Evidence for Policy and Practice
Information and Co-ordinating Centre
The EPPI-Centre is part of the Social Science Research Unit, Institute of Education, University of London

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Structure for a protocol

Main title	The Effectiveness of Anti-Corruption Policy
Sub title	What has worked, what hasn't, and what we don't know
Review group	
Section	PROCOTOL DRAFT
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EPPI-Centre reference number	[To be completed by EPPI-Centre]
Month/year of publication	[To be completed by EPPI-Centre]
This report should be cited as…	Hanna, R., Bishop, S., Durlacher, K., Nadel, S., Scheffler, G. 2010. "The Effectiveness of Anti-Corruption Policy: What has worked, what hasn't, and what we don't know – A Systematic Review Protocol," DFID Systematic Review.
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Conflicts of interest (if any)	Rema Hanna has been involved in conducting relevant empirical and secondary research on corruption. However, we do not believe that this constitutes a conflict of interest, and we have approached (and will continue to approach) the research material in an objective and impartial manner.
Acknowledgements	We would like to thank the Department for International Development (DFID) for making this review possible. We would also like to thank the EPPI-Centre for providing feedback and criticisms.

Section 1: Background

1.1 Aims and rationale for review

In many developing countries, corruption is a key barrier to effective service delivery. Corruption seeps into all aspects of life, from starting a new business to getting a passport to seeing a doctor. It can take many forms, from bureaucrats asking citizens for bribes to perform basic services, to hospital employees stealing medicines that were meant to be distributed to the poor, to bureaucrats receiving salaries for jobs that they do not accomplish.

Most scholars believe that corruption impedes economic growth and development. Mauro (1995) provides the earliest empirical evidence for this, and other recent studies have confirmed this finding. For example, Dreher and Herzfeld (2005) estimate that an increase of corruption by about one point on the International Country Risk Guide corruption perceptions index reduces GDP growth by 0.13 percentage points and GDP per capita by 425 US$. Furthermore, Transparency International points out that corruption may damage not only a country's economy, but also its political systems and institutions, civil society, and natural environment. As such, most development agencies have incorporated anti-corruption policies into their core strategies, with the World Bank alone supporting over 600 anti-corruption programs since 1996.

However, eliminating (or even just simply reducing) corruption is a challenging task on many levels. Understanding the extent of corruption and how it affects service delivery is difficult due to the hidden and illegal nature of corruption. Most importantly, no one wants to talk about it or admit that they participate in it, for reasons that range from embarrassment to fear of punishment. This is problematic because if we cannot measure corruption or study its features, then it is difficult to determine how to actually combat it. Second, many individuals personally benefit from corruption, and often the amounts of money involved can be quite substantial. Therefore, it is always possible that the potential financial gains at stake will undermine any positive effect that a given policy intervention might otherwise have on reducing corruption. Finally, what works in one setting may not necessarily apply to another. The success or failure of a given anti-corruption strategy depends in large part on the specific context in which the strategy is implemented.

In recent years, the academic literature has made a fair amount of progress on developing methods for measuring the incidence of corruption, describing the channels through which corruption operates, and testing potential policy interventions to combat it. In this review, we will analyze the existing evidence—focusing on high quality quantitative and qualitative evidence—to synthesize the key lessons from these studies and discuss how they can translate to policy. In addition, we will discuss gaps in our understanding of policy interventions, and we will provide guidelines for how researchers should address these gaps.

1.2 Definitional and conceptual issues

Subheading: What is Corruption?

There are many different but overlapping definitions of corruption, from unethical behaviour to political misconduct to bribe-taking (see, for example, Svensson (2005), Shleifer and Vishny (2001)). In order to avoid misunderstanding, we must first offer a clear definition that we will use in this review.

Specifically, we will follow Banerjee, Hanna, and Mullainathan (2009)'s definition of corruption as "an incident where a bureaucrat (or an elected official) breaks a rule for private gain." This definition includes the forms of corruption that are more typically discussed. For example, this would include a situation where a bureaucrat overtly asks a citizen for a bribe in order to perform a basic service, e.g. providing someone with a residency card to vote in a district in which he or she does not live. It could also include a bureaucrat intentionally delaying a service, such as a new business license, until the citizen pays a bribe. Finally, as Banerjee et al. (2009) discuss, corruption also "[encompasses] more nuanced forms of bureaucratic corruption. For example, it would include nepotism, such as if a bureaucrat provided a government contract to a firm owned by his or her nephew rather than to a firm that ought to win a competitive, open procurement process. This definition would also include the bureaucrat who 'steals time': he or she may, for example, not show up to work, but still collect his or her paychecks" (page 3).

Subheading: Type of Policy Prescriptions

Based on the underlying theoretical models, we will classify policy prescriptions into two types of categories: **Monitoring and Incentives Programs** and **Programs that Change the Rules of the System.** In this review, we will discuss the existing evidence on the benefits and costs of both types of programs.

Monitoring and intervention programs are typically based on the principal-agent model. In these models, the "principal," typically the policy-maker, wants to achieve a goal, such as ensuring that individuals who get a voter identification card live in the proper district. The policy-maker entrusts the "agent," typically a bureaucrat or civil servant, to implement his goal. However, the agent may have his or her own agenda—such earning additional salary through bribes—and it is often difficult for the principal to know if he or she is achieving the principal's goal or following his or her own agenda.

The policy interventions that aim to solve this problem increase the monitoring of the agent's behaviour and provide incentives for the agent to pursue the principal's goal rather than his own. Most studies in the corruption literature study these types of programs. For example, Olken, 2007, studies an anti-corruption program in road building in Indonesia, where bureaucrats were warned in advance that an independent audit of the roads would be conducted to monitor for theft in the roads construction, i.e. whether the allocated funds for the roads project matched the materials and labor that were actually used in road construction). Similarly, Di Tella and Schargrodsky (2003) study the role of audits in reducing theft in medical supplies in government hospitals. Moreover, a series of papers (Banerjee, Duflo and Glennerster (2008), Duflo, Hanna, and Ryan (2008), Kremer and Chen (2001), in addition to others) study whether increased monitoring of government employees, combined with incentive mechanisms, reduces absenteeism.

