Online Annex 2.2. Assessing Corruption Using Natural and Policy Experiments

This annex presents a summary of the micro studies, including randomized controlled trials, used in the main text.

Annex Table 2.2.1. Selected Examples of Randomized Controlled Trials

Reference	Measurement	Conclusion
Chaudhury and others (2006)	Audits/surveys of public facilities.	Nineteen percent absenteeism among public teachers and 35 percent absenteeism among public health workers during unannounced visits by surveyors. Fewer public workers working even if present. Absenteeism increasing in rank of worker, decreasing in whether worker is local and quality of infrastructure. No effect found for wages.
Chen and Liu (2018)	Court records of bribe payments.	Public sector wages have a U-shaped relationship with corruption, where corruption is measured by bribes received. Higher wages reduce corruption when provincial wages and income are low, but the effect disappears where incomes are high.
Dal Bó, Finan, and Rossi (2013)	Exams to measure aptitude: IQ and Big 5 personality traits, questionnaire on public service motivation (Perry's scale)	Higher wage offers for public sector positions in Mexico draw more applicants overall, and more applicants with higher outside wages, higher IQ, and higher public service motivation. Probability of filling position increased by 15 percent. The effect of the wage increase fully counteracts the effect of having to work in worse municipal environment.
Ferraz and Finan (2009)	Census of Brazil's Municipal Councils: Contains data on legislator characteristics including salaries, combined with electoral data.	Higher salaries draw more people into running for office who have higher education, with higher reelection rates (therefore more experience). More bills submitted and approved, more health and education infrastructure.
Banerjee, Duflo, and Glennerster (2008)	Time and date stamping machine. Random audits.	Large initial effect of improved attendance as a result of increased monitoring but effect attenuates after six months. No change in patients treated. Increase in machine malfunctions and exempt days suggesting collusion between the local administrator and nurses being monitored. Accountability cannot be exercised by local government for health administration. Requires intervention by higher levels of government.
Khan, Khwaja, and Olken (2015)	Administrative data: Tax performance/collections. Survey data: Customer satisfaction and accuracy of tax assessment.	Introducing performance pay for tax collectors in Pakistan results in 15 percent higher collections, with no decrease in taxpayer satisfaction. The program has a return on investment of 35.42 percent. However, reports of bribe payments increase.
Bandiera, Prat, and Valletti (2009)	Administrative data: Price paid for purchase of generic goods and source of purchase (central procurement agency vs. other).	When purchasing outside of the central procurement process, prices paid for the same goods vary by institutional characteristics of public bodies. Semi-autonomous bodies pay lowest prices, followed by town and regional governments, with ministries paying highest prices (40 percent higher). Some 82 percent of this waste is passive (not corruption-related), and active waste (corruption) does not vary with the type of institution.
Banerjee and others (2015)	Survey data: Total subsidy received through program,	Delivering cards to beneficiaries informing them of their eligibility and entitlements in an Indonesian rice subsidy program results in higher subsidy received, through lower

