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Does Conditionality Work? A Test for an Innovative US Aid Scheme

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Abstract: Performance-based aid has been proposed as an alternative to the failed traditional approach whereby donors make aid conditional on the reform promises of recipient countries. However, hardly any empirical evidence exists on whether ex post rewards are effective in inducing reforms. We attempt to fill this gap by investigating whether the Millennium Challenge Corporation (MCC) was successful in promoting better control of corruption. We employ a difference-in-difference-in-differences (DDD) approach, considering different ways of defining the treatment group as well as different time periods during which incentive effects could have materialized. We find evidence of strong anticipation effects immediately after the announcement of the MCC, while increasing uncertainty about the timing and amount of MCC aid appear to weaken the incentive to fight corruption over time. We conclude that – if designed properly – conditionality can work.

JEL classification: F35, O17

Keywords: Foreign Aid, Corruption, Millennium Challenge Corporation, MCC Effect

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1. Introduction

Different strands of the literature have come to opposing verdicts on conditionality. In international development cooperation, donors appear to have failed in using foreign aid as a means to "buy" policy reform in recipient countries (Collier 1997). International financial institutions, notably the World Bank and the International Monetary Fund (IMF), have achieved little by attaching (a typically large number of) conditions to adjustment programs and emergency loans. Dreher (2009: 256) concludes from a comprehensive survey of IMF-related research that "there is no empirical evidence showing that conditions enhance ownership or make program success more likely." In sharp contrast, conditionality is widely perceived to have been "very effective" (Sedelmeier 2008: 806) in the European Union's enlargement strategy. The desirability of EU membership appears to have prompted candidate countries to adhere to a host of conditions contained in the so-called *Acqui Communautaire*.[1]

Our review of the literature, presented in Section 2 below, leads us to hypothesize that these apparent contradictions are due to different concepts of conditionality and not to specific treatment groups reacting differently to similar incentives. In international development cooperation, conditionality has traditionally been based on reform promises by aid recipients, i.e., with financial assistance serving as *ex ante* incentives. Alternatively, the EU concept is based on *ex post* selectivity according to which performance standards have to be met prior to accession and the associated financial rewards.[2]

Performance-based aid has received increasing attention in the international development community recently, particularly in the health sector (e.g., Eichler and Glassman 2008). However, empirical assessments of its effectiveness are still largely lacking. We attempt to fill this gap by investigating the so-called MCC Effect.[3] The Millennium Challenge Corporation, established by the Bush administration in 2004, has been deliberately shaped in such a way as to replace the *ex ante* incentives of aid by *ex post* rewards for proven achievements. We focus on the effects on corruption in candidate countries of MCC aid. The international aid community has been aware that corruption is a major bottleneck to the

[1] The English version of the *Acquis* corpus (version 3.0), currently available in 22 languages, comprises more than 55 million words (http://langtech.jrc.it/JRC-Acquis.html).

[2] Note that the literature uses the terms *ex ante* and *ex post* conditionality in different ways. In the Public Choice literature, *ex ante* refers to the time before a country turns to international institutions, notably the IMF, for financial assistance (e.g., Vaubel 1991, Meltzer 2006). Typical *ex ante* conditions suggested in the literature include responsible fiscal and monetary policies and sound financial systems. *Ex post* conditionality refers to conditions negotiated after a country turned to the IMF. Examples are reductions in the government's deficit or in the rate of monetary expansion.

[3] See http://www.mcc.gov/mcc/panda/activities/mcceffect/index.shtml.

effectiveness of aid and development prospects in general since the second half of the 1990s (Easterly 2007), and corruption features most prominently among MCC's eligibility criteria.[4]

We employ a difference-in-difference-in-differences (DDD) approach to assess whether the treatment groups fought corruption more effectively than the control groups after the Bush administration announced the creation of the MCC and its performance-based aid allocation approach (Section 4). We consider different treatment group definitions, as well as different time periods during which incentive effects could have materialized. We find evidence of strong anticipation effects immediately after the announcement of the MCC, while increasing uncertainty about the timing and amount of MCC aid appear to weaken the incentive to fight corruption over time (Section 5). Section 6 summarizes the MCC experience and offers policy conclusions on how conditionality can be designed in such a way that it works.