The second types of interventions we consider focus on those that **change the underlying rules of the system** (see Banerjee et al. (2009) for a more detailed theoretical discussion of the underlying model). As in the principal-agent model, the underlying model here also assumes that corruption will occur because the principal and the agent have a different agenda, and that monitoring the agent will be difficult since the end goal is hard to observe. However, this model assumes that interventions which aim to achieve the principal's goal through increased monitoring will be futile, either because the monitors themselves will be corrupted or because the bureaucrats will create new methods for obviating the rules.

Thus, rather than invest additional effort and resources into improving monitoring, these policy interventions aim to change the overall goals/rules of the system so that the agent's incentives are better aligned with those of society. This type of intervention is only recently beginning to be studied. These interventions often involve giving local communities, rather than governments, the power to decide on rules. For example, the interventions evaluated in Bjorkman and Svensson (2008) used community meetings that included government health workers to decide on the main rules for governing health centers, along with the mechanisms to ensure that these rules were then followed. Another example is Alatas, Banerjee, Hanna, Olken and Tobias (2009), which evaluated alternative mechanisms for choosing who should be considered eligible for social transfer programs. Specifically, these authors study how well the central government, local communities, local governments, and a combination of the central government and communities, do at targeting the people would ideally benefit from social transfer or redistribution programs.

1.3 Policy and practice background

Two key facts about corruption emerge from the data:

1) Corruption is very prevalent in relatively poor countries: This relationship is made apparent by looking at the strong negative relationship between countries' level of corruption and their per-capita GDP. For example, using Transparency International's 2009 "Corruption Perceptions Index" and data from the CIA World Factbook, we can graph out the relationship between corruption and income levels. Corruption is measured on a scale from 0 to 10, where 0 is the highest level of corruption and 10 is the lowest. As Figure 1 clearly shows, poor countries tend to have corruption scores closer to 0, signalling very high corruption levels.

   Moreover, Svensson (2005) observes that the ten percent of countries that have the worst rankings for corruption according to four measures of corruption with broad regional coverage (the Control of Corruption index, the Corruption Perceptions Index, the International Country Risk Guide, and the International Crime Victim Surveys) are all developing or transitioning countries, and that with few exceptions, these countries have low income levels.

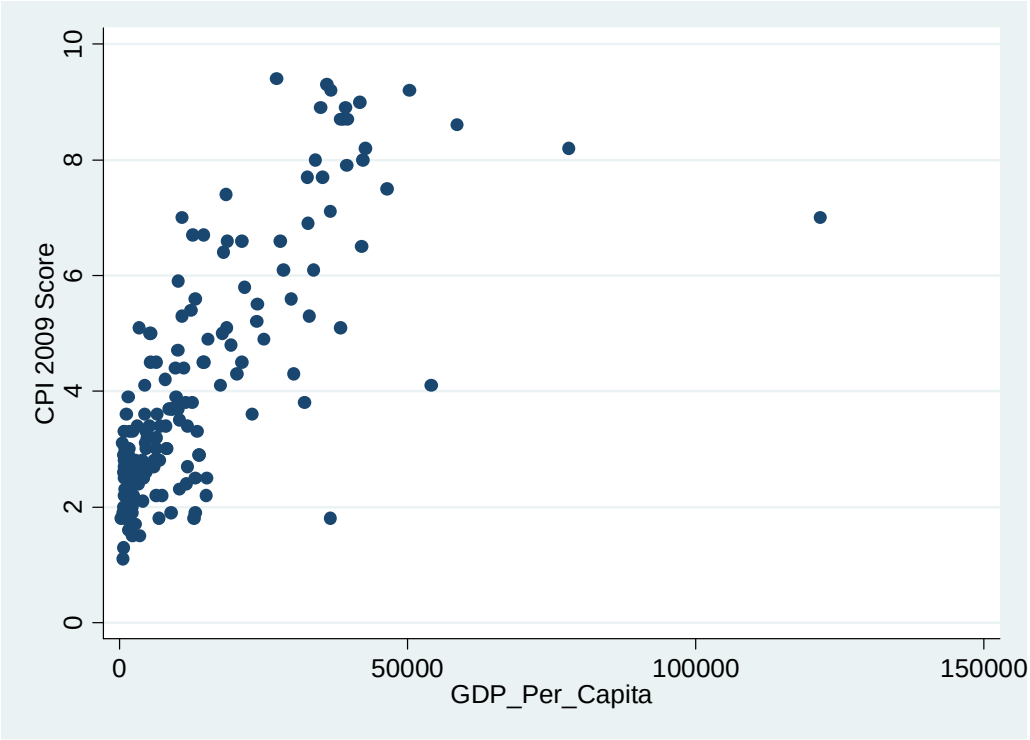

Figure 1: The Relationship between Corruption and Income

2) Corruption often results in the misallocation of services: Many recent academic studies have shown exactly how corruption can distort the provision of public goods. For example:
   - Bertrand et al. (2008) demonstrate that corruption at the New Delhi DMV results in extremely poor drivers obtaining their drivers' license for a fee at a faster rate than good drivers who follow the application process.
   - Olken and Barron (2009) find that corruption at truck weigh stations in Indonesia results in damage to Indonesian roadways which is ultimately funded by taxpayers.

Due to these facts, corruption eradication has emerged as a key focus of development policy in the past two decades. International organizations, governments, and local NGOs have all focused on improving accountability in the provision of government services.

In terms of international organizations, the World Bank, for example, has made significant strides at incorporating anti-corruption strategies into its core agenda. Shortly upon his arrival in 1996, James Wolfensohn, then the World Bank president, made an effort to change the way the international community viewed corruption eradication, from something that was thought to be beyond the purview of organizations like the World Bank, to being a central objective. In 2001, the Department of Institutional Integrity was established for the purpose of overseeing corruption within the organization, and over its first three years, it handled more than 1,300 cases.[1]

[1] *First Annual Report on Investigations and Sanctions of Staff Misconduct and Fraud and Corruption in Bank-Financed Projects (Fiscal Year 2004).* Department of Institutional Integrity, World Bank Group.

