

Is it Better to Empower the People or the Authorities? Assessing the Conditional Effects of ‘Top-Down’ and ‘Bottom-Up’ Anti-Corruption Interventions

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Abstract

Existing experimental and quasi-experimental results have demonstrated that both anti-corruption initiatives that provide information and/or authority to the recipients of government programs – so-called ‘bottom-up’ interventions – and initiatives that rely on government agencies for enforcement – ‘top-down’ interventions – can be effective in some settings. Yet, in other instances, both forms of intervention have been found to be ineffective in combating corruption. These contrasting results strongly suggest that the effectiveness of both ‘top-down’ and ‘bottom-up’ anti-corruption interventions is conditional on other factors. Unfortunately, the existing literature says little regarding the conditions conducive to the success of either form of intervention. Assessing the conditional effects of anti-corruption treatments poses substantial challenges for researchers – particularly for those employing experimental or quasi-experimental approaches. This paper (1) discusses factors that may condition the effectiveness of both top-down and bottom-up interventions; (2) illustrates the difficulties in assessing these conditional relationships, with particular reference to experimental and quasi-experimental settings; and (3) suggests approaches that might mitigate these problems.

Anti-corruption interventions can be roughly grouped into one of two categories: One form of intervention – following what is often termed a ‘bottom-up’ approach – seeks to empower the consumers of government-provided services. These individuals are provided with better access to information regarding government performance, are given official or semi-official oversight roles in government programs, or are provided with access to the government administrators capable of sanctioning the behavior of corrupt officials. Consumers granted this power are expected to exercise either their political voice (e.g., through the voting mechanism) or their direct authority to curb abuses by corrupt officials. An alternative form of intervention – a ‘top-down’ approach –

charges certain government bodies with the auditing and sanctioning of officials charged with the provision of services to the populace. By increasing the ease or frequency of monitoring potentially corrupt lower-level officials, such interventions aim to deter corrupt behavior.

Both forms of anti-corruption intervention have been shown to be successful in certain settings. Popular informational campaigns have led to large reductions in misappropriated funds in a capital expenditures program for schools in Uganda (Reinikka and Svensson, 2003), to lower levels of capture and better health outcomes from a public health program in the same country (Björkman and Svensson, 2009), and to reduced electoral support for corrupt politicians in a variety of settings (Ferraz and Finan, 2008*b*; Peters and Welch, 1980). Government led audits have reduced levels of misspending in infrastructure projects in Indonesia (Olken, 2007) and to more efficient health care spending in Argentina (Di Tella and Schargrodsky, 2003); while increasing the resources available to US attorneys increases corruption prosecutions in US states (Alt and Lassen, 2010).

But, both forms of intervention have failed in alternative settings. For instance, an informational campaign related to public health – very similar to the successful intervention in Uganda – produced no change in program effectiveness in India (Banerjee et al., 2008). Olken (2007) found little effect of participatory institutions on overall corruption in infrastructure programs in Indonesia. Meier and Holbrook (1992) find little evidence for the effectiveness of top-down ‘structural’ factors – such as auditing capability or state centralization – in reducing the frequency of corruption convictions in a cross-section of US states. Indeed, the literature is rife with examples in which officials charged with oversight are ‘captured’ by corrupt lower level officials they are meant to control.¹ Both top-down and bottom-up anti-corruption interventions are successful in some instances and fail in others.

The fact that very similar interventions produce starkly different results suggests that the effectiveness of these treatments is conditional on other covariates that vary across settings. The conditional nature of these treatment effects likely stems from the indirect manner in which corruption is targeted. Both ‘bottom-up’ and ‘top-down’ interventions typically serve to alter the incentives of and information available to officials, politicians, and citizens, rather than eliminating corruption directly (on this point, see Keefer and Khemani, 2005). Whether or not these incentives and information are sufficient to produce changes in corrupt behavior will likely vary across both formal and informal institutional settings. The existing empirical literature, however, has little to say about how the effectiveness of anti-corruption initiatives is conditioned by political institutions.

This shortcoming in the literature is very significant. After all, the relevant question for the policy-maker is not “Can this intervention ever prove effective” or “Which type of intervention is more effective on average – a top-down or a bottom-up campaign?”, but rather “What type of anti-corruption initiative is most likely to be successful under the present circumstances?” (on this point, see Heckman, 2008).² Currently, the empirical literature on corruption is ill-placed to

¹For theoretical models of top-down oversight and capture, see Laffont and Tirole (1991) and Gailmard (2009).

²Also see Shadish, Cook and Campbell (2002, 84).

suggest which form of anti-corruption initiative a given policy-maker should select. Current results are best seen as demonstrating that certain interventions *can* be effective, they say far less about which interventions should be preferred in any specific instance.

To provide a better guide to policy, it is necessary to closely examine the factors that condition the effectiveness of different anti-corruption interventions. Unfortunately, the study of conditional treatment effects poses substantial problems of estimation and design – particularly if one is to avoid sacrificing causal identification in the pursuit of conditional associations. Causal identification typically necessitates concentrating empirical analyses on a small sample of largely similar cases – the better to ensure covariate balance and a lack of confounding. In a typical field experiment or quasi-experiment, the range of variation on conditioning variables is likely to be small. This variation is likely to be further truncated by selection into treatment: Government bodies, NGOs/IGOs and researchers have little motivation to attempt to implement anti-corruption programs when they suspect that circumstances are such that these interventions will probably fail. As a result, any attempt to identify the conditioning effect of institutional variation on anti-corruption initiatives is likely provide imprecise estimates and may understate the extent to which the effectiveness of treatment varies across units.

This problem is, of course, simply a particular manifestation of the issue of external validity.³ The traditional view of problems of external validity holds that the effectiveness of an intervention may be conditional on other covariates – for instance, the institutional setting in which treatment is attempted – and that the results of a particular experimental or quasi-experimental analysis may therefore say little about the *average* effect of a given treatment. The concern here is somewhat more subtle: the results of a given analysis may say little about the manner in which the effectiveness of treatment *covaries* with other factors.

