November 2010.

A Hybrid Experiment

We adopt a hybrid evaluation method of randomized controlled trials combined with artefactual field experiments for which we conduct a public goods game with the school director, teachers, parents, and elected COGES members. The public goods game is one of the standard laboratory experiments used to capture voluntary cooperation among subjects (Levitt and Fehr, 2004; Camerer and Fehr, 2004; Cardenas and Carpenter, 2008) and is regarded as a way to elicit a measure of social capital (Anderson et al., 2004).

In public goods game, each anonymous participant is placed in a group containing N members and given an initial endowment, E. In forming groups of four members, we set five group types: groups composed of four fathers; four mothers; two fathers and two mothers; a school principal, one father, and one mother; and four elected COGES members. Each participant in each group has to decide the amount of Y_i, that is how much of this endowment to contribute

to make public goods. The total contributions are then calculated and multiplied by a factor ρ where $1<\rho<N$ by the experimenter. The final contribution amount is divided equally among the group members. Hence the final payoff of each group member becomes:

$$\pi_i = (E - Y_i) + \frac{\rho}{N}\sum_{i=1}^{N} Y_i \,. \tag{1}$$

Note that $\partial\pi_i/\partial Y_i=-1+(\rho/N)<0$ when $1<\rho<N$. Since the zero-contribution strategy, i.e., $Y_i=0$, is a dominant strategy, the Nash equilibrium is a situation where $Y_i=0$ for all i. Hence, the actual amount Y_i represents the deviation from the individually rational Nash equilibrium and we can interpret Y_i as a measure of a participant's propensity for voluntary cooperation. In our actual experiments, we designated groups of four members, i.e., $N=4$, and an initial endowment of 500 FCFA, i. e., $E=500$ FCFA. FCFA refers to the Franc Communauté Financière Africaine, which is a currency backed by the French Treasury and used in Burkina Faso and many other West African Francophone countries. To understand the magnitude of these transfers note that the official minimum wage rate in Burkina Faso is 1,050 FCFA per day. However, it is common to set a daily wage rate at 300 to 500 FCFA in rural agricultural and urban service sectors. So keeping the entire transfer and contributing nothing would be the equivalent of approximately one day of work for many individuals in our sample.[3] We set $\rho=2$ and doubled the collected amount. Also, we asked each participant to play the public goods game twice in an anonymous setting before providing monetary compensations for the games. This is to examine the observed patterns in the existing laboratory experiments in which after playing repeatedly, provision of the public good declines toward the free riding level with each repetition regardless of information about the

[3] Note that, in our experiments, one whole set of experiments lasts about two hours.

length of the game beforehand (Andreoni, 1988).

The public goods game is the generalization of the prisoner's dilemma game in that N group members decide simultaneously how much to invest in the public good. Hence, the invested amount, which is the deviation from the Nash equilibrium, can be interpreted as social capital in the form of conditional reciprocity, i.e., reciprocated expected cooperation (Anderson et al., 2004; Levitt and List, 2005; Carmerer et al, 2009).

However, a voluntary contribution in the public goods game may be influenced by the degree of altruism rather than a voluntary contribution to public goods. To separate the effect of pure altruism, we follow Cox (2004) to use the results of the dictator game and control for the effects arising from altruism. The dictator game is conducted as a hypothetical question. Initially, each participant is randomly matched by another person randomly chosen from the same experimental session. The participant is then asked for the amount of transfers without a repayment obligation out of the initial endowment of 500FCA from the list of possible transfers, {0, 100, 200, 300, 400, 500FCFA}. Since there is no self-interested reason for the sender to transfer money, the actual positive amount of transfer is interpreted as the level of altruism (Camerer and Fehr, 2004; Levitt and List, 2007).