However, it was not until Wolfensohn's successor, Paul Wolfowitz, took office in 2005 that corruption eradication at the levels of partner governments became a central focus of the bank. Wolfowitz outlined three World Bank policies developed for corruption elimination: expanding anti-corruption work at the country level, minimizing risks of corruption in World Bank-funded projects, and increasing cooperation with other anti-corruption organizations.[2]

In 2007, the World Bank Group launched the Governance and Anti-Corruption Strategy, whose stated aims include improving transparency, participation, and third-party monitoring in its own operations, as well as strengthening specific existing national institutions. Since then, the World Bank has as a matter of course considered the corruption environment of the countries in which it works. For example, the World Bank Group (WBG) now regularly includes political economy assessments, risk identification and mitigation measures, and stronger controls and oversight mechanisms in its programs. The WBG also has also been scaling up support to "core public sector institutions," such as ministries of finance, procurement agencies, and the civil service.

Many governments have also made anti-corruption programs a key focus, and created government offices specifically in order to combat corruption. In 1974, Hong Kong created the Independent Commission Against Corruption. At the time, corruption was rampant among the police, even though the police force was the very organization that was supposed to be responsible for investigating corruption. The Commission aimed to reduce corruption within the force, removing 119 officers from duty on charges of corruption in 1978 alone (Klitgaard, 1988). Other governments followed suit. For example, more recently, Indonesia instituted the Komisi Pemberantasan Korupsi (KPK, the Corruption Eradication Commission of Indonesia) in 2002, with the aim of investigating and prosecuting corruption within the country. The Commission has prosecuted over 80 cases since its inception. A recent example of its work is a case looking into $1.3 million in bribes solicited by Central Bank officials in return for a contract to print Indonesian currency.[3] Even countries with lower institutional capacity, such as Sierra Leone have created an anti-corruption agency: in April of this year, the then Minister of Fisheries and Marine Resources was indicted for graft and abuse of office.[4]

Decentralization is one of the earliest and most widely implemented approaches to corruption reduction. After the end of the Marcos dictatorship, the Filipino government devolved decision-making power to local community organizations through its "Policy Agenda for People-Powered Development" Project in the early 1990s. The Local Government Code, a central tenet of the program, transferred responsibility for basic services and facilities, as well as regulatory power, to local governments. NGOs and People's Organizations (POs) were encouraged to participate in regular local hearings and referenda.[5]

Decentralization programs are often implemented in partnership with NGOs. For example, Education for All (EFA), the international organization dedicated to meeting the Millennium

[2] "Good Governance and Development – A Time for Action" Speech in Jakarta, Indonesia. April 11, 2006.
[3] "KPK Begins Inquiry into Bank Indonesia Australian Bribery Case," *Jakarta Globe*, May 28, 2010. Downloaded from http://www.thejakartaglobe.com/home/kpk-begins-inquiry-into-bank-indonesia-australian-bribery-case/377583 .
[4] Lansana Fofana, "Anti-Corruption Case Nabs Top Officials", *Interpress Service News Agency*, April 17, 2010.
[5] "Decentralized Rural Development and the Role of Self-Help Organizations", Food and Agricultural Organization,,Bankok, December 2001.

Development Goal of universal primary education, has encouraged decentralization in school management and teacher training. In its country strategy for Cambodia, EFA developed school parents' committees to manage operational budgets, and delegated more authority in the management of teachers and in the development of teacher-training materials to local teacher training centers. In partnership with the Ministry of Education, Youth and Sports, the NGO Education Partnership (NEP), an association of 50 organizations, was founded to support EFA's work at the local level. Members of NEP participated in dialogues about the program, and helped to fund and implement it.[6]

Similarly, in 2000, with the advisory support of UNDP, Bangladesh undertook its "Local Government Development Fund Project," in which low-level governmental bodies are included in the budgetary decision-making, and public services are graded using scorecards. USAID worked with Macedonian communities in 2000 on a Community Self Help Initiative to implement programs focusing on issues such as the provision of educational services and public lighting.

To fight corruption, other governments have passed laws designed to allow for more transparency in government services. In 2003, the government of Brazil started randomly auditing individual mayoralties' finances. Another aspect of transparency is the promise that reported office abuses will be investigated – in other words, transparency within the anti-corruption agency itself. In the Philippines, USAID has worked with governments to develop Ombudsman and Special Prosecutor offices where individuals could register complaints safely and be confident that they would be considered. In the first year of the Philippines program, in 2005, conviction rates of suspected corrupted officials jumped from 7 percent to 33 percent.

Another approach toward reducing corruption involves paying bureaucrats higher salaries. The idea behind this approach is that if bureaucrats are paid more, then they will have more to lose if their corruption is discovered. Singapore credits paying above-market salaries to government offices for its corruption-free public sector (Moohkerjee, 1995). Programs in Kenya, Uganda, and Tanzania in 2002-2003 struck ghost employees from employment lists and increased the salaries of remaining employees. Peruvian President Alan Garcia, in his current term in office, has battled with teachers' unions over his proposal to increase teacher salaries in exchange for their taking qualification tests on a regular basis.[7]
A dramatic tax reform in Peru under President Fujimori increased the monthly salaries at the Peruvian tax collection from $50 to $890, and offered early retirement to individuals who declined to be subject to strict anti-corruption oversight. It was documented that tax revenues increased from 5% of GDP to 14% in two years (Durand and Thorp, 1998).

Overall, it is evident that corruption eradication is a key component of development strategy, with millions of dollars being spent to reduce its incidence. However, very little is actually known about which policies and programs have been most successful, and what are the other strategies that countries should undertake. This review will aim to both provide a summary of the existing evidence and also discuss the types of evaluations necessary to learn more about effective strategies for public service delivery.

[6] "Education for All National Plan, 2003-2015: Cambodia", Kingdom of Cambodia Ministry of Education, Youth and Sports. 2002.
[7] Salazar, Milagros, "Strike Ends as Teachers and Gov't Sit Down to Talks," *InterPress Service Agency*. July 20, 2007.

1.4 Research background

Several general reviews of the academic corruption literature will be very useful for our review. Svensson (2005) has focused on eight key questions on corruption, highlighting key facts about what we know and do not know about corruption. Among his findings are that the level of corruption in a country is determined not only by GDP per capita and human capital, but also by the degree of market and political competition in the country. He also discusses the fact that wage incentives can reduce bribery, but only when there exists a well-functioning enforcement apparatus. Finally, he notes that "there is as yet no convincing empirical evidence that competition among officials actually reduces corruption" (Svensson 2005, 34).