	beliefs about program, and number of protests/complaints to local leaders	copay and larger quantities acquired. Public announcements in addition to cards doubles treatment effects.
Banerjee and others (2016)	Administrative data: Expenditures on the National Rural Employment Guarantee Scheme (NREGS) account, households employed. Household survey data on employment and labor payments, infrastructure built.	Twenty-five percent decline in NREGS expenditures with no corresponding decline in probability of employment under scheme (as assessed through household survey) and no decline in infrastructure built. The government of India spends approximately 3 trillion rupees (US$50 billion) every year on centrally sponsored schemes for which money is released to implementation agencies in lump installments.
Lewis-Faupel and others (2016)	Administrative data (scraping government websites): Cost, quality, and delays.	Introduction of electronic procurement systems in India and Indonesia reduces cost of submitting bids for bidders from outside regions. There is no change in prices paid by the government but there are significant decreases in time overruns in Indonesia, and improved quality as determined through independent audit reports in India only.
Muralidharan, Niehaus, and Sukhtankar (2016)	Administrative data for beneficiary lists and benefits paid. Household survey data for household participation and payment received.	Use of biometric payment (smartcards) in Andhra Pradesh in India results in increase in payments with no increase in fiscal outlay—that is, reduced leakage where leakage is measured as the difference between official report of disbursement and survey report of receipt. This also reduced payment lags by 5.8 to 10 days. Cost of implementation (NREGS districts) = approximately US$4 million. Reduction in time costs = US$4.5 million. Reduction in leakage of 12.7 percent annually.
Okunogbe and Pouliquen (2018)	Administrative data: Tax filing, firm survey data (baseline and end-line).	Adoption of electronic tax filing in Tajikistan results in increase in tax payments among high-risk firms, but in the long run firms start reverting to paper filing since adoption is voluntary. Adoption also results in decrease in tax and bribe payments among low-risk firms.
Szucs (2017)	Administrative data: Public contracts.	Relaxing the obligation to use open auctions for procurement results in higher normalized contract prices (ratio of winning contract bid to contract value) and higher odds of contracts being provided to younger, less-productive firms with political connections.
Ferraz, Finan, and Moreira (2012)	Audit reports, survey data on schooling outcomes, school census.	Higher-corruption municipalities have lower test scores (0.35 standard deviation) and higher dropout rates. Elected principals are associated with less corruption than appointed ones.
Ferraz and Finan (2008)	Administrative data: Reports of random audits of municipal government expenditures used to create corruption index.	Release of audit outcomes had a significant impact on incumbents' electoral performance. Where audits had revealed high violations, the incumbent's likelihood of reelection was significantly lowered. These effects were more pronounced in municipalities where local radio was present to disclose the audit results. In municipalities with radio stations, reelection probabilities also increased when no corruption was revealed.
Di Tella and Schargrodsky (2003)	Administrative data: Prices of products. Survey data: Wages of procurement officers.	Prices paid for basic inputs at public hospitals in Argentina fall when audit intensity is high (15 percent reduction in prices for items sampled). Effect is lowered when audit intensity is weakened, but attenuation is not as large in the presence of efficiency wages.
Kleven and others (2011)	Administrative data: Filed tax returns.	Negligible evasion on third-party reported income but substantial evasion on self-reported income (even if same agent reports both types of income). Past audits and threats of future audits result in increases in self-reported income.

Muralidharan and others (2017)	Panel data set of school inputs (facilities, teachers, monitoring).	India has significantly increased school inputs over sample period (2003 to 2010) but this has yielded modest decreases in teacher absence. Teacher absence is decreasing in higher student-to-teacher ratios, and in the frequency of public inspections owing to fewer unauthorized absences.
Olken (2007)	Cost estimate developed by independent assessment of engineers based on the composition of the road used to construct an index of missing expenditures.	Increasing probability of audit (from 4 to 100 percent) of village road construction projects in Indonesia results in significantly reduced missing expenditures (graft) through lower missing expenditures on materials and labor, but increases employment of family members on projects, suggesting substitution of corrupt practices. Community monitoring only reduces missing expenditure on labor, which is a smaller portion of overall costs.
Yang (2008)	Cross-country panel data on import duty collection.	Introduction of reshipment inspection of imports by private firms leads to increases in import duty collection of 15 to 30 percent over the first five years. This effect is driven by declines in misreporting of goods classifications and reductions in undervaluation of imports.
Zamboni and Litschig (2018)	Published audit reports, procurement data, and service delivery data from household surveys.	Increasing audit risk reduces audited resources used in corruption and the proportion of the procurement process that involves corruption, with no change in quality of service delivery. Assuming only 10 percent of potential estimated savings from the program are realized, program has a net benefit of US$4.8 million relative to cost of increasing audits.
Olken (2009)	Independent engineering assessment of cost of road construction and household survey for beliefs.	Individual beliefs correlated with actual level of corruption but not very sensitive to the scale of corruption. Ten percent increase in missing expenditures translates into 0.8 percent increase in beliefs regarding probability of corruption.
Björkman, de Walque, and Svensson (2017)	Quantitative service delivery survey of health care facilities: Utilization, treatment practice, drug stockouts. Household survey of health outcomes.	Improvement in child health outcomes and increased use of health facilities persists for four years after initial intervention providing communities and public health providers with report cards on the level of provision of public health facilities. This effect does not arise if only community participation is enhanced without information (report card) provision.