In this review, I will outline the causal pathways through which both ‘top-down’ and ‘bottom-up’ anti-corruption interventions are expected to operate, and will discuss how variation in formal and informal institutions may condition the effectiveness of these programs. I then suggest some means of overcoming – or at least minimizing – the problems faced in identifying the conditional nature of the effects of anti-corruption interventions. Broadly speaking, I suggest two approaches to dealing with conditioning: The first is a design-based approach. Theory can guide experimental design and case selection to allow for stronger tests of the conditional effects of treatments. The second involves aggregation across multiple studies – particularly using the tools of hierarchical modeling and meta-analysis. Note that I am not calling for replication as a solution to questions of external validity. Such an approach would only identify the average effect of treatment across a wide range of units, it would not allow one to assess the conditional effect of treatment. Rather than simply repeating a given experiment or replicating a given identification strategy in as wide an array of cases as possible, researchers would be better served by selecting cases to ensure variation on likely

³To be more precise, the threat to external validity here is what Shadish, Cook and Campbell (2002) refer to as the ‘interaction of a causal relationship with settings.’

conditioning variables (for a related discussion, see Martel Garcia and Wantchekon, 2010).

The remainder of this paper proceeds as follows. First, I discuss the indirect nature of both ‘top-down’ and ‘bottom-up’ anti-corruption interventions and why one might expect the effectiveness of such initiatives to be conditional on institutional covariates. More precisely, I argue that the effectiveness of both top-down and bottom-up interventions is likely to be conditional on the structure of institutions that regulate the relationship between citizens, politicians, and bureaucrats – namely, the structure and competitiveness of political contestation, the independence of oversight institutions, and the nature of civil service rules. I then further elaborate on the difficulties of identifying conditional treatment effects in an experimental or quasi-experimental setting. I then offer several options that may help to mitigate these difficulties.

The Mechanics of Anti-Corruption Interventions and the Sources of Conditional Treatment Effects

Anti-corruption initiatives do not typically directly affect levels of corrupt activities. Corruption by nature consists of covert and illicit activities that take place beyond the direct reach of the state or other program implementors. One cannot directly inhibit a corrupt official from accepting a bribe. Rather, anti-corruption initiatives seek to alter the incentives under which corrupt or potentially corrupt officials operate. They reduce the expected benefits from engaging in corrupt activities by increasing the probability of detection or the penalties from capture and prosecution (Becker and Stigler, 1974). Often anti-corruption interventions seek to affect the behavior of agents far removed from the corrupt transaction itself. For instance, an intervention may provide information regarding the level of corruption to voters, who in turn may choose not to reelect incumbent politicians who tolerate or participate in corruption, who in turn may choose to more vigorously investigate and prosecute corruption by subordinates, who in turn may choose to forgo opportunities to benefit from corrupt activities.

The indirect nature of anti-corruption interventions, and the length of the causal chain through which they operate, implies that the effectiveness of these initiatives will often be conditional on other factors. In certain instances, this conditioning will be the result of a mediating factor – an intervention affects a mediating factor which, in turn, affects levels of corruption. So, for instance, the effectiveness of voter information campaigns in reducing corruption will be mediated by the response of voters’ to this information, which in turn affects the incentives of other agents.

In other instances, the effectiveness of an anti-corruption intervention will be conditional on other factors that affect the costs and benefits of corruption – even without any causal intermediation. Consider a simple example: A bureaucrat faces a binary decision of accepting or rejecting a bribe of value B . If she accepts a bribe, she faces the danger of detection and punishment, with expected cost C . Assume further that the value of C systematically varies across units (countries,

regions, towns, etc.) according to another covariate X . An anti-corruption intervention may seek to raise the probability or costs the bureaucrat suffers from detection, boosting the expected costs of accepting a bribe by an amount Δ . This then implies that the campaign will only be effective if $B > C$ and $\Delta \geq B - C$. Since the value of C is conditional on another covariate X , so too will the effectiveness of the intervention. This is true even though the effect of treatment isn't mediated by X . Rather, the conditional nature of the treatment effect emerges due to the discrete nature of the official's action space.

In the remainder of this section, I discuss the causal paths through which both bottom-up and top-down interventions seek to influence levels of corruption. And I note likely factors that may condition the effectiveness of each type of intervention. This is not intended to be an exhaustive list of such factors, but rather a set of illustrative examples.

Bottom-Up Interventions

Bottom-up interventions typically function by providing information or oversight roles to consumers of government services. Citizens empowered by this access to information and/or authority might then use these newfound advantages either to influence the actions of those in positions of authority or to – more directly – uncover and sanction instances of corruption themselves (Banerjee et al., 2008; Khemani, 2007). So, for instance, the intervention may provide voters with information about the performance of specific service providers (Reinikka and Svensson, 2003), about the performance of local government more generally (Chong et al., 2010; Ferraz and Finan, 2008a), or about their legal rights and best practices in service delivery. Alternatively, interventions may encourage citizens to participate in existing or new bodies with the authority to oversee the provision or determine the selection of state provided services (Björkman and Svensson, 2009; Olken, 2007, 2008).

As noted above, these interventions do not affect the level of corruption directly. Rather they are effective only insofar as they influence the actions of citizens, and the citizens' revised actions affect the behavior of political and bureaucratic players (Khemani, 2007). Both informational and institutional interventions attempt to address a moral hazard problem in the provision of government services, though each addresses a slightly different source of moral hazard.

Informational interventions assume that a significant cause of corruption lies in the information asymmetry between members of the public and political or bureaucratic officials (Bardhan and Mookherjee, 2000; Keefer, 2007; Keefer and Khemani, 2005; Khemani, 2007; Reinikka and Svensson, 2003). Politicians and bureaucrats are aware of the level of service provision legally mandated, the size of budgetary allocations to these services, and of deviations between realized and mandated service delivery brought about – in whole or in part – by corruption. Citizens are unaware of these factors and thus unable to prevent corrupt behavior.