Banerjee, Hanna, and Mullainathan (2009) outline the history of the methodologies that have been used for measuring corruption, including the use of qualitative data and case studies to describe specific channels of corruption, the use of perception-based studies to produce cross-country and cross-time datasets, and more recently, the implementation of audits and refined survey and data collection techniques to glean more accurate and meaningful measurements. They also discuss open questions for future research, such as the effect competition has on corruption, and the ways that corrupt bureaucrats have adapted to new anti-corruption policies or institutions.

In addition to these general reviews, we will rely on the body of (very recent) primary research that focuses on the effects of interventions designed to decrease corruption. As we have stated above, these studies fall into two categories: ones that focus on interventions consisting of monitoring or incentive programs, and ones that focus on interventions which allow for changing the rules of the system. We will explore both types of interventions in this review.

The papers in the first category try to use monitoring or incentive systems to respectively increase individuals' probability of being caught when they engage in corruption by breaking government rules, and to weaken their motivations to be corrupt in the first place. Among the first type of interventions, Olken (2007) examines the effects of audits on decreasing corruption in road-building. He finds that corruption in the form of stealing road inputs decreases significantly, but does not disappear entirely. Duflo, Hanna and Ryan (2008) find that monitoring teachers' attendance, coupled with increasing their financial incentives to attend, do increase attendance in India. However, Banerjee et al. employ a similar method for health workers in India, and find no long-term effects. The authors hypothesize that the failure of the second intervention was due to loopholes in the incentive contract whereby the supervisor of the nurse could send her to another project or assign her work in the field, which was impossible to monitor.

The few studies in the second category – interventions that change the rules of the system – suggest it to be highly effective; however, it also is less explored. Whereas much of the empirical literature focuses on how bureaucrats respond to incentives with the rules being kept fixed, this theoretical framework also examines the conditions under which the government can change its rules in order to eliminate corruption in a cost-efficient manner. For example, Bjorkman and Svensson (2008) use a rule-based approach to improving health worker attendance in India. Specifically, they hold community meetings to decide on the rules governing the centers and the monitoring mechanisms through which these rules are enforced. Infant mortality in these areas fell by roughly a third.

1.5 Objectives

Question 15: What evidence is there of the effectiveness of different approaches to reducing corruption?

Some important points need to be kept in mind while laying out our objectives: First, the causal impact of different anti-corruption programs is not necessarily well-known, in part due to the difficulty of measuring corruption policies. Second, the experimental evidence on this topic, while growing, is still scarce. As such, in addition to providing a review of the evidence as it is known, we aim to provide guidance to both academics and practitioners about the types of programs that needs more thorough testing and evaluation.

Specifically, we aim to answer the following questions:

- What types of policy levers are available to reduce corruption?
- Which types of policies have been subjected to rigorous evaluation, and what have these evaluations found?
- Which types of policies have not been subjected to rigorous evaluations, and need further testing?
- What are the primary criteria that policy-makers should take into account when deciding on a particular policy?

Section 2: Methods used in the review

2.1 User involvement

This review aims to synthesize existing research for policy-makers, and to provide a rigorous assessment of the evidence base. Thus, we aim to target the review to high-level government staff, non-profit organizations that focus on increasing transparency and the functioning of government services, and international organizations and foundations that aim to fund the delivery of services. While we will present the data in a way that is very accessible to policy makers, the review will also discuss the important technical details regarding the identification strategies.

In addition to providing this review to DFID, we also plan on disseminating the systematic review to the international development community through the Harvard Kennedy School (HKS), Harvard Business School (HBS), The Jameel Poverty Action Lab (JPAL) at MIT and the Center for International Development (CID) at Harvard University among others. We will also make an effort to make this review available to developing country policymakers through organizations such as the JPAL-South Asia at the Institute for Financial Management and Research (IFMR, Chennai, India) and Innovations for Poverty Action (New Haven).

The draft version will be circulated to a select group of users, both academic and policy-oriented whose feedback and comments will be incorporated in the final published version.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: inclusion and exclusion criteria

For our analysis, we will focus primarily on three types of studies in our initial search:

1) Micro-studies that utilize randomized controlled trials (RCTs) to measure the effectiveness of anti-corruption strategies. The use of RCTs to study corruption is a recent phenomenon. Thus, in addition to studies that conduct RCTs that have already been published, this review will also discuss current RCTs that are being implemented today, along with any preliminary results from these studies. We will focus on RCTs that have been conducted in low to middle income countries.

2) Micro-studies that utilize regression-based approaches or quasi-experimental methods to measure the effectiveness of anti-corruption strategies. These methods can include regression discontinuity design, instrumental variables methods, difference-in-differences methods, etc. We will be very careful in assessing the internal validity of these types of papers, and only those that have a credible quasi-experimental design will be included. We will focus on quasi-experimental studies that have been conducted in low to middle income countries.

3) Micro-studies that are case studies, but written with a clear, qualitative research design. We include these because some reforms, such as procurement or financial office reform, are specific enough that they do not lend themselves to regression analysis. We will exclude case studies that do not explicitly describe their data collection methods or derive data from individuals who are biased toward reporting on the project in a favourable or unfavourable way.

We will exclude any studies that do not meet the above criteria. In other words, we will exclude any studies that do not attempt to measure the effectiveness of micro-level anti-corruption policies.

We will also exclude the following types of studies:

- Those that are not written in English.
    - *Justification*: Given the limited time we have to conduct the study and the language skills of the research team, it is infeasible to include non-English studies if we are to be systematic in covering all the material we are including.
- Those that study corruption in a private sector setting.
    - *Justification*: This is implied by the way we define corruption in section 1.2.
- Those that were conducted before 1996.
    - *Justification*: Given the recent advances in corruption literature, the changes in the types of government in developing countries, and the increased emphasis on combating corruption by development organizations such as the World Bank after 1996, we include only references written or published after that

date. Generally, this exclusion criterion should not have much of an impact, because the study of corruption has only taken off in recent years.

