

## CASE STUDY 3: REDUCING INEFFICIENCIES IN ROAD CONSTRUCTION

How to Randomize?

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This case study 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.

## KEY VOCABULARY

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**Level of Randomization:** the level of observation (E.g. individual, household, school, village) at which treatment and control groups are randomly assigned.

**Spillovers:** individuals in the control group (or those not targeted for direct treatment) are indirectly affected by the treatment. In economics, these are called **externalities**. They can also be referred to as "contamination". Spillovers can be positive or negative.

## INTRODUCTION

Corruption plagues many developing countries where the world's poorest live, and combating it continues to be an arduous task. It adds significant costs to the provision of public services, often making them inaccessible to those who need it most. Many observers suggest that the right combination of government-led monitoring and punishments schemes, such as audit-based accountability efforts, can control misappropriation of funds. But often the very individuals tasked with monitoring and enforcing punishments are themselves prone to corruption. Another approach, which has gained prominence in recent years, is to utilize community-level monitoring to reduce "leakages." Local community members have the most to gain from a successful anti-corruption program, and are thus believed to have better incentives to appropriately monitor government programs in their locality. However, there is little empirical evidence regarding the effectiveness of such strategies.

If community-level monitoring is used to combat corruption in government programs, will we see a reduction in leakages? Further, is this approach more effective than to centralized, government-led audits? What experimental designs could test the impact of these interventions?

## THE KECAMATAN DEVELOPMENT PROGRAM (KDP)

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.

The influx of such a large amount of money through KDP creates opportunities for a high level of leakages.

### THE PROBLEM OF LEAKAGES

KDP project implementation teams are often complicit in facilitating program leakages through several methods. The teams may inflate expenditures by, for instance, paying a certain amount for road materials (e.g. rock, gravel, sand), but reporting having paid 50 percent more on official project budgets. Implementation teams may also inflate quantities of reported material procurement. For example, teams claim to procure enough rock, sand, and gravel to make a road that is 20cm thick but instead build a road that is only 15cm thick. Another strategy employed by the teams is to report inflated costs for labor, and/or report expenses for volunteer labor provided by villagers.

In each of these examples, the implementation teams pocket the leakages or share them with complicit partners, such as a supplier that produced an inflated receipt to corroborate a false budget report.

Ultimately, such practices deteriorate the intended benefits of KDP projects. Leakages may result in insufficient funding for other village priorities and poor-quality roads that require expensive ongoing maintenance and do not optimally facilitate local economic development.

### PROGRAG ACCOUNTABILITY STRUCTURE

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. Specifically, KDP funds are disbursed in three installments. To receive the second and third payments, village implementation teams must produce accountability reports and attend an open village meeting where they present how the previous installment

was spent. Only after village members approve accountability reports at the meeting is the next payment released.

Though it is difficult to identify inflated quantities through this approach, it can be particularly useful to catch over-reporting of the cost of materials and labor, given that people in the village are typically aware of market prices and wages. Critically, however, in practice only village leaders who control project funds are likely to attend the accountability meetings. Many of these leaders may be complicit in siphoning off project funds through kickbacks.

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. While legal prosecution is rare, officials found to have stolen money are forced to publicly return the money, which can result in shame and substantial social sanctions. Further, the village would be less likely to win KDP projects in the future. However, many distrust the willingness and ability of the independent auditors to uphold accountability controls. Indeed, they are often complicit in corruption. For example, the auditors may accept bribes from the implementation team or village leader. Notably, even in the absence of auditor corruption, projects had only about a four percent chance of being audited by the government.

Overall, in spite of measures to promote accountability, corruption accounted for a large percent of reported project expenses.

## PROPOSED INTERVENTIONS

### *Stimulating Community Participation*

Many policymakers and researchers believe that social sanctions wield a lot of power over the behavior of decision-makers. In the case of KDP, social sanctions could potentially be harnessed by making the village accountability meetings more inclusive and democratic, and hence more effective in catching any misappropriation of funds. However, two barriers may be obstructing community participation: (a) villagers are not aware of accountability meetings, or believe they are not invited; (b) fear of retaliation stops potential “whistle blowers” from exposing questionable activities. Researchers therefore proposed two interventions:

**Invitations:** Invitations to accountability meetings would be distributed throughout the community, encouraging direct participation in the monitoring process and reducing elite capture of the process. There were two methods of distributing invitations: (a) by sending them home with school children and (b) by asking the heads of hamlets and neighborhood associations to distribute them throughout their respective village areas.

**Comment cards:** An anonymous comment form would be distributed along with the invitations, providing villagers an

opportunity to relay information about the project to be shared at the meetings, without fear of retaliation.

## INCREASING THE PROBABILITY OF AUDITS

The effectiveness of audits at reducing leakages is likely tied to the probability of being audited. With only four percent of KDP projects being audited, implementation teams and village leaders are quite willing to take the risk of misappropriating funds. To test this assumption, researchers proposed the following: after funds are awarded, but before construction begins, villages would be told that their project would be audited by a government agency with 100 percent certainty. These audits would carry the possibility of criminal action for perpetrators. To harness the potential power of social sanctions, the results of the audits would be read publicly at an open village meeting.

## ADDRESSING KEY EXPERIMENTAL ISSUES THROUGH EVALUATION DESIGN

To examine the role of enhanced community monitoring and government audits on leakages, researchers conducted a randomized evaluation in 608 villages (in 156 subdistricts) in East Java and Central Java, Indonesia's most populous provinces. Each village in the study was about to start building a village road with KDP funding.

There was a concern that the audit treatment might be likely to spill over from one village to another, since officials in other villages might worry that when the auditors came to the subdistrict, their villages might be audited as well. The participation treatments, however, would be less likely to have similar spillover effects, since the treatment was directly observable in the different villages early on.

What randomization strategies could be used to evaluate the following questions? How would you design the study? Who would be in the treatment and control groups, and how would they be randomly assigned to these groups? What is the appropriate level of randomization? How would you control for spillovers?

### 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?

### Discussion Topic 2

#### Testing the effectiveness of community involvement

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

### Discussion Topic 3

#### Addressing all questions with a single evaluation

1. Could a single evaluation explore all these issues at once?
2. What comparisons could be made and what would the interpretation be?