Institutional interventions, by contrast, assume that the delegation of oversight authority to

politicians and senior bureaucratic officials leads to corrupt behavior. The beneficiaries of government programs have a stronger interest in these programs' performance and consequently are likely to better exercise control (Seabright, 1996). This may be true in either the presence or absence of information asymmetries. The delegation of authority to politicians entails some degree of efficiency loss (given the limited means by through which the public may hold politicians accountable), and the delegation of administrative authority from politicians to bureaucrats entails a further decline in efficiency.⁴ Eliminating the 'middle-man' from this line of authority serves to improve citizen control and enhance efficiency.

For either form of bottom-up intervention to have the desired effects, two prerequisites must be satisfied: First, the intervention must alter the behavior of targeted citizens. Those provided with greater information must act on this information, or those provided with oversight authority must avail themselves of this newfound power. Second, any changes the intervention causes in the behavior of the citizenry must produce concomitant changes in the behavior of senior political and/or bureaucratic officials. The causal effect of the intervention is thus mediated by the behavior of both citizens and officials. Since the interaction between citizens and officials is governed by a set of political institutions, it stands to reason that the causal effect of any bottom-up intervention on levels of corruption will be conditional on the institutional setting in which the intervention is implemented.

Citizen Behavior

To make matters concrete, consider an informational intervention. Citizens are provided with information (e.g., from audits) about the degree of corruption in the provision of public services. (This may relate to either be a single service or agency, or be an aggregate reflection of the government's performance in delivering a variety of services.) For this intervention to be effective, it must first affect voter behavior by reducing the citizens' willingness to support incumbent governments found to practice corruption. The threat of a loss of public support as a result of corrupt activities must induce politicians to implement policies that deter corrupt behavior. And bureaucratic officials must, in turn, act on these new incentives – reducing levels of corruption.

The first prerequisite for an effective intervention is thus a change in citizen behavior – namely a reduction in the willingness to tolerate incumbent politicians who fail to curb corruption. This may seem a trivial prerequisite that is always satisfied – and indeed there are many examples in which the unmasking of corrupt behavior leads to decline in support for incumbent politicians. Ferraz and Finan (2008*b*) find that mayors of corrupt cities in Brazil lose electoral support following the release of audit information. Peters and Welch (1980) reveal that members of the US Congress experience sharp declines in support if publicly tried for corrupt activities. But, the willingness of

⁴For a formal analysis of this type of delegation problem, see Acharya and Schwabe (2011).

citizens to lessen their support for incumbents depends critically on the structure of political competition and citizens' beliefs about the alternatives to the incumbent government that are available.

Consider the manner in which political competition is waged. Keefer and Khemani (2005) note that political leaders can either garner support through the use of personalized transfers (either benefits or the avoidance of harms) or through promises to implement a given set of policies.⁵ If politics consists of a system of personalized transfers, members of the citizenry may see corruption as no bad thing. Wantchekon (2003) demonstrates that clientelistic promises can appeal to voters, often to a greater extent than do policy platforms. The Tweed Ring managed to maintain its support in 1860s and '70s New York in large part because it "had cast its lot with workingmen and immigrants ... [it] routinely arranged city jobs for poor men with families and supported Irish churches and charities; its clubs and committees reached deep into local neighborhoods," (Ackerman, 2005, 21). In these circumstances, many citizens may see themselves as the beneficiaries of corrupt behavior. Corruption serves to 'grease the wheels' such that clientelistic politicians are able to deliver benefits to individuals. Under such circumstances, moreover, a citizen who abandons her support for the incumbent government risks being cut off from this stream of private benefits and, in some instances, may risk being targeted for retribution. Information regarding the level of corruption, therefore, may prove ineffective in changing citizen behavior. Many citizens benefit from the very corruption they are being informed of, and the risks of alienating the incumbent government by withdrawing support may be too high to tolerate. So, as the political system is increasingly characterized by clientelism, the effectiveness of informational anti-corruption interventions is likely to decline.

Similarly, the willingness of the citizenry to withdraw support for the incumbent government will depend critically on the set of alternatives with which it is faced – i.e., on the nature of party competition. Citizens may strongly support the policies advocated by, or have a strong psychological attachment to, the incumbent government, such that they are unwilling to reduce their support for the government even if it is shown to be corrupt (Bardhan and Mookherjee, 2000).⁶ Peters and Welch (1980), for instance, argue that US voters' response to corruption charges against public officials will be mediated by the competitiveness of elections.

More subtly, citizens' reaction to information regarding the corrupt behavior of incumbents will depend on their beliefs regarding the corruptibility of alternative leaders. In models of political accountability, when candidates differ on 'type' (here, corruptibility), voters' beliefs about these types will come to dominate their voting decisions (Banks and Sundaram, 1993; Fearon, 1999). If voters believe alternatives to the incumbent leadership are highly corrupt, the information that the incumbents are also corrupt may not induce them to support the opposition. Voters may instead be left indifferent between their possible choices, or – if beliefs about alternative leaders are suffi-

⁵Also see Keefer and Vlaicu (2008).

⁶Myerson (1993) produces a similar finding in a prospective voting model. Candidates known to be corrupt may continue to be elected so long as they enjoy sufficient support on other issue dimensions.

ciently negative – may continue to support the incumbents. For instance, Chong et al. (2010) find that releasing the details of audits on levels of mayoral corruption in Mexico results in a decline in turnout rates, rather than increased support for the opposition. In part, this result may emerge because mayoral incumbents in this experiment often came from the PAN and PRD parties. The largest alternative – the PRI – was well-known for its corrupt activities during its years of autocratic rule, and, consequently had a reputation for corruptibility.

Politicians' Behavior

Let us assume that an informational intervention has the intended effect on citizen behavior. That is, the treatment results in a statistically and practically significant decline in citizens' support for incumbent politicians who fail to act against corruption. Even if this is the case, it is not assured that the intervention will have the desired effect on levels of corruption. The causal effect of the intervention is mediated not only by the behavior of citizens, but also by the behavior of politicians.

For the intervention to have the intended effect on the practice of corruption, it must be the case that politicians respond to the threat of citizens' sanctions by changing the incentives faced by lower-level officials. They may, for instance, become more inclined to dismiss or prosecute bureaucrats found to participate in corruption, increase the resources devoted to the detection of corrupt behavior, or stop the promotion or appointment of bureaucrats with a past history of participating in illicit activities. But, the willingness of politicians to take these actions depends critically on their responsiveness to changes in public opinion, which will in turn depend on the structure of political institutions.