- Macro-level studies.
  - *Justification*: Macro-level studies are so broad that they limit our ability to pinpoint which programs have been most effective.
- Theoretical studies
  - *Justification*: Given the separation between theory and processes of corruption eradication in practice, theory papers will be excluded from our review. However, theoretical studies on corruption have influenced the way we structured our review (and in particular, our distinction between rule-changing and incentives/monitoring), and theory will continue to motivate our research, perhaps aiding our understanding of why some interventions have been successful and others have not.
- Those that are not conducted in the developing world.
  - *Justification*: Given the background of the research team, the scope of the project, DFID's primary interest in the developing world, and the fact that corruption is far more common in the developing world, we will exclude studies that are clearly not focused on the developing world (see Appendix 3.1 for full list of countries).
- Those papers for which it is clear from the abstracts that they do not meet the minimum requirements for internal validity. Specifically, if this is a micro-study that uses quasi-experimental or regression-based methods, then we will exclude it if it's clear from the abstract that there is no control group. If this is a case study, then we will exclude it if there is no specifically outlined methodology through which data is collected and analyzed.
  - *Justification*: This is the first level of controlling for methodological quality. The next level comes in Section D of the coding instrument (Appendix 2.4).

2.2.2 Identification of potential studies: Search strategy

We provide a partial but representative list of the sources to be searched in Appendix 2.3, and a sample search string in Appendix 2.2. The reports used in this review will be identified from the major academic databases such as EBSCO Business Source Premier, EconLit, LexisNexisAcademic, and JSTOR. We will also perform hand searches of key academic journals which are not covered up to the present issue in our database searches. These will include, for example, *American Economic Review*, *Journal of Political Economy (previous 12 months)*, *Quarterly Journal of Economics (previous 12 months)*, *Journal of Economic Perspectives (previous 24 months)*, and the *Journal of Development Studies (previous 12 months)*. Our third source of information will be other online databases with practitioner (as opposed to academic) publications, such as the World Bank. Finally, we will also use our professional contacts and our knowledge of the literature to describe ongoing research that has the potential to contribute to the literature.

2.2.3 Screening studies: applying inclusion and exclusion criteria

We will first apply the inclusion and exclusion criteria described above to the title and abstracts. If the study fulfils our inclusion criteria and does not violate our exclusion criteria, it will be loaded into E PPI Reviewer, along with details of where it was found. If the study does not fulfil our inclusion criteria or violates our exclusion criteria, it will not be loaded into EPPI Reviewer, and we will make note of why it was excluded.

2.2.4 Characterising included studies

Example of a study that would be included:

Bjorkman and Svensson, "Power to the People: Evidence from a Randomized Field Experiment of Community-Based Monitoring in Uganda" (2008), is an example of a paper that would be included in our study. In this paper, the authors used community meetings to decide on the main rules for governing health centers and the mechanisms to ensure that these rules were then followed. They then evaluated the impact of these community meetings on corruption. The paper would be included in our study because it evaluates the effectiveness of an anti-corruption strategy in a developing country, and it is methodologically sound.

Example of a study that would be excluded:

Fisman, "Estimating the Value of Political Connections" (2001) is a paper that would be excluded from our study. In this paper, the author determines how the value of firms connected with Suharto in Indonesia fluctuated as the expectation of his ongoing leadership varied with his illness. The author makes the point that firms with close ties to Suharto benefit through some special treatment. Yet the paper would be excluded from our study because it focuses on the benefits that accrue to certain people because of corruption, rather than evaluating an anti-corruption strategy.

2.2.5 Identifying and describing studies: quality assurance process

Initially, Sarah Bishop and Gabe Scheffler will independently apply the aforementioned inclusion and exclusion criteria to 50 randomly selected studies and discuss the results. If they agree on the decisions made, then they will divide the remaining studies between them. After the inclusion and exclusion criteria have been applied to all the studies, Bishop and Scheffler will then re-review 50 randomly selected studies from each other's pool of studies and discuss the results. This process will be repeated for the rest of the coding process (sections C-E in the coding tool, Appendix 2.4), except this time they will randomly review and re-review 10 studies instead of 50. (This is because the total number of studies left at this point is expected to be much smaller, so the proportion of studies being randomly checked should be about the same).[8]

Katherine Durlacher will provide consultation on systematic review methods, advising on communication with DFID/EPPI-Centre, project planning/oversight, reviewing the deliverables, etc.

Sara Nadel will be an adviser on the project. She will help with questions on research or methodological design.

Professor Rema Hanna will guide this review, provide internal peer review, and ensure that the review meets the highest academic standards. She will also contribute directly to writing the review.

[8] This quality assurance process was adapted from Pande, R., Cole, S., Sivasankaran, A., Bastian, G., Durlacher, K. 2010. "Does poor people's access to formal banking services raise their incomes? --A Systematic Review Protocol," DFID Systematic Review.

EPPI-Centre will provide support for methodological issues including the software for the database and support for the search. The team will also work with specialists in the subject matter to make sure we have not missed any relevant studies.

2.3 Methods for synthesis

2.3.1 Assessing quality of studies

A draft of the coding tool is provided below and in Appendix 2.4. This tool describes the way in which we will apply the inclusion and exclusion criteria and assess the quality of the studies.

Two main criteria will be important in assessing the quality of studies:

- First, we will focus on whether the studies meet sufficient levels of internal validity, thereby providing a causal estimate of the impact of the program. As such, we will include properly conducted randomized control trials of social programs. We will also include papers with quasi-experimental designs, where the conditions for exogeneity of the treatment are met. These include difference-in-difference/fixed effects techniques, instrumental variables methodologies, and regression discontinuity designs.
    - In order to assess internal validity, we will also consider issues such as: sample size, omitted variable bias, functional form misspecification, sample selection bias, errors-in-variables bias, and simultaneous causality bias. We will also assess generally whether the data cited support the conclusions that the authors draw.

- Second, we will evaluate the external validity of each study to determine what findings are most generalizable to other contexts. Studies that describe a program and it's outcomes that are very specific to the environment in which they were implemented will carry less weight than others, but will be included if the study can serve as a model of the evaluation that should be done by those considering implementing the study in another context.

In addition to the two key criteria, we will also focus on other general measures of study quality, including:

- Clarity of exposition
- Relevance of the study used to the question addressed
- The methods used to limit study attrition
- Risk of Bias

Section D: Assessing Quality of Study
All papers that make it to Step 3 of our process will be coded in the following way:

Internal Validity

D1: Quality of control group

D1a: risk of sample selection bias

(our consideration):

How was the treatment group chosen?

How was the control group chosen?

To what extent (1-5) do the two groups differ such that our results will be biased upwards?

To what extent do the two groups differ such that our results will underestimate the impact of the treatment?