2. The debate on conditionality

The example of Kenya has repeatedly been used to demonstrate the failure of traditional conditionality in international development cooperation (Collier 1997; Svensson 2003).[5] Kenya has outmaneuvered even major donors such as the World Bank. The country agreed to agricultural reform on four occasions in 15 years but backtracked each time after having received the aid. *Ex ante* threats by donors that they will not disburse committed aid if the recipient does not fulfill reform promises are hardly credible. Time inconsistency problems loom large considering the incentives for aid agencies and specific country desks to spend overall budgets and fully exhaust country quotas. Indeed, Svensson (2003: 383) finds "no link between a country's reform effort, or fulfillment of 'conditionality', and the disbursement rate [of aid funds]." Dreher and Rupprecht (2007) even find that IMF programs reduce reform efforts; Heckelman and Knack (2008) report the same for overall aid.

Focusing on corruption, Alesina and Weder (2002: 1136) do not find "any even weak evidence" that efficient and honest governments have been rewarded by more bilateral or multilateral aid during the 1975-1994 period. In 1997, the German government responded to a parliamentary inquiry that "no development cooperation contracts were annulled due to proof of corruption" (as quoted by Cremer 2008: 122). According to Easterly (2007), little has changed after former World Bank President Wolfensohn highlighted corruption as a major impediment to development and effective aid in 1996.

[4] Mosley et al. (2004) conclude that corruption, along with inequality and the composition of public expenditure, has a particularly strong association with the poverty-reducing impact of aid.
[5] Note that the subsequent discussion deals with the principle of conditionality, rather than the appropriateness of specific policy conditions.

Recent research on international financial institutions suggests that lax enforcement of traditional conditionality can also be attributed to political pressure from major member countries. For instance, Stone (2002, 2004) shows that the punishment for noncompliance with IMF conditions is significantly weaker for countries that are considered to be important to the United States. Kilby (2009) shows that the United States has prevented the World Bank from strictly imposing structural adjustment conditionality on countries which are friendly with the United States. Stone (2008) and Dreher et al. (2009) report similar results for IMF conditionality.[6] At the same time, the increasing number of conditions in the 1980s and 1990s appears to have eroded compliance and "ownership" of reforms by IMF clients (Bird 2009; Vreeland 2006). Both the IMF's Independent Evaluation Office (IEO 2007) and Arpac et al. (2008) find little to suggest that compliance has improved since the IMF attempted to streamline its conditionality.[7]

A vicious circle of aid inducing more corruption and further eroding governance may follow from the failure of traditional conditionality. According to Alesina and Weder (2002), increases in aid tend to be associated with an increase in corruption. Svensson (2000) presents similar results for ethnically diverse recipient countries in which social groups compete over common-pool resources, whereas Tavares (2003) finds aid to be associated with less corruption. Knack (2001) provides cross-country evidence that higher aid levels erode the quality of governance more generally.

Taken together, these rather bleak findings have fuelled the debate on how to redesign aid conditionality. Collier (1997) as well as Collier et al. (1997) observed a move towards "short-leash" conditionality in the 1990s, i.e., that program aid is disbursed in several tranches depending on progress in reform implementation. Collier and co-authors argued, however, that donors taking these first steps towards performance-based aid allocation still attempted to buy reforms from recipients that were frequently unwilling to sustain reforms. These authors called for a fundamental change in donor behavior to reward reform-minded recipient countries and enhance the effectiveness of aid: Aid allocation would be based on retrospective performance appraisals, rather than being conditional on reform promises.

Svensson (2003) presents a theoretical model for rewarding good performance by granting more aid *ex post*. Accordingly, time inconsistency problems could be overcome if disbursement decisions were centralized, rather than left to country desks that are mainly

[6] While studies on the political determinants of aid conditionality largely focus on the IMF and the World Bank, recent studies confirm the importance of political considerations for US aid (Kuziemko and Werker 2006, Anwar and Michaelowa 2006), and aid by the Asian Development Bank (Kilby 2006, 2010).