Politicians' responsiveness to public opinion will largely be a function of the structure of representative institutions. Clearly, if these institutions are absent – i.e., the government is autocratic – it will be less likely to respond to citizens' attitudes that would otherwise be the case. Barring popular unrest, politicians' survival in office is unlikely to be a function of public opinion, and this opinion can consequently be disregarded at relatively low cost. Less clearly, responsiveness in democracies will also be a function of voting rules. For instance, under plurality voting, politicians need only modify their behavior in response to the intervention if either (1) elections are highly competitive,⁷ or (2) the effect of treatment on citizens' behavior is quite large. Politicians with large majorities can afford to ignore small changes in levels of support under plurality rule. Under proportional representation, however, changes in the ruling party's utility is more likely to be a continuous function of changes in electoral support. Therefore, the effect of treatment on politicians' behavior is less likely to be conditional on levels of competitiveness and may be nonzero even if the effect of the intervention on citizen behavior is relatively slight.

⁷Note that the conditional effect of competitiveness is likely to be positive for two reasons: (1) If competitiveness emerges because of an absence of strong partisan loyalties, citizens will be more likely to abandon their support for the incumbent after being informed that she is corrupt, and (2) Politicians must be highly concerned about changes in their level of support when elections are close.

In addition to the nature of electoral rules, the responsiveness of politicians to changes in public attitudes and behavior will likely depend on institutional features that affect their time horizons. Even if an informational intervention produces a large decrease in public support for incumbents who tolerate corruption, this will mean little for politicians who believe that their *ex ante* risk of being removed from office is high (McGuire and Olson, 1996). The role time-horizons can play in conditioning the effect of informational interventions is perhaps most clear with respect to term limits. Politicians who are reaching the end of their maximum term in office face reduced incentives to fight corruption (Ferraz and Finan, 2008a), and are less likely to be motivated by electoral concerns than incumbents who are not so-limited. Similarly, politicians in highly unstable polities – perhaps due to the risk of coups or wars – are likely to discount the value of being reelected (or otherwise retained in office) highly. As a result, the costs of sanctioning by the citizenry are decreased, and so too will the responsiveness to changes in citizen behavior. The effect of informational interventions are therefore likely to be conditioned by the time-horizons of (or by institutional factors that affect the time-horizons of) politicians.

Not only do institutions condition the willingness of politicians to respond to changes in citizen behavior, they also affect the ability of politicians to deter corrupt behavior by subordinates. Civil service rules, the role of government employee unions, independent legal institutions, and checks on executive authority may all inhibit the ability of incumbent leaders to respond to citizens' demand that corruption be reduced.⁸ For instance, civil service rules may prevent the removal of bureaucratic officials without evidence of cause, and may place a high evidentiary burden on the government to demonstrate cause. In this event, politicians may be unable to increase the power of bureaucrats' incentive to forgo corruption, breaking the causal chain from the informational treatment to corruption outcomes.

Bureaucrats' Behavior

Typically, bottom-up anti-corruption interventions target the behavior of lower-level bureaucratic officials, who are particularly likely to be engaged in the day-to-day petty corruption that most directly affects the lives of the consumers of government services. Since interventions seek to affect bureaucratic behavior, one cannot describe bureaucrats' strategies and actions as a causal mediator in the relationship between anti-corruption initiatives and corruption levels. Nonetheless, one can reasonably hypothesize that institutional differences across countries (or regions, or towns) may *moderate* bureaucrats' response to the any changes in the political environment brought about through an informational intervention.

As was true of politicians, bureaucrats may vary in their responsiveness to an informational

⁸Many of these factors may also have direct effects on the prevalence of corruption (Rauch and Evans, 2000; Kunicová and Rose-Ackerman, 2005). My interest here, however, is how these factors may condition the effects of anti-corruption interventions.

intervention depending on their time horizons. Assume that an informational treatment increases voters' awareness of and responsiveness to corruption, such that politicians are forced to increase efforts to detect corrupt behavior by their subordinates. The intervention thus increases bureaucrats' risk of detection from engaging in corrupt behavior. Bureaucrats found to engage in corruption face the risk of dismissal and, perhaps, some additional punishment for their illicit activities. The change in the risk of detection brought about by the intervention will have the largest effect on bureaucrats' propensity to engage in corruption if they are otherwise secure in their jobs and/or wages are relatively high. In this event, the opportunity costs of engaging in corruption – and being caught – are particularly high (Becker and Stigler, 1974). If, on the other hand, bureaucratic wages were relatively low, or continued employment was uncertain, the costs of dismissal would be low. Thus, we might expect anti-corruption interventions to be less effective in situations wherein bureaucratic turnover is frequent – as under the spoils system that characterized the US bureaucracy during the 19th century (Carpenter, 2001) and was, more recently, common in much of Latin America (Geddes, 1994).

Bureaucratic wages might condition the relationship between informational interventions and corruption in another manner. The proceeds of corruption constitute an alternative source of income for bureaucratic officials. If bureaucrats' utility is concave in income, these officials will become more responsive to changes in the expected punishment for engaging corruption – brought about through an informational intervention – as salaries rise.

Summary: The Conditional Effectiveness of Bottom-Up Interventions

Bottom-up interventions thus function by targeting the behavior of the population of citizens. Alterations in this behavior – in particular a reduced willingness to support politicians under whom levels of corruption are high – alter the incentives faced by political actors, who may then increase oversight of bureaucratic agents. Because these interventions are mediated by the behavior of citizens and of politicians, it is likely that the effectiveness of a bottom-up intervention will be conditioned by political institutions that govern the relationship between these actors and between politicians and bureaucrats. Institutions that govern electoral behavior – the presence or absence of electoral institutions, the nature of voting rules, the level of clientelism – are likely to condition the effectiveness of bottom-up interventions. So too will institutions that govern the relationship between politicians and bureaucrats – for instance the structure of civil service rules. This list of conditioning variables is far from exhaustive, but it is suggestive of lines for future empirical inquiry.