D1b: risk of errors-in-variables bias

(our considerations)

While we think this will be unlikely in corruption literature, where the impact is usually measured through observables, we include this to take into consideration situations where survey data may be poorly collected. For example, because corruption is such a sensitive topic, questions about asking for or paying bribes as the main outcome variable will severely limit the usefulness of a paper.

D1c: risk of simultaneous causality bias

(our consideration):

Were there any other changes occurring in the population of interest simultaneously to the study that did not occur to the treatment group? If so, is that likely to lead to an overestimate or underestimate of the impact of the study?

D1d: risk of functional form misspecification

(our consideration):

Is there an error in the choice of analysis method that could cause the authors to misattribute the effect of the program? (for example, does a regression discontinuity occur where there is a natural jump in the data , for example at a break point in income correlations with corruption).

D2: Potential sources and risk level of omitted variable bias

Most sources of OVB are discussed in the validity checks above.

D3: Overall extent to which data cited supports the conclusions that the authors draw (cross-comparison of data and written conclusions –e.g. make sure authors are not cherry-picking positive data from multiple analyses run)

External Validity

D4: Geographic setting (by continent)

D5: Characteristics of intervention that may be specific to that intervention and compromise generalizability

D5a: type of government (autocratic, democratic, socialist)

D5b: combined with other types of intervention (state)

D5c: level of intervention (national, district, agency, district-agency specific)

D5d: reliance on unique circumstances (such as a charismatic and/or atypical leader, etc.)

Other Issues Relating to Quality and Bias

D6: Is the scope of the study clear and well defined?

D7: Is the study relevant?

D8: Are there other significant problems with the study, for example attrition, etc?

D9: Was the study free from selective outcome reporting?

D10: Was the study free from other risks of bias?

2.3.2 Overall approach to and process of synthesis

We will include all studies in the synthesis that meet the above inclusion criteria and do not violate the exclusion criteria. We will further exclude from the synthesis those studies that have serious internal or external validity flaws which are found during the process described above. Once we have a final set of papers, we will code them according to a number of different characteristics, including the type of methodology the paper uses, the type of policy lever used, the population targeted, the geographic location of the intervention, etc. (See Appendix 2.4, section C for full list of coding criteria.)

2.3.3 Process used to combine/ synthesise data

We will use the EPPI Reviewer to manage and synthesize our coding results.

Ideally, we would analyze the findings in a single dataset summarizing each type of program and the range of cost-efficacy outcomes seen in each implementation. However, there are several reasons why this is not possible. First, there are few true experimental or quasi-experimental studies which give reliable numbers on cost-efficacy. Most studies either do not quantify the financial benefits of each implementation at all, or the comparison group they use is not reliable enough to treat the numbers they do offer as given. Second, whereas meta-analysis relies on homogeneity in outcome measure for comparison purposes, outcomes for anti-corruption studies vary considerably depending on the types of government service one considers.

Therefore, we are instead planning to draw from the "Textual Narrative Synthesis" method, outlined by Barnett-Page and Thomas (2009). This method advocates dividing the studies into relatively homogenous groups, reporting study characteristics within each group and articulating broader similarities and differences among the groups. Accordingly, we plan to organize the studies we find into categories based on their methodological approach, the type of treatment they are evaluating, and several other factors. We then plan to compare the relative effectiveness of each corruption-reduction intervention, while keeping in mind their applicability to other contexts. This synthesis method seems most appropriate because it enables us to compare evidence of different types (both quantitative and qualitative), and is geared toward the production of an output that is directly relevant to policymakers (Barnett-Page and Thomas, 2009).

Below, we provide a tabulation of several factors that together should make clear the intervention's benefits relative to its costs, along with the context of the study: the intervention's effect size, its cost, its cost drivers, the population being targeted, the methodology of the study, and the country in which the intervention is taking place. Although we will not attempt to offer a single numerical measure of success because of the high variability in the accuracy of measurement and the type of cost-benefit analysis that each study will employ, we will offer some qualitative conclusions in the final section.

Paper	Methodology of Study	Type of Treatment	Reported Effect Size	Reported Cost of Treatment	Other Possible Cost Drivers

2.4 Deriving conclusions and implications

At the end of this review, we will offer four types of conclusions: First, we will comment broadly on the relative effectiveness of different types of anti-corruption strategies. Second, we will offer suggestions as to which anti-corruption strategies are most appropriate, given the specific context in which the intervention is supposed to take place. For example, certain types of interventions may be more effective than others when working in a particular region or dealing with a particular population, such as teachers or health-workers. Thus, we hope to offer some practical guidance for policymakers trying to decide how best to combat corruption in their environment. Third, by comparing the success rates of similar interventions, we hope to be able to discern some of the specific characteristics that determine whether an intervention is successful or unsuccessful, and to understand why one intervention might succeed where a similar approach has failed elsewhere. Finally, we will note holes in the existing research literature, and we will offer recommendations for how to focus future research.

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Section 4: Appendices

Appendix 1.1: Lead Author of the Review

Rema Hanna is an Assistant Professor of Public Policy at the Harvard Kennedy School. Hanna is an NBER Research Associate, an affiliate of the Bureau for Research and Economic Analysis of Development (BREAD), and an affiliate at the Abdul Latif Jameel Poverty Action Lab. Her research focuses on understanding how to improve the provision of public services in developing countries. She is currently working on a project to measure discrimination in education in India, and also analyzing data from a field experiment that assessed the efficacy of various targeting methodologies for social safety net programs.

Prior to joining the Kennedy School, Hanna was an assistant professor of public policy and economics at New York University. She holds a PhD in Economics from MIT and a BS from Cornell University.

Appendix 2.1: Inclusion and exclusion criteria

For our analysis, we will focus primarily on three types of studies in our initial search:

1) Micro-studies that utilize randomized controlled trials (RCTs) to measure the effectiveness of anti-corruption strategies. The use of RCTs to study corruption is a recent phenomenon. Thus, in addition to studies that conduct RCTs that have already been published, this review will also discuss current RCTs that are being implemented today, along with any preliminary results from these studies. We will focus on RCTs that have been conducted in low to middle income countries.

2) Micro-studies that utilize regression-based approaches or quasi-experimental methods to measure the effectiveness of anti-corruption strategies. These methods can include regression discontinuity design, instrumental variables methods, difference-in-differences methods, etc. We will be very careful in assessing the internal validity of these types of papers, and only those that have a credible quasi-experimental design will be included. We will focus on quasi-experimental studies that have been conducted in low to middle income countries.