[7] Bird (2009) acknowledges, however, that the global financial crisis of 2008/09 might result in a systematic overhaul of IMF conditionality.

interested in spending funds allocated to them. Instead of committing fixed amounts of aid on a country-by-country basis, the donor would link "the allocation and disbursement decision by committing the aggregate amount to a group of countries, but where the actual amount disbursed to each individual country depends on its relative performance" (Svensson 2003: 384). The opportunity costs of disbursing aid would increase, thereby strengthening donors' incentives to direct aid to where favorable conditions for its effective use exist. Furthermore, competition among recipient countries might result in an overall improvement in the conditions for effective use of aid.

As detailed below, the so-called MCC Effect is based on the reasoning that the reform-mindedness of recipient countries will generally increase once aid is disbursed according to the relative performance of competing countries. However, whether rewarding relatively good performance ex post will result in stronger ownership of reforms by aid recipients remains the subject of controversy and debate. According to Mosley et al. (2004), selectivity may provide incentives to improve policies prior to receiving aid, but recipients would still have the option to reverse reforms after having been selected by donors. Conflicting hypotheses on whether selectivity promotes sustained reform efforts have hardly been subjected to systematic empirical tests in the aid-related literature.[8]

At the same time, an extensive literature exists on the role of the preconditions that must be fulfilled by candidate countries for EU membership. The process of the Eastern enlargement of the EU, in particular, offers some specific hypotheses that may also be relevant in the context of foreign development aid.[9] This is even though the conditions imposed in the context of EU accession, ranging from minority rights and judicial reforms to social security systems and corporate governance, extend far beyond the typical coverage of conditions in aid and lending contracts that developing countries enter with donor countries and international financial institutions. As the main reward for the high costs of compliance with EU conditions, prospective membership only comes at the end of a fairly long process of accession. However, it is exactly this long process that raises issues related to credibility and

[8] One strand of the existent aid-related literature focuses on discussing the intricate practical problems of designing incentive-compatible contracts between donors and specific recipient countries. For instance, Adam and Gunning (2002) examine the role and impact of performance indicators in the case of Uganda, which has served as a model for redesigning traditional relationships between donors and recipients of aid. Another strand of the literature discusses important elements of specific pioneering schemes of performance-based aid, notably in the health sector, such as the Global Alliance for Vaccines and Immunisation (GAVI) and the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) (e.g., Eichler and Glassman 2008).

[9] According to Schimmelfennig and Sedelmeier (2005: 1), the desire of most Central and Eastern European countries "to join the EU, combined with the high volume and intrusiveness of the rules attached to membership, allow the EU an unprecedented influence in restructuring domestic institutions and the entire range of public policies in the CEECs."

incentive compatibility that could also be relevant for the relationship between donors and recipients of aid.

The literature on the EU's enlargement strategy suggests that the incentive effects of conditionality are likely to depend on initial conditions in the treatment group of prospective EU member countries or, respectively, aid recipient countries. Unfavorable initial conditions imply higher costs of compliance. For example, high domestic costs of compliance with EU conditions in the western Balkans and Turkey render the prospect of membership less compelling (Epstein and Sedelmeier 2008: 796). Unfavorable initial conditions may weaken the incentive effects of conditionality, especially if selection occurs according to relative performance, as is the case under MCC rules (see below). The reform efforts of candidate countries that lie closer to the current threshold would raise the stakes for all candidates so that those with unfavorable initial conditions might abstain from reform if they consider the reward to be out of reach.

Conversely, for given costs of compliance the incentive effects depend on the expected size of the reward and the likelihood that it will actually materialize before too long.[10] Accordingly, the "enormous potential influence" of the EU on governance in Central and Eastern Europe has been diluted by "an uncertain linkage between fulfilling particular tasks and receiving particular benefits" (Grabbe 2001: 1025). EU influence has also been limited, in Grabbe's view, as the ultimate reward of accession was far removed from the time when candidates had to incur the costs of compliance. This reasoning applies, in particular, to current candidate countries. So-called enlargement fatigue has undermined the credibility of the prospect of membership (Epstein and Sedelmeier 2008). Especially Turkey's incentives to fulfill EU conditions are weakened considerably by the distance and lacking credibility of prospective membership. As we will argue below, uncertainty about prospective rewards may also have weakened the MCC Effect.