Top-Down Interventions

Top-down interventions attempt to alter levels of corruption by affecting the behavior of government agencies. Typical top-down interventions may increase the frequency of government led

audits (Olken, 2007; Di Tella and Schargrotsky, 2003), increase the number of resources or staff provided to prosecutors or investigators of corruption (Alt and Lassen, 2010), or provide training to increase the effectiveness of prosecutorial or investigative services (for a discussion of one such US sponsored program see Hollyer and Wantchekon, 2010).

Such interventions are best seen as increasing the ability of politicians and/or prosecutors to sanction corrupt behavior, or as reducing their costs from doing so. As is true of bottom-up interventions, the causal relationship between treatment and corruption outcomes is mediated by the behavior of senior officials and politicians. Top-down interventions may enhance the ability of these actors to sanction corruption, but they must choose to exercise this power. Moreover, even in the event that those with oversight responsibility respond to treatment by punishing corrupt acts with either greater frequency or harshness, the responsiveness of lower-level bureaucrats to the threat of sanctions may vary with levels of wages and job security in the manner documented above.

The nature of the causal relationship between a given top-down intervention and levels of corruption will thus depend on the preferences of those with the authority to sanction corrupt behavior. Is this authority vested in an independent prosecutor? Or do politicians enjoy the *de facto* or *de jure* right to intervene in corruption cases? Several studies have demonstrated that the assignment of this responsibility has a direct effect on corruption outcomes (Cordis, 2009; van Aaken, Feld and Voigt, 2010). It is reasonable to further expect that the assignment of this authority will itself condition – and may determine other factors that condition – the effectiveness of top-down anti-corruption interventions.

The Conditioning Effect of Prosecutorial Independence

Top-down interventions typically affect the amount of information available to those charged with sanctioning corrupt behavior – for instance, by increasing the frequency of auditing – or reduce the costs of obtaining such information or carrying out sanctions – by increasing the skill or numbers of investigators or prosecutors. Whether or not such an intervention will affect levels of corrupt behavior is therefore contingent on the decision of relevant authorities to make use of these resources. The responsiveness of authorities vested with this power – and the set of factors that may alter their responsiveness – will naturally depend on their identity: Are they prosecutors vested with some degree of independent authority? Or does ultimate authority over sanctioning rest with the incumbent government?

Independent legal authorities and incumbent governments are typically seen as having different interests with regard to corruption prosecutions. Governments are typically seen as largely concerned with prolonging their survival in office (Bueno de Mesquita et al., 2003). To the extent that the incumbent government was responsible for the appointment of officials under potential investigation (and subject to prosecution), it is likely that governing leaders will suffer a cost large cost from the successful investigation and prosecution of corrupt officials. Prosecutions will be

difficult to conceal from the public. And the revelation that the government was responsible for appointing officials involved in ill-dealing may cast doubt on its honesty and competence. By contrast, if the government is new to office and its opponents were primarily responsible for the appointment of sitting lower-level officials, aggressive investigations and prosecution may prove desirable. Successfully unseating sitting bureaucrats will open new posts that can be granted to friendly officials and may sully the reputation of the opposition in the eyes of the public.

Members of the incumbent government are also more likely than prosecutors to have repeated interactions with lower-level officials over a long period of time. Such interactions are conducive to the creation of corrupt relationships between lower-level officials and their overseers (Becker and Stigler, 1974). These relationships may be characterized by vertical hierarchies of corruption, in which lower-level officials extort money from members of the citizenry and kick back some portion of the proceeds to their superiors.⁹ In such instances, increasing the amount of information political superiors possess about the behavior of their underlings will tend to increase these superiors' extraction of kickbacks, rather than reducing levels of corrupt behavior.

Prosecutors, by contrast, are more typically seen as motivated by career concerns – i.e., by the desire to demonstrate their competence in the hope of future advancement. They are often depicted as maximizing their number of convictions or conviction rate (Rasmusen, Raghav and Ramseyer, 2009), or as wishing to prevail in large public cases (Gordon, 2009).

Given that prosecutors are likely to be motivated by career concerns, their decision of whether or not to make use of the additional resources top-down interventions lay at their disposal will depend, in part, on the shape of their career paths. If, for instance, prosecutors are appointed by the government and if many seek advancement within the governing party, a partisan bias in prosecutions is likely to emerge (Gordon, 2009). Prosecutors are likely to wish to simultaneously signal their competence and loyalty by vigorously pursuing legal action against corrupt officials and politicians associated with the opposition. Such a bias may limit the effectiveness of the top-down intervention, as effects on the behavior of co-partisans of the incumbent regime may be small. If, on the other hand, prosecutors are largely named through non-partisan methods and seek to return to the private sector after service, more general signals of competence (the number of successful prosecutions or the conviction rate) are more likely to drive their behavior. In this case, they are more likely to make efficient use of the increased resources provided by the top-down intervention.

Summary: The Conditional Effectiveness of Top-Down Interventions

Top-down interventions serve to reduce the constraints – in terms of information, personnel or skills – faced by overseers in sanctioning the behavior of corrupt bureaucrats. The effect of these interventions is thus mediated by the behavior of either politicians or other overseers, who must choose

⁹See Wade (1984) for a descriptive account of such relationships in India. See Laffont and Tirole (1991) and Cadot (1987) for a theoretical account.

whether or not to employ these additional resources. This decision will largely reflect institutional factors: who is given the oversight role, and what obstacles do they face in exercising this power. In particular, I argue that the independence of oversight from political control may alter responses to top-down anti-corruption interventions. Other institutions – such as civil service rules – may play a similar role, as is outlined in the discussion regarding bottom-up interventions. A variety of other institutional factors that influence the oversight relationship may similarly condition the effectiveness of attempts to increase oversight capacity.