The Econometric Model

We estimate the impacts of the COGES project on the level of social capital Y which is captured by the results of public goods game. Because the COGES project involved a particular sequence of intervention and experiments, we need to take some care with the econometric model. Note that we first conducted the public goods experiments in February 2010 right after the election of the first-year COGES schools. The second round of public goods experiments were conducted

in November/December 2010 after the elections for the second-year COGES schools (Figure 1).[4] Therefore, our observations from the public goods games can be classified into four cases as is shown in Table 3. If we employ the first-year "before" data, the outcome difference between the first-year and second-year COGES schools, i.e., $a_{1b} - a_{2b}$, shows the impact of the election because while the election had occurred in the treatment schools, the COGES project had yet to be implemented. With the second-year "after" data, the outcome difference between the first-year and second-year COGES schools, i.e., $a_{1a} - a_{2a}$, shows the impact of the implementation of COGES activities in the first-year COGES schools because the 2nd year schools had then been exposed to the election while the 1st schools had been exposed to both the election and COGES project The total impact of the COGES projects can then be quantified by aggregating the election and the implementation effects. Note that the conventional difference-in-difference estimator captures the difference between these two effects.

Accordingly, we can employ the following linear regression model to quantify the Average Treatment Effects on the Treated (ATT) of the COGES project on the level of social capital *Y*:

$$Y_{it} = \alpha + \beta D_i + X_{it}\gamma + u_{it}, \tag{2}$$

where we define a binary treatment variable *D* that takes one if COGES is placed during the first year and zero otherwise, *i* stands for an individual and β represents ATT, and *X* is a set of covariates. Note that when *t* is the first year, the treatment effect β can be interpreted as the effect generated by the election. Alternatively, when *t* is the second year, the treatment effect β can be interpreted

[4] One of the reasons for setting this timing is in that we need elected COGES member information to form COGES member groups for the experiments.

as the effect generated by the project implementation. By the nature of our RCT intervention, we can impose the ignorability assumption, i.e., $(Y^1,Y^0) \perp D \mid X$, where the level of social capital of the first-year and second-year COGES schools is denoted by Y^1 and Y^0, respectively. Since 12 schools out of the 137 first-year COGES schools did not conduct COGES projects due to their slow project adoption speed, we estimate Equation (1) using instrumental variables of being randomly assigned the election treatment. In doing so, we identify the treatment effect on the subpopulation of compliers, i.e., the local average treatment effect (LATE) of Imbens and Angrist (1994).

3. Results

Tables 4 and 5 summarizes the estimation results of the election and implementation effects, respectively, using the first-year and second-year COGES schools data. Note that each participant plays the public goods game twice in an anonymous setting, so we report the estimation results from the 1st round and 2nd round public goods game as well as combined two rounds data in each year. In Table 4, we report the estimation results based on the first year data. In this table, the estimated election effects captured by the coefficient on the treatment variable, D, are mixed: while the first round public goods game shows that stakeholders in the first-year COGES schools, on average, contribute 29.5 FCFA (10.6%) in specification (3) to 41 FCFA (14.7%) in specification (1) more than those in the second-year COGES schools who contributed 278 FCFA on average in the first year, the second round public goods game exhibits insignificant election effects. The combined 1st and 2nd round experiments also show that the participants in the first-year COGES schools contributed significantly larger amounts to the public goods—on average, 28.8 FCFA or 10.2% increase. Moreover, as we can see from specifications (7), (8), and (9), the

2nd round public goods game stimulates significantly larger amount of voluntary contribution to the public goods than that in the 1st round. Since this finding under publicly-announced fixed ending time of the game is inconvertible with theoretical possibilities of learning about the free-riding nor voluntary contribution arising from infinitely repeated game (Andreoni, 1988), our results may be affected by other-regarding preferences such as altruism, trust, and social norms. Indeed, we find that altruism captured by the amount sent in dictator game can explain a significant proportion of the amount of voluntary contribution (specifications (3), (6), and (9)).

Table 5 based on the second year data summarizes estimation results of the COGES implementation effects. According to specification (1) and (4), the average project implementation effects in the first-year COGES schools is 33.9 FCFA (9.4%) in the 1st round game and 31.54 FCFA (8.5%) in the 2nd round game, respectively, out of the average 359 FCFA and 371.9 FCFA of the second-year COGES schools. The combined 1st and 2nd round experimental data also provide qualitatively and quantitatively similar estimates (specification (7)). Also, as was the case in the first-year data, the 2nd round public goods game stimulates significantly larger amount of voluntary contribution to the public goods than that in the 1st round (specifications (7), (8), and (9)), rejecting the learning or the infinitely repeated game hypothesis and supporting the existence of other-regarding preferences. Such results are also consistent with the positive estimated coefficients on the altruism variable captured by the amount sent in dictator game (specifications (3), (6), and (9)).