3) Micro-studies that are case studies, but written with a clear, qualitative research design. We include these because some reforms, such as procurement or financial office reform, are specific enough that they do not lend themselves to regression analysis. We will exclude case studies that do not explicitly describe their data collection methods or derive data from individuals who are biased toward reporting on the project in a favourable or unfavourable way.

We will exclude any studies that do not meet the above criteria. In other words, we will exclude any studies that do not attempt to measure the effectiveness of micro-level anti-corruption policies.

We will also exclude the following types of studies:

- Those that are not written in English.
    - *Justification*: Given the limited time we have to conduct the study and the language skills of the research team, it is infeasible to include non-English studies if we are to be systematic in covering all the material we are including.
- Those that study corruption in a private sector setting.
    - *Justification*: This is implied by the way we define corruption in section 1.2.
- Those that were conducted before 1996.
    - *Justification*: Given the recent advances in corruption literature, the changes in the types of government in developing countries, and the increased emphasis on combating corruption by development organizations such as The World Bank after 1996, we include only references written or published after that date. Generally, this exclusion criterion should not have much of an impact, because the study of corruption has only taken off in recent years.
- Macro-level studies.
    - *Justification*: Macro-level studies are so broad that they limit our ability to pinpoint which programs have been most effective.
- Theoretical studies
    - *Justification*: Given the separation between theory and processes of corruption eradication in practice, theory papers will be excluded from our review. However, theoretical studies on corruption have influenced the way we structured our review (and in particular, our distinction between rule-changing and incentives/monitoring), and theory will continue to motivate our

research, perhaps aiding our understanding of why some interventions have been successful and others have not.

- Those that are not conducted in the developing world.
    - *Justification*: Given the background of the research team, the scope of the project, DFID's primary interest in the developing world, and the fact that corruption is far more common in the developing world, we will exclude studies that are clearly not focused on the developing world (see Appendix 3.1 for full list of countries).
- Those papers for which it is clear from the abstracts that they do not meet the minimum requirements for internal validity. Specifically, if this is a micro-study that uses quasi-experimental or regression-based methods, then we will exclude it if it's clear from the abstract that there is no control group. If this is a case study, then we will exclude if there is no specifically outlined methodology through which data is collected and analyzed.
    - *Justification*: This is the first level of controlling for methodological quality. The next level comes in Section D of the coding instrument (appendix

Appendix 2.2: Search Strategy for Electronic Databases

We will conduct a search of the literature for papers that meet the following criteria:

- Evaluate an anti-corruption strategy that was conducted by a government, non-governmental organization or international organization
- Focus on a low-income or middle-income country

The following list of keywords is based on our preliminary examination of papers, and discussions both with search strategists at EPPI-Centre and with experts in the field of corruption research and anti-corruption strategies. When using large electronic databases that have the capacity for complex searches we will utilize the following search string:

(corrupt*

OR bribe*
OR launder*
OR fraud*
OR anti?corruption
OR anti?corrupt)

AND (developing nation
OR developing nation
OR low?income
OR low income
OR middle?income
OR middle income
OR developing country
OR developing countries
OR less developed country
OR third world country
OR underdeveloped country
OR Africa
OR African
OR Asia
OR Asian
OR Latin America
OR South America
OR Latin American
OR Afghanistan or Bangladesh or Benin or Burkina or Burundi or Cambodia or Chad or Congo or Cote$ or Eritrea or Ethiopia or Gambia or Ghana or Guinea$ or Haiti or Kenya or Korea or Kyrgyz$ or Lao? or Liberia or Madagascar or Malawi or Mali or Maurit$ or Mozambique or Myanmar or Nepal or Niger or Nigeria or Pakistan or Rwanda or Papua or Sao or Senegal or Sierra$ or Melanes$ or Somalia or Tajik$ or Tanzania or Togo or Uganda or Uzbek$ or Viet$ or Yemen or Zambia or Zimbabwe or Burma or Solomon or Albania or Algeria or Angola or Armenia or Azerbaijan or Bhutan or Bolivia or Bosnia or Cameroon or Cape Verde or China or Colombia or Dijbouti or Dominican or Ecuador or Egypt or El Salvador or Georgia or Guatemala or Guyana or Honduras or India or Indonesia or Iran or Iraq or Jordan or Kiribati or Lesotho or Macedonia or Indian Ocean or Micronesia or Moldova or Mongolia or Morocco or Namibia or Swaziland or Syria or Thailand or Timor or Tong$ or Tunisia or Turk$ or Ukraine or Vanuatu or West Bank or Gaza or Maldives or Marshall or Palestine or Syrian or Samoa or Argentina or Belize or Belarus of Botswana or Brazil or Bulgaria or Chile or Costa or Croatia or Cuba or Dominica or Fiji or Gabon or Grenada or Jamaica or Kazakhstan or Latvia or Lebanon or Libya or Lithuania or Malaysia or Mayotte or Mauritius or Mexico or Montenegro or Palau or Panama or Poland or Romania or Russia or Seychelles or Slovakia or Lucia or Serbia or Suriname or Uruguay or Venezuela or Yugoslavia or Libia or Mariana or Russian or Kitts or St Vincent or Grenadines

AND (strategy
OR strategies
OR program
OR programme
OR policy
OR policies

OR intervention)
AND (reduce
OR reduction
OR combat
OR lessen
OR fight
OR weaken
OR weakening
OR improve
OR impact)
For papers written after 1996

During our initial searches we have discovered that several databases and online sources (e.g. JSTOR, JPAL etc.) are not capable of processing as many Boolean operators as listed above. To address this issue we will sometimes be forced to conduct smaller searches (i.e. searches that do not include the names of all low-income and middle-income countries, or shorter searches that use only one or two of the concepts above, such as "anti-corruption"). However, all changes and specifications related to this process will be noted in detail in EPPI Reviewer.

In addition to databases and online sources we will hand search relevant journals to ensure that recent publications in these journals are not overlooked. The method of hand searching requires the reviewer to scan the contents page of each journal issue to determine if any articles are relevant to our systematic review.