Difficulties in Assessing the Conditional Effects of Anti-Corruption Interventions

The causal effects of both top-down and bottom-up anti-corruption interventions are thus likely to be conditional on other factors. The effects of these treatments are particularly likely to vary with differences in political institutions governing the relationship between citizens, political leaders, and the bureaucracy these leaders are meant to oversee. Neither top-down nor bottom-up interventions directly affect corruption. Rather the effects each type of intervention are mediated by the responses of politicians and citizens. In some settings, for instance when corruption primarily results from informational asymmetries between the citizenry and political and bureaucratic leaders (Keefer and Khemani, 2005; Khemani, 2007) and political competition is intense, bottom-up interventions may prove most effective in curbing corrupt behavior. In others, when politicians or prosecutors lack the information or resources to adequately control corruption and oversight officials are free from political control, top-down interventions may prove more effective (Alt and Lassen, 2010; Olken, 2007; Shleifer and Vishny, 1993). The relevant question is thus not which type of intervention proves more effective on average, but rather how does the effectiveness of each type of intervention vary with observable characteristics of the polities which are to implement these policies. Only by answering the latter question can guidance be provided to policy-makers seeking to determine which type of anti-corruption policies to implement.

Assessing the conditional effect of anti-corruption interventions poses substantial problems for both observational and experimental/quasi-experimental studies. These difficulties arise because conditioning variables typically are not and cannot be assigned by the researcher. Those wishing to assess the conditional effects of anti-corruption interventions are therefore faced with a trade-off – most frequently encountered by those working with observational data – between increasing variation on covariates of interest and ensuring adequate covariate balance for causal identification.

Observational studies can incorporate a broad range of polities into a given analysis to assess the covariance between different institutions and corruption outcomes (see, for instance, Adserà, Boix and Payne, 2003; Gerring and Thacker, 2004; Kunicová and Rose-Ackerman, 2005; van Aaken, Feld and Voigt, 2010) and to examine how these institutions condition the effects of various anti-

corruption interventions. But, the very fact that the units of observation in these studies vary so widely in the types of institutions they have in place raises the question of whether or not they might not also vary in unobserved ways that also correlate with corruption outcomes – resulting in problems for inference. Moreover, different polities may select into different forms of interventions because of the differences in institutions,¹⁰ giving rise to problems of covariate balance under which identification often rests on strong parametric assumptions (Gelman and Hill, 2006; Morgan and Winship, 2007).

Experiments and quasi-experiments, on the other hand, rely on features of research design – either the randomization of treatment or ‘as-if’ random treatment – to ensure that, in expectation, balance exists across all covariates, both observed and unobserved. A different problem hinders the assessment of conditional treatment effects in these types of studies: the truncation of variance in conditioning covariates (i.e., political institutions).

Such truncation arises for two reasons. The first, and less damaging, cause is that the design used for causal identification can only be implemented in a narrow range of settings. For instance, randomization may only be implemented across the set of – or a subset of – municipalities or villages in a given country. An instrumental variable may only cause variation in treatment and/or satisfy the exclusion restriction in a small sample of cases. Typically, the set of cases for which the assumption underlying the experimental or quasi-experimental design are satisfied are similar in important dimensions (Shadish, Cook and Campbell, 2002). For studies that focus on a single-country or region, there is often little variation in electoral institutions, the assignment of oversight responsibility, civil service laws, or a variety of the other institutional factors identified above as likely to condition the effectiveness of either top-down or bottom-up anti-corruption interventions. Consequently, the conditional effect of treatment can only be imprecisely – if at all – estimated.

Variation in conditioning covariates may also be restricted in experimental or quasi-experimental studies by a more pernicious cause: selection into treatment.¹¹ If institutional covariates do condition the effectiveness of anti-corruption interventions in a manner that is predictable *ex ante*, then the cases that implement such interventions are likely to be those in which conditions are such that these interventions are likely to be effective (on issues of selection in the causal analysis, see Heckman, 2008). Those that implement such policies even in a ‘poor’ institutional setting may have other, unobserved, reasons to expect the success of treatment. This selection process first implies that estimates of the causal effect of treatment in cases that implement anti-corruption programs will be a biased estimate of the average effect of these programs in the full sample of polities. More importantly for this review, this type of selection implies that (1) variation in conditioning covariates will be truncated in the sample of cases that implement anti-corruption initiatives, and (2) that selection on unobservables may bias estimates of the conditional nature of treatment effects

¹⁰For instance, if the effectiveness of interventions varies with political institutions in a manner that can be foreseen, it is possible that polities will tend to adopt the type of treatment that is most likely to be successful for them.

¹¹Of course, issues of selection also raise substantial problems for observational studies.

(typically downwards).

Assessing Conditioning in Experimental and Quasi-Experimental Studies

Assessing the conditioning role of institutional covariates on anti-corruption interventions in experimental and quasi-experimental studies requires careful attention to the problems resulting from both forms of truncation described above. It also requires stronger parametric assumptions than those typically imposed in experimental (and sometimes quasi-experimental) studies, and a close relationship between theory and research design (Heckman, 2008; Martel Garcia and Wantchekon, 2010). Broadly speaking, there are two approaches to assessing the conditioning role of institutional covariates: One involves the incorporation of institutional variation into the research design. The other involves aggregating the results of two or more experimental or quasi-experimental studies in conducted in different settings.

The former approach requires explicit theorizing regarding the conditional nature of the effectiveness of a given anti-corruption intervention *ex ante*. Theory can then dictate case selection, such that the researcher may ensure that treatment is applied in varying institutional settings. This approach most directly applies to experimental studies in which (1) the researcher has some control over case selection and (2) randomization strategies can be employed to ensure adequate variation in institutional covariates in both the treatment and control groups – i.e., randomization can be stratified by institutional variation.

To make this case concrete, consider a bottom-up informational intervention. Citizens are provided with the results of audits of government service providers that likely reveal evidence of corrupt activity, should this activity exist. It was hypothesized above that the effectiveness of such an intervention in curtailing corrupt activities will depend crucially on the competitiveness of the electoral environment, particularly when plurality voting rules are in place.