These numbers reported in Table 4 and 5 indicate that, with the treatment of COGES project, the amount of people's voluntary contribution to public goods increased by around 8.5%-24% which can be explained by 0%-14.7% from of the election effect of COGES members and 8.5%-9.4% as a direct result of the COGES project implementation. Community management projects seem to improve local cost recovery, albeit not fully, potentially contributing to better

fiscal sustainability of community-driven projects.

The overall point estimate of the experimental evaluation of the COGES project impact is consistent with a preceding quasi-experimental study of the COGES pilot project in Burkina Faso by Sawada and Ishii (2012), which used data on 248 public goods game participants from 7 COGES schools and 5 non-COGES schools in Oubritenga province, finding a 16% to 27% increase in the amount of voluntary contribution to public goods from the introduction of the COGES project. In addition, the overall qualitative results may be seen as being in line with the comparison of four interventions in Indonesia by Pradhan et al. (2013) which found that the democratic election of school management committee members has been effective, raising the awareness of the school committee, parental supports, and teacher's efforts.

4. Concluding Remarks

In Burkina Faso market underdevelopment is serious obstacle to economic development and the country ranks among the bottom countries in terms of political rights and civil liberty (Freedom House, 2009), it will be valuable to evaluate precisely the impact of democratic policies on public behavior and to understand the process of social capital accumulation which complements market and government failures (Hayami, 2009). In this line, we investigate the role of COGES in facilitating voluntary contribution to public goods among community members and teachers. We adopt a hybrid evaluation method of randomized controlled trials and artefactual field experiments with which we can approach unexplored issues on sustainability of voluntary provision of local public goods closely and identify the mechanisms at least partially. We found that COGES project increased social capital significantly: with the treatment of the COGES project, the amount of people's voluntary contribution to public goods

increased significantly which can be explained by both the election effect of COGES members and the COGES project implementation effect. Through increasing voluntary provision of public goods, community management projects would seem to have the potential to improve local cost recovery, which would lead to better fiscal sustainability of community-driven projects. We believe this is an important finding in practical terms, identifying the key factors in promoting a democratization process in a country with weak governance.

From these findings, we can also derive broader implications regarding the role of community in the developing countries where market mechanism for resource allocation is generally underdeveloped. To correct such market failures, the state provides other mechanisms to enforce people to adjust their resource allocations. However, the state can also fail especially in developing countries because politicians and bureaucrats pursue their own objectives. In contrast, the community is the mechanism that uses social capital to promote voluntary cooperation, facilitating the supply of local public goods. Social capital thus plays a critical complementary role in correcting both market and government failures (Hayami, 2009). In fact, the complementarity between the market and social capital can be well-understood by the public goods game adopted in this study because the public goods game is a version of the prisoner's dilemma game, in which the profit-seeking behavior of self-interested group members leads to a socially sub-optimal outcome or non-Pareto efficient "Nash equilibrium." This is a canonical example of market failure where *laissez faire* cannot achieve the efficient outcome. In the public goods game, levels of voluntary contribution to the public goods are defined as the extent to which the observed outcome deviates away from the socially inefficient Nash equilibrium and toward the social optimal. In other words, the contribution level elicited by the public goods game captures complementarity between market mechanisms and social capital. Our empirical results indicate that such a complementarity can be strengthened by a SBM project.

In future studies, three issues should be explored. First, we need to check robustness of our findings based on a hybrid experiment by investigating real-world decisions. Using the same dataset as ours, Todo et al. (2014) find that the COGES project stimulated the rotating savings and credit associations (ROSCAs), called Tontine in Burkina Faso, to become more active, which indicates that COGES might have generated real-world facilitation of voluntary contribution to public goods. Second, the external validity of our findings should be carefully examined. Although results from the pilot study of Sawada and Ishii (2012) and a study on Indonesia by Pradhan et al. (2013) found consistent results as ours, further external validation would be necessary. Because JICA has been supporting other COGES projects in West Africa (Niger, 2004-; Senegal, 2007-; Mali, 2008-), careful investigations of these other countries would generate important evidence on SBM.

