J-PAL
ABDUL LATIF JAMEEL POVERTY ACTION LAB

GUIDE 3: REDUCING INEFFICIENCIES IN ROAD CONSTRUCTION

How to Randomize

This guide is based on the paper "Monitoring Corruption: Evidence from a Field Experiment in Indonesia." By Benjamin Olken, Journal of Political Economy, 2007, vol. 115, no. 2.

J-PAL thanks the authors for allowing us to use his paper as a teaching tool.

DESCRIPTION

KDP is an Indonesian Government program established in 1998, supported by a loan from the World Bank. As of 2004, KDP funded projects in approximately 15,000 villages each year. Each village received an average of Rp. 80 million (US$8,800), which they usually used to surface existing dirt roads. KDP-funded projects are large relative to ordinary local government activities. In 2001, the average annual village budget was Rp. 71 million (US$7,800), so implementation of a KDP project more than doubled average local government expenditures.

Two checks on corruption are built into KDP. First, communities are given an official role in monitoring the flow of KDP money going into the village and its utilization. Village implementation teams must produce accountability reports and attend an open village meeting where they present how the previous installment was spent. Second, each project is subject to audits by an independent agency within the central government to scrutinize expenditure reports and monitor the quality of roads constructed, and to punish culprits where appropriate.

LEARNING OBJECTIVE

To explore how an experimental design can be used to answer multiple research questions; to examine randomization strategies.

SUBJECTS COVERED

Evaluation design, randomization design

ADDRESSING KEY EXPERIMENTAL ISSUES THROUGH EVALUATION DESIGN

Different randomization strategies may be used to answer different questions. What randomization strategy could be used to evaluate the following questions? Concentrate on the appropriate unit (level) of randomization for each.

Discussion Topic 1

Testing the effectiveness of audits

1. How would you determine the relative effectiveness of a 100% chance of audit versus only 4% chance of audit?

   Since there was a threat of spillovers for audits being done at the village level, the randomization for this treatment should be done at a higher level in order to curtail these spillovers. Therefore, the level of randomization will be sub district. We'll assign half the sub districts to get 4% chance of audit while the rest of the half to get 100% chance of audit.

Discussion Topic 2

Testing the effectiveness of community involvement

1. How would you determine the effectiveness of meeting invitations?

   Since we're not so worried about spillovers in this case, we'll randomize half the villages to get meeting invitations while the rest of the villages will be control. We can then compare the treatment and control groups to get the impact.

2. How would you determine the relative effectiveness of distributing invitations by sending them home with school children, versus asking the heads of hamlets and neighborhood associations to distribute them throughout their areas of the village?

   We'll divide our sample into three groups. One third of the villages will have the invitations sent through school children, another third of the villages will have the invitations distributed through heads of hamlets and neighborhood associations, and the remaining one third will be the pure control group. We can compare the first group with the control group to get the overall effectiveness of the first intervention, the second group with the control to get the overall effectiveness of the second intervention and the first and second groups to get the relative effectiveness one intervention versus the other.

3. How would you determine the relative effectiveness of comment cards versus the status quo accountability meetings?

   The comment card intervention can only take place as part of the invitations intervention, therefore, what we're really looking for is the marginal effect of comment cards. For the purpose of finding the marginal effect of comment cards we will assign half the villages to get invitations plus comment cards and the other half to receive invitations without any comment cards and then compare the two groups.

   In the description above, we are told that there are two kinds of invitations interventions (school children and hamlet leaders). Therefore, to get the disaggregated effect, we'll need 5 different groups here (1/5 villages in each group): 1) Invitation cards through school children 2) Invitations cards through school children plus comment cards 3) Invitation cards through hamlet leaders 4) Invitation cards through hamlet leaders plus comment cards and 5) pure control. We can compare groups 1 and 2 to get the incremental effect of comments cards for villages where invitations were distributed through school children. We can compare groups 3 and 4 to get the incremental effect of comment cards for villages where invitations were distributed through hamlet leaders. Comparing groups 2 and 5 or 4 and 5 would give us the overall impact of invitations plus comments cards distributed through school children and hamlet leaders, respectively.

Discussion Topic 3

Addressing all questions with a single evaluation

1. Could a single evaluation explore all these issues at once?

   Yes.

2. What comparisons could be made and what would the interpretation be?

   See figure.

Effect	Comparison
100% Audit vs. 4% Audit	F and C
Invitations 1 vs. No invitation	M and C
Invitations 2 vs. No invitation	N and C
Comment cards vs. No comment cards	I and M/ J and N
100% Audit + Invitations 1 + Comment cards vs. nothing	K and C
100% Audit + Invitations 2 vs. 100% Audit	P and F
100% Audit + Invitations 2 + Comment cards vs. 100% Audit	L and F

FIGURE 1