While it will be difficult to select a case for intervention in which there is variation in election rules across treated and untreated units; many cases exist in which the competitiveness of the electoral environment varies widely across municipalities or regions. The researcher may thus stratify randomization according to the level of electoral competitiveness, ensuring that substantial variation in competitiveness exists in both treated and untreated samples. The conditional effect of the informational intervention can then be estimated according to:

$$corruption_i = \alpha + \beta T_i + \delta competitiveness_i + \gamma T_i \times competitiveness_i + \epsilon_i. \quad (1)$$

where i denotes municipality or region i , $corruption$ is the (continuous) measure of corrupt behavior, T is an indicator variable equal to 1 if a given municipality or region received treatment, and

competitiveness is a measure of electoral competitiveness. $\beta + \gamma competitiveness_i$ identifies the conditional treatment effect.

The identification of the conditional nature of the treatment effect requires stronger parametric assumptions than does a typical experimental or quasi-experimental analysis. The conditional effect of treatment is assumed to be a linear function of competitiveness. No such parametric assumptions are necessary to identify the average treatment effect.

Moreover, variation in the conditioning variable is likely to be limited in any practical sample. Given the selection problem noted above, it is unlikely that any country or region would agree to – or experimenter seek to carry out – an intervention unless conditions were favorable to treatment in the majority of units of observation. In this instance, it is unlikely that a country would agree to an informational intervention unless the majority of districts were at least somewhat competitive.

But, even with these drawbacks, such an approach would provide some indication of the conditional effectiveness of the informational intervention. Given selection issues, it is likely that estimates of conditioning would be conservative. So long as the researcher is aware of these issues, this approach at least provides some sense of the role of electoral competitiveness in conditioning the effectiveness of treatment. As noted above, this measure is of crucial interest to policy-makers, and is also highly relevant to theory testing. Of course, nothing prevents an experimental researcher from also presenting results regarding the average treatment effect, the assessment of which requires fewer parametric assumptions.

While this design based approach has many desirable features – it can be implemented within existing experimental designs, minimal risk of confounding either the direct effect of treatment or the conditioning role played by institutional covariates (i.e., electoral competitiveness) – it also faces important drawbacks. The most significant of these stems from the unfortunate reality that some forms of political institutions are unlikely to vary within a given case (i.e., within a given country or region). As noted above, voting rules are unlikely to vary within a given polity. The *de facto* independence of prosecutors in launching corruption cases is unlikely to vary greatly within a given country. When evaluating the conditioning role of such covariates, it is likely necessary to aggregate information across experimental studies.

Typically, such aggregation via meta-analysis is conducted to more precisely identify the *average* treatment effect of a given intervention. I advocate using such analyses to assess the extent to which the effectiveness of anti-corruption interventions vary across settings according to theoretically relevant institutional covariates – voting rules, civil service regulations, prosecutorial independence. Consider the informational intervention described above. Theoretical expectations lead me to believe that such bottom-up interventions are more likely to be effective in electorally competitive districts, and that this is particularly true when plurality voting rules are in place. One

could assess this claim via the following hierarchical model:¹²

$$\begin{aligned}
corruption_{i,c} &= \alpha_c + \beta T_{i,c} + \delta competitiveness_{i,c} + \gamma_c T_{i,c} \times competitiveness_{i,c} + \epsilon_{i,c} \\
\alpha_c &\sim N(\mu_\alpha, \sigma_\alpha) \\
\gamma_c &\sim N(\zeta_0 + \zeta_1 plurality_c, \sigma_\gamma)
\end{aligned} \tag{2}$$

where c denotes case (or country) c , $plurality_c$ is an indicator variable equal to 1 if plurality voting rules are in place in case (or country) c , and all other labels are as in equation 1 above. One could thus examine the effectiveness of the informational intervention across multiple experimental cases under the assumption that the effect of treatment varies with the degree of competitiveness, and that the conditional relationship between competitiveness and the effectiveness of the intervention is itself conditional on the type of voting rule in place.¹³

Aggregating results across studies in this manner offers several advantages. First, and most importantly, it allows the analyst to assess the manner with which the effectiveness of anti-corruption interventions varies across critical institutional covariates that are constant within regions or countries. Second, this type of analysis could – in principle – be conducted by anyone with access to the data from multiple experimental studies. As a result, one need not have strong theoretical expectations about how the effectiveness of interventions varies across institutional settings before such interventions are attempted. So long as the intervention has been attempted in a variety of institutional settings, researchers can develop theories regarding the conditional effect of treatment and test these theories *ex post*. Finally, this type of meta-analysis is well-suited to experimental studies. Because randomization implies that both observed and unobserved covariates are balanced across treatment and control groups, minimal sets of controls are necessary to assess the treatment effect *within* each case. It is unlikely, therefore, that there many variables will be collected in for once case, but unavailable for others.

But, this approach does suffer from significant shortcomings. Notably, for the conditioning coefficient ζ_1 to be estimable, there must be sufficient variation in $plurality_i$. That is, the intervention must have been attempted in a non-trivial number of cases. And these cases must differ from one another in the institutional covariate of interest. Given the high costs associated with experimental analyses, the number of comparable interventions from which to draw cases may be small. Mea-

¹²One could alternatively estimate the conditioning role of voting rules using an interactive model. This would be equivalent to aggregating the data from all experiments run in polities that use plurality voting rules into one sample, and aggregating the data from all experiments run in polities that use other voting rules in another sample and separately estimating equation 1 above. These types of models are sometimes called separating models. Hierarchical models like the one described here are partial pooling models – the results from cases that employ plurality voting rules inform those for cases that do not, and *vice versa*. These models thus offer gains in efficiency – which are likely to be important given that the sample of experimental cases that are being aggregated is likely to be small – at the cost of more strict parametric assumptions (Gelman and Hill, 2006).

¹³One could additionally allow the direct effect of treatment to systematically vary across cases, if this assumption is appropriate. For instance, there may be differences in the effectiveness of implementation across studies.

asures of corruption and the precise nature of treatment may also vary sufficiently across cases that they are not strictly comparable. For instance, many bottom-up interventions provide voters with the results of audits of government services (for instance Chong et al., 2010; Ferraz and Finan, 2008b; Reinikka and Svensson, 2003), but the precise contents of the information contained in the audits differs across cases.