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Table 1

Number of Schools

	Second-Year COGES Schools (Control Group)				First-Year COGES Schools (Treatment Group)			
CEB	Public	Private	Franco Arab	Total	Public	Private	Franco Arab	Total
Boudry I	14	0	3	17	14	0	2	16
Boudry II	11	0	7	18	12	0	8	20
Kogho	6	0	0	6	6	0	0	6
Meguet	11	0	0	11	11	0	1	12
Mogtedo	16	1	7	24	16	2	7	25
Salogo	7	0	0	7	6	0	1	7
Zam	13	0	3	16	14	1	3	18
Zorgho I	13	0	3	16	12	0	2	14
Zorgho II	7	1	0	8	7	0	1	8
Zoungou	7	0	2	9	8	0	3	11
Total	105	2	25	132	106	3	28	137

Table 2

Tests of Pre-Treatment Balance in Observables across Interventions

	The second-year COGES (control)		The first-year COGES (treatment)		*t*-statistics for the null hypothesis of the same mean
	# of observations	Mean	# of observations	Mean	
Age	328	40.460	314	38.892	1.362
Male dummy	329	0.541	315	0.546	-0.127
Years of schooling	329	2.140	315	2.175	-0.111
Director dummy	329	0.043	307	0.046	-0.187
Teacher dummy	329	0.052	307	0.052	-0.025
AME dummy	329	0.030	307	0.033	-0.157
APE dummy	329	0.046	307	0.052	-0.381
Dictator game	324	2.636	315	2.617	0.224

Figure 1

The Sequence of the Events

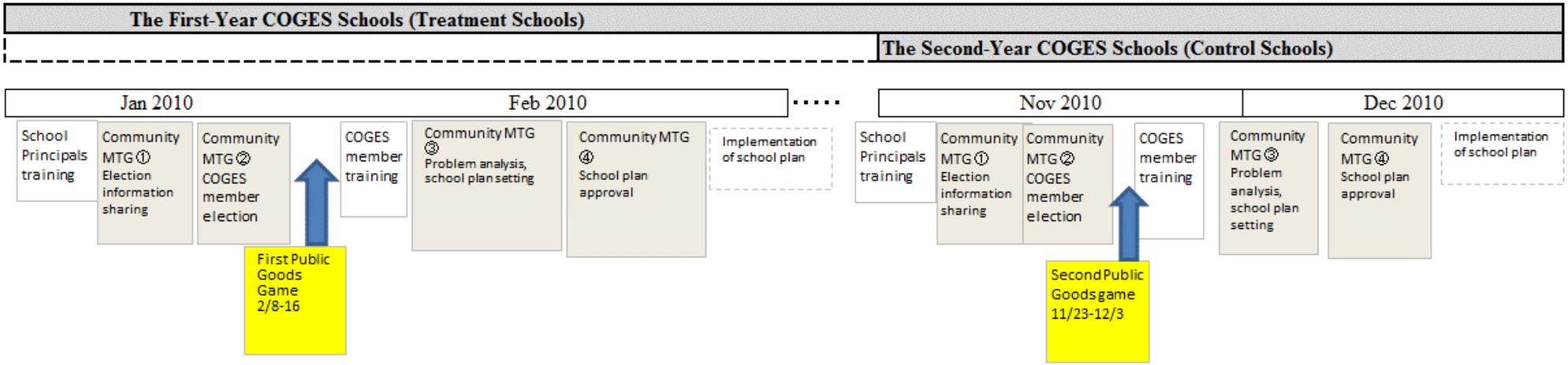

Table 3

Classification of Observations

	Before (first year)	After (second year)
First-Year COGES Schools	a_{1b}	a_{1a}
Second-Year COGES Schools	a_{2b}	a_{2a}

Table 4

Estimated COGES Election Effects Using the First Year Data

	1st round public goods game			2nd round public goods game			1st and 2nd round public goods game		
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Method	IV	IV	IV	IV	IV	IV	IV	IV	IV
Strata FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control	NO	YES	YES	NO	YES	YES	NO	YES	YES
VARIABLES									
D	40.60**	29.49*	32.75**	17.65	10.01	11.58	28.90*	19.75	22.17
	(16.40)	(15.76)	(13.35)	(18.37)	(18.82)	(18.52)	(15.50)	(15.30)	(14.07)
Group 2 dummy		3.230	2.130		-24.23	-24.69		-10.50	-11.30
		(27.26)	(24.68)		(33.12)	(32.97)		(27.10)	(26.04)
Group 3 dummy		3.063	-3.716		-7.074	-9.961		-2.003	-6.851
		(19.01)	(16.95)		(24.24)	(24.13)		(19.47)	(18.66)
Group 4 dummy		59.39**	37.79*		38.70	29.54		49.05**	33.65
		(24.36)	(20.63)		(27.65)	(27.21)		(23.54)	(21.75)
Group 5 dummy		75.03**	56.24**		56.54*	48.56		65.79**	52.39*
		(29.65)	(27.26)		(31.74)	(31.82)		(28.19)	(27.39)
Amount sent in			49.15***			21.10***			35.13***
dictator game			(4.965)			(4.497)			(4.087)
2nd round dummy							29.78***	28.65***	28.39***
							(6.587)	(6.518)	(6.550)
Constant	277.8***	245.5***	121.8***	317.9***	324.3***	270.4***	283.1***	270.6***	181.9***
	(22.68)	(33.33)	(34.22)	(34.33)	(44.28)	(47.44)	(25.14)	(35.06)	(36.98)
Kleibergen-Paap rk Wald F statistic	313.915***	259.438***	264.116***	299.652***	259.742***	264.422***	312.606***	265.839***	270.88***
Observations	716	702	698	712	698	694	1,428	1,400	1,392
R-squared	0.111	0.192	0.341	0.117	0.154	0.177	0.102	0.156	0.224

Note) Robust standard errors in parentheses. + indicates an endogenous variable where the first-year COGES assignment indicator is used as an instrumental variable. Control variables are: age, years of schooling, and dummy variables for male, private school, Islamic school, school director, teacher, AME member, and APE member. *** p<0.01, ** p<0.05, * p<0.1

Table 5

Estimated COGES Implementation Effects Using the Second-Year Data

	1st round public goods game			2nd round public goods game			1st and 2nd round public goods game		
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Method	IV	IV	IV	IV	IV	IV	IV	IV	IV
Strata FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control	NO	YES	YES	NO	YES	YES	NO	YES	YES
VARIABLES									
D	33.85**	34.87**	26.95**	31.54*	32.73**	26.04*	32.70**	33.80**	26.50**
	(16.00)	(15.70)	(13.13)	(17.06)	(16.59)	(14.64)	(16.01)	(15.61)	(13.25)
Group 2 dummy		15.32	3.115		20.31	10.83		17.81	6.971
		(27.37)	(23.87)		(27.22)	(24.97)		(26.14)	(23.17)
Group 3 dummy		13.73	3.270		15.08	6.845		14.40	5.058
		(24.29)	(21.09)		(23.61)	(21.65)		(22.71)	(20.01)
Group 4 dummy		31.01	22.98		47.79**	41.48*		39.40*	32.23
		(23.94)	(21.64)		(24.35)	(22.85)		(22.65)	(20.65)
Group 5 dummy		28.13	22.89		41.98*	37.91*		35.05	30.40
		(22.04)	(19.71)		(23.77)	(22.20)		(21.53)	(19.46)
Amount sent in			45.91***			37.17***			41.54***
dictator game			(4.085)			(4.239)			(3.835)
2nd round dummy							13.04***	13.17***	13.06***
							(3.597)	(3.622)	(3.633)
Constant	359.0***	362.2***	227.2***	371.9***	360.3***	250.5***	358.9***	354.7***	232.3***
	(20.87)	(35.09)	(35.72)	(20.87)	(36.30)	(35.97)	(20.54)	(33.90)	(33.67)
Kleibergen-Paap rk Wald F statistic	873.587***	852.789***	857.063***	873.587***	852.789***	857.063***	879.487***	864.581***	869.484***
Observations	828	820	819	828	820	819	1,656	1,640	1,638
R-squared	0.057	0.080	0.243	0.045	0.075	0.175	0.052	0.077	0.205

Note) Robust standard errors in parentheses. + indicates an endogenous variable where the first-year COGES assignment indicator is used as an instrumental variable. Control variables are: age, years of schooling, and dummy variables for male, private school, Islamic school, school director, teacher, AME member, and APE member. *** p<0.01, ** p<0.05, * p<0.1