Finally, one might suspect that the materialization of the reward puts the sustainability of reforms at risk. Indeed, Blavoukos and Pagoulatos (2008) observe that fiscal adjustment in Italy, Greece and Portugal deteriorated after they had joined the European Monetary Union. The media also spotted a "post-accession syndrome" when new EU members such as Poland and Slovakia reversed some reforms made during the process of accession (*The Economist*

[10] The argument has been made, in different contexts, that recipients will find it easier to comply with conditionality when the stakes are high. One example is the reforms that took place in China after it joined the WTO (Bigsten 2006). Bräutigam (2000) and Azam et al. (1999) attribute part of the success stories of development in Botswana, Korea, and Taiwan to the presence of a single dominant donor offering sufficiently high rewards. Similarly, Knack and Rahman (2007) attribute part of the Marshall Plan's success in Europe to the presence of a single large donor.

November 30th, 2006). However, the summary of several empirical contributions presented by Epstein and Sedelmeier (2008: 795) concludes that EU accession conditions proved "more enduring than predicted." For instance, Sedelmeier (2008) finds no empirical evidence supporting the proposition that the changing incentive structure of Central and Eastern European countries has negatively affected compliance with EU law after accession. Pridham (2008) assesses some critical areas of political conditionality, including the fight against corruption, in Latvia and Slovakia during the first three years of EU membership, concluding that "there is no common pattern whereby conditionality loses momentum and becomes unscrambled."[11] It remains open to question, however, whether these somewhat surprising findings would carry over to aid contracts between donors and recipient countries. Arguably, phenomena such as status-quo bias and social learning – offered by Pridham (2008) as possible explanations for sustained reforms in new EU countries – play a minor role in relatively "casual" donor-recipient relations.

3. MCC's approach and conditions

The earlier discussion on the failure of traditional forms of conditionality provides one major pillar of the MCC concept. The second pillar is given by Burnside and Dollar's (2000; 2004) highly influential analysis which suggests that aid promotes growth only in an environment characterized by "good" policies and institutions. Following Burnside and Dollar, it has been subject of controversial debate whether certain conditions have to be met by recipients for aid to be effective, and exactly which of these conditions might be most relevant. For instance, Easterly et al. (2004), Rajan and Subramanian (2008), and Doucouliagos and Paldam (2010) show that the interactions of aid with various conditional variables in growth models are generally fragile, sensitive to small changes in the data set or in the model specification, and dependent on author affiliation and ideology.[12]

However, not even strong critics of Burnside and Dollar dismiss the relevance of selectivity. Easterly (2007: 645) acknowledges that "the idea that aid money directed to governments would be more productive if those governments had pro-development policies and institutions is very intuitive."[13] Moreover, as noted before, Easterly (2007: 653) stresses the aid community's awareness of "corruption as a factor influencing the effectiveness of aid

[11] Hollyer (2010) offers an explanation: If pre-accession liberalization changes the domestic market structure, the constellation of interest groups permanently changes in a way that makes a backlash less likely.
[12] Bjørnskov (2010) even finds that foreign aid is *more* harmful when given to democracies, as it leads to a more skewed income distribution.
[13] Easterly (2007) also notes that the so-called Pearson Commission already suggested linking aid to performance in its 1969 report on reforming international development cooperation.

and development prospects in general." Similarly, Mosley et al. (2004) share the view that aid could be more effective if it were reallocated to less corrupt recipient countries.

While the failure of traditional conditionality and the discussion on the need for an appropriate local environment for performance-based aid to be effective may have shaped the aid allocation procedures of various multilateral development agencies and bilateral donors, the MCC clearly stands out so that the effects of the new donor approach should be most visible in the allocation of MCC aid. Instead of merely adjusting or extending the mandate of an established aid agency such as USAID, the Bush administration explicitly established the MCC as a new aid agency in order to prevent institutional legacies from undermining innovative performance-based allocation rules (Radelet 2003; Rieffel and Fox 2008). Given the unresolved debate on the incentive effects of ex post conditionality and sparse empirical evidence, it would be most useful to know whether and to what extent MCC-type conditionality affects the policies of the potential beneficiaries. The MCC (2008: 1) itself is fairly confident of having improved the incentives for reform in potential recipient countries:

> *The MCC Effect is the positive impact that MCC is having on developing countries beyond its direct investments. To date, the most significant impact has been the incentive created for countries to adopt legal, policy, regulatory, and institutional reforms related to the MCC eligibility criteria. Eligibility for MCC funding can lead to international recognition and increased private sector investment, which has encouraged many countries to implement significant political, social, and economic reforms with tangible results on the ground. In areas as diverse as women's rights, anti-corruption and governance, and business registration, countries are taking it upon themselves to re-evaluate their laws, policies, regulations, and ways of 'doing business'.*

Indeed, the MCC's eligibility criteria leave little doubt about the strictness of selectivity in granting aid to needy and well performing recipients only. Eligibility is restricted to relatively poor countries.[14] The "hurdles approach" (Radelet 2003: 24) requires potential recipient countries to score higher than the median on at least half of the eligibility criteria (in each of three broad categories) across peers in the same income category, with

[14] The threshold per-capita income was set at US$ 1,415 when the MCC began operations in 2004. Eligibility was extended in 2006 to lower-middle income countries with a per-capita income of up to US$ 3,255. The present analysis applies the original threshold. Countries subject to legal provisions that prohibit them from receiving United States economic assistance are excluded. See Appendix A for the list of eligible countries.

control of corruption being mandatory prerequisite (see also below).[15] The MCC groups the 16 indicators, all taken from independent sources, into three categories: Ruling Justly, Investing in People, and Encouraging Economic Freedom. Ruling Justly comprises the Civil Liberties and Political Rights indicators from Freedom House, and four indicators from the World Bank's Governance Indicators (Kaufmann et al. 2008), including the control of corruption.[16] Economic Freedom consists of indicators on regulatory quality, a country's credit rating, inflation, as well as fiscal, regulatory, and trade policies.[17] Investing in People refers to public expenditures on health and primary education, immunization rates, and primary education completion rates.[18]

It is open to question, however, whether the MCC's selective aid allocation has the desired impact on the incentives of potential recipient countries to improve their policies and institutions. To our knowledge, the only independent and systematic study on this issue provides preliminary evidence supporting positive MCC effects (Johnson and Zajonc 2006). Specifically, Johnson and Zajonc find that candidate countries improved their indicators by 25 percent more than non-candidate countries after the MCC had been announced. It is interesting to note, however, that this study does not find support in justification of MCC claims about having induced better control of corruption, even though this criterion figures most prominently among the eligibility criteria. As indicated above, a country must score above the median with regard to the control of corruption, regardless of how well it performs on all other eligibility criteria.

4. Method and data

The significance of the control of corruption among the MCC's eligibility criteria and widespread support that it commands within the aid community provide the reasons for us to focus on the effects of MCC conditionality on corruption in potential recipient countries. In accordance with MCC convention, we use the index of Kaufman et al. (2008) on the control of corruption. The index is constructed by Kaufman et al. using an unobserved components model, based on a large number of different surveys of perceived corruption from various

[15] Specific eligibility criteria have been slightly modified over time, with a few indicators being replaced or added. We use the indicators as shown in the 2004 report (http://www.mcc.gov/mcc/bm.doc/score_fy04_all.pdf).
[16] Note, however, that improvements on one indicator might make improvements on others less rather than more likely. According to recent research, e.g., an improvement in institutional quality can well increase the degree of corruption, given the potentially perverse effects of institutions on the unofficial economy (Bjørnskov 2011).
[17] Note that, while performance on most indicators must be superior relative to a specified group of countries, consumer price inflation is an absolute criterion and must be below 20 percent.
[18] While selection is, in principle, based on these objective indicators, the MCC's board has some discretion in deciding on selection at the margin, e.g., when data is missing, substantial deviations on specific indicators occur, or time trends are visible.

independent organizations, and measures perceptions of corruption, defined as the abuse of public power for private gains.

We ask whether the substantial increases in US aid provide sufficient incentives for candidate countries to fight corruption more effectively. President Bush announced in 2002 that the MCC would command over US$ 5 billion annually and that MCC aid would be “above and beyond existing aid.” Hence, recalling the discussion on sufficiently large rewards in Section 2, MCC effects on corruption could differ considerably from the earlier findings of Alesina and Weder (2002), according to which continuous and quantitatively small disbursements of aid tend to be associated with *more* corruption.

Our focus on corruption alone implies that our approach is rather modest in comparison with that of Johnson and Zajonc (2006) who consider all eligibility criteria, even though we do take into account that the incentives for candidate countries to fight corruption may depend on how they score on other eligibility criteria (see below). On the other hand, we extend the analysis of Johnson and Zajonc in several ways. Most crucially, we overcome the drawback that the MCC was still in its infancy when the earlier study was presented; it was probably too early to draw conclusions with data only extending into the first year (2004) of MCC operations. The considerably longer period of observation available in the present analysis also allows us to test several of the specific hypotheses raised in Section 2 above. First, we can address the disputed issue of whether reforms (i.e., more effective control of corruption) are likely to be sustained once the reward (i.e., MCC aid) has been granted. Second, we can assess whether the incentive to reform weakens once the reward becomes less compelling, either because the MCC’s overall budget fell short of initial announcements or because the actual disbursement of aid was delayed in the context of so-called compacts, i.e., the multi-year aid programs agreed upon between the MCC and eligible countries.[19] Finally, by controlling for initial conditions in the candidate countries, we evaluate whether higher costs of compliance with MCC conditions undermine the MCC Effect.

In order to address these questions empirically, we rely on the difference-in-difference-in-differences (DDD) approach. Our identification strategy rests on the observation that there can be no incentive effect prior to 2002 when the MCC was announced. Moreover, we limit our sample of MCC candidates to countries with per-capita GDP equal to or less than US$ 1,415, as countries above this threshold were ineligible for MCC aid when operations started in 2004.

[19] See, for example, Rieffel and Fox (2008) on budget cuts and delayed disbursements of MCC aid.

A simple approach to test for the potential effect of the MCC would be to use the before-after approach which involves comparing the level of perceived corruption in eligible countries before and after 2002. Clearly, the strong assumption that no other omitted variable might have changed corruption after 2002 is unlikely to hold. The alternative with-without approach would simply entail comparing the changes in corruption in countries with incentives to qualify for MCC aid and countries without, subsequent to the announcement of the MCC. Again, this would require a strong assumption that is unlikely to hold, namely that no other factors affect eligible and non-eligible countries systematically in the period of observation.

Combining the before-after approach and the with-without approach has considerable merit for alleviating the problem of drawing correct inferences regarding the MCC Effect (Johnson and Zajonc 2006). By applying the difference-in-difference-in-differences estimator to the levels of perceived corruption, identification is based on the change in the perceived corruption differentials between the treatment group and the control group that occurred between the periods before and after the announcement of the MCC. Formally, the DDD estimator for our base specification amounts to:

$$\begin{aligned} DDD = & ((Corr^{T}_{2004} - Corr^{T}_{2002}) - (Corr^{T}_{2002} - Corr^{T}_{2000})) \\ & - ((Corr^{C}_{2004} - Corr^{C}_{2002}) - (Corr^{C}_{2002} - Corr^{C}_{2000})) \end{aligned} \tag{1}$$

with *Corr* being the level of perceived corruption in treatment group *T* and control group *C*, respectively, in the years indicated. For a start, we choose the periods 2004-2002 and 2002-2000 as the MCC was announced in