The problem of selection into treatment is also not fully addressed by this approach. Researchers, policy-makers, and NGOs all have incentives to implement anti-corruption interventions in settings where they are expected to have a large effect. Thus, cases are likely to demonstrate less variation across conditioning covariates than one might like.

Finally, while the effectiveness of the informational intervention is cleanly identified in each case; the role of *plurality_c* in conditioning this effect is not. Any covariate that is correlated with the presence/absence of plurality voting rules and that also conditions the effectiveness of informational bottom-up interventions will act as a confound. When assessing the conditioning role of institutional covariates through the use of meta-analysis, care needs to be taken to reduce the risk of confounding, as would be necessary in any observational study.

One may attempt to resolve some of the issues that face both the design-based and aggregation-based approaches to assessing the conditional effectiveness of anti-corruption interventions by adopting an approach that is essentially a middle-ground between the two: an approach based on the design of *research programs*. Research programs consist of a series of interventions conducted in cases carefully selected to better assess the conditioning effect of theoretically relevant covariates (Martel Garcia and Wantchekon, 2010).

Researchers may plan to implement a series of interventions and select cases to ensure variation on conditioning covariates. For instance, several informational interventions may be attempted in countries that apply both plurality and proportional voting rules. By selecting cases in this manner, researchers ensure that variation exists on conditioning covariates of interest. Case selection by researchers may also help to mitigate against the selection mechanisms identified as a threat to assessing the conditioning role of institutions above.

For a research program to be successful, the researcher should be willing to attempt an intervention under circumstances where it is unlikely to be successful. As Martel Garcia and Wantchekon (2010) note, if the intervention should prove effective even under demanding circumstances, it is particularly likely achieve the desired result under more favorable circumstances. Moreover, such an approach has the advantage of (1) ensuring maximal variation on conditioning covariates of interest and (2) mitigating the typical selection problem faced when dealing with voluntary interventions. Note that this approach also bears a close resemblance to the frequent use of ‘hard-cases’ in the qualitative literature – if a given intervention is effective even in the least clement circumstances, it is likely to be as or more effective under more favorable conditions.

It is not coincidental that the criteria for aggregating experimental results across cases closely

resemble those for case selection when using qualitative analysis. Both types of analyses attempt to explain variation in outcomes (in this case, the effectiveness of treatment) across a relatively small number of cases. Indeed, when faced with a very small number of cases, a researcher interested in assessing the conditional effect of an intervention may need to rely on qualitative comparisons. Those designing research programs should therefore be guided by similar criteria as employed by qualitative researchers when undertaking case selection: Cases should be selected to ensure variation on covariates of theoretical interest (e.g., voting rules) and to minimize variation on other potential confounds for this conditional relationship (King, Keohane and Verba, 1994; van Evera, 1997).

Research programs also come with significant costs, however. Unlike simple aggregation via meta-analysis, research programs require the continued involvement of a single researchers and considerable planning before interventions are implemented. Unlike attempts to maximize variation on conditioning covariates within a given experimental design, research programs do not ensure a clean identification of the conditioning role of covariates that vary across cases. And such an approach requires a very large investment in terms of time, resources, and effort on the part of the researcher. It is possible, therefore, that such approaches are best coordinated through centers or by research organizations or in collaboration with NGOs with the institutional capacity to conduct many interventions across multiple settings and to maintain this effort for a sustained period of time.

Conclusion

Existing experimental and quasi-experimental evidence indicates that both top-down and bottom-up anti-corruption interventions have been successful in some instances. Yet similar interventions have failed in other instances. It seems highly probable that differences in the impact of both types of interventions can be explained by differences in the environments in which these interventions took place. The effectiveness of attempts to combat corruption is conditional on factors that vary across countries, regions, municipalities and villages.

Theory suggests that political institutions may explain much of the variation in the effectiveness of these interventions across experimental settings. Anti-corruption efforts do not directly affect corruption levels; rather the effect of these treatments is mediated through the behavior of political actors. The causal chain linking the intervention to corruption outcomes is longest when bottom-up designs are applied: interventions target the behavior of citizens which must influence politicians who in turn influence bureaucrats. But, the effect of top-down interventions is also mediated by the behavior of politicians or officials charged with oversight roles. Political institutions that govern the relationships between citizens, politicians, overseers, and bureaucrats are therefore likely to play an important role in conditioning the effectiveness of both forms of anti-corruption interventions. The

structure and competitiveness of political contests, the independence of overseers from politicians, and the nature of civil service rules are all institutional factors that may act in this manner.

Where these institutional factors vary within a single country or experimental setting, researchers would be well-served by designing experimental interventions to test for conditional treatment effects. Randomization should be conducted in a manner that ensures variation in conditioning (institutional) factors in both treatment and control groups, and provides balance in these values across treatment and control groups. Empirical models can then explicitly incorporate the possibility that the effectiveness of the intervention is conditional upon institutional covariates.

When this is not possible – i.e., when political institutions vary across but not within countries – the literature would benefit from studies that aggregate results across experimental settings. In the short term, this role can be provided by meta-analyses that appropriately test for the conditioning role of theoretically relevant covariates that vary only across countries. These aggregations, however, may continue to suffer from truncation in the variation of institutional covariates and face problems of identification. In the longer term, these shortcomings may be mitigated by the adoption of research programs that explicitly seek to examine the conditioning role of theoretically relevant institutions. In such research programs, anti-corruption interventions should be targeted at states in a manner that (1) ensures variation in theoretically relevant institutional factors and (2) seeks to control for confounding factors by minimizing variation on other dimensions. Researchers should particularly take care to target interventions at cases where the conditional effect of treatment is expected to be low, as this mitigates biases resulting from selection into treatment.

This approach may benefit experimental and quasi-experimental research more generally. Once initial results demonstrate that a given intervention *can* be effective in some circumstances, the relevant question then becomes *under what circumstances* will the intervention reap the greatest benefit. Theory can help to guide researchers as to how circumstances might cause the effectiveness of treatment to vary. And explicitly designing interventions or aggregating data across interventions to rigorously test these theories may provide results that are of greater use to policy-makers than is the typical focus on the average treatment effect.

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