Appendix 2.3: List of Sources to be Searched

Electronic Databases:
EBSCO Business Source Premier
EconLit
IDEAS
International Bibliography of Social Sciences (IBSS)
JOLIS
JSTOR
LexisNexisAcademic
Science Direct
Social Science Research Network (SSN)
Social Sciences Citation Indexes (SSCI)
SocINDEX

Wiley Interscience

Academic Journals: The vast majority of relevant journals are included in our electronic databases. However, we will perform additional handsearches on journals which we know to be relevant and whose most recent publications are not included in electronic databases. This includes (but is not limited to):

American Economic Review (previous 12 months)
Journal of Development Economics (previous 12 months)
Journal of Development Studies (previous 12 months)
Journal of Economic Perspectives (previous 24 months)
Journal of Political Economy (previous 12 months)
NBER Working Papers (not included in any electronic databases)
Quarterly Journal of Economics (previous 12 months)

Other Online Sources:
Abdul Latif Jameel Poverty Action Lab (JPAL)
Africa Development Bank
Asian Development Bank
Bill and Melinda Gates Foundation
DFID
European Bank for Reconstruction and Development
Index to Theses (UK)
Innovations for Poverty Action (IPA)
Proquest's dissertation database (US)
USAID
World Bank database (JOLIS)

Key authors/cited papers:
Banerjee, Hanna and Mullainathan (2009)
Abhjit Banerjee, Massachusetts Institute of Technology (personal knowledge)
Sendhil Mullainathan, Harvard University (personal knowledge)
Marianne Bertrand, Chicago University (personal knowledge)

Appendix 2.4: Draft Coding Tool

Systematic Review of Anti-Corruption Policies

Section A: Identification

A1: Coder's Initials
A2: Date
A3: Full Citation of Report

Section B: Applying Inclusion and Exclusion Criteria

Inclusion Criteria:
B1: Does this report evaluate an anti-corruption strategy?

B2: Does this strategy operate at the micro-level?
B3: Does it focus on a low or middle-income country?

Exclusion Criteria:
B4: Is it written in English?
B5: Does it study corruption in a private sector setting?
B6: Was it conducted before 1996?
B7: Is it a theoretical study?
B8A: If this is a micro-study that uses quasi-experimental or regression-based methods, then is it clear from the abstract that there is no control group?
B8B: If this is a case study, then is there no specifically outlined methodology through which data is collected and analyzed?

Section C: Characterising Included Studies and Interventions

C1: What kind of empirical paper is this?

- Qualitative case study
- Micro or macro-study that utilizes randomized controlled trials
- Micro or macro-study that utilizes quasi-experimental or regression-based methods
    - C1.a: *if C1 = " Micro or macro-study that utilizes quasi-experimental or regression-based methods,"* then: what kind of design does it use?
        - Regression Discontinuity
        - Instrumental Variables
        - Differences-in-differences
        - Other

C2: What is the population focused on in this study?

- Teachers
- Health Workers
- Infrastructure Production
- Public Financial Systems
- Government Administration (Bureaucrats)
- Conditional Cash Transfer Administration
- Other

C3: Where is the corruption taking place?

- At point of transfer between higher-level government and lower-level government
- At point of transfer between lower-level government and recipient population

C4: Does the study focus solely on testing principal-agent models while keeping the underlying rules fixed, or does it allow for the possibility of changing the government's rules?

- Changing Monitoring/Incentives (rules fixed)
- Changing the Rules (rules not fixed)

C5: What kind of intervention does it evaluate?

- Financial incentive
- Information/education campaign
- Audits/monitoring
- Other

C6: How big was the effect size?

C7: What were the drivers of cost?

- Government hires to monitor (and length of time/amount)
- Managing community monitoring (and length of time/amount)
- Information technology change – rewriting systems
- Others to be added as analysis begins

C8: In what country does the intervention take place?

Section D: Assessing Quality of Study

All papers that make it to Step 3 of our process will be coded in the following way:

Internal Validity

D1: Quality of control group

D1a: risk of sample selection bias
D1b: risk of errors-in-variables bias
D1c: risk of simultaneous causality bias
D1d: risk of functional form misspecification

D2: Potential sources and risk level of omitted variable bias

D3: Overall extent to which data cited supports the conclusions that the authors draw (cross-comparison of data and written conclusions –e.g. make sure authors are not cherry-picking positive data from multiple analyses run)

External Validity

D4: Geographic setting (by continent)

D5: Characteristics of intervention that may be specific to that intervention and compromise generalizability

D5a: type of government (autocratic, democratic, socialist)
D5b: combined with other types of intervention (state)
D5c: level of intervention (national, district, agency, district-agency specific)
D5d: reliance on unique circumstances (such as a charismatic and/or atypical leader, etc.)

Other Issues Relating to Quality and Bias

D6: Is the scope of the study clear and well defined?
D7: Is the study relevant?
D8: Are there other significant problems with the study, for example attrition, etc?
D9: Was the study free from selective outcome reporting?
D10: Was the study free from other risks of bias?

Section E: Outcomes

Paper	Methodology of	Type of	Reported Effect	Reported Cost	Other Possible

	Study	Treatment	Size	of Treatment	Cost Drivers

Appendix 2.5: List of Non-developing Countries (to be excluded from the review)
We limit our research to countries that are considered part of the developing world. We will exclude the wealthiest 50 countries in the world, according to the World Bank PPP estimates, 2009. These include:

1. Luxembourg *tied with* Macao
2. United Arab Emirates
3. Norway
4. Singapore
5. Brunei Darussalam
6. United States
7. Kuwait
8. Switzerland *tied with* Hong Kong
9. Ireland
10. Netherlands
11. Australia
12. Austria
13. Canada

14. Sweden
15. Iceland
16. Denmark
17. United Kingdom
18. Germany
19. Belgium
20. France
21. Finland
22. Bahrain
23. Spain
24. Japan
25. Italy
26. Equatorial Guinea
27. Greece
28. New Zealand
29. Israel
30. Cyprus
31. South Korea
32. Slovenia
33. Trinidad and Tobago
34. Czech Republic
35. Oman
36. Portugal
37. Saudi Arabia
38. Malta
39. Slovak Republic
40. Croatia
41. Hungary
42. Seychelles
43. Estonia
44. Poland
45. Russian Federation
46. Antigua and Barbuda
47. Lithuania
48. Libya
49. Latvia
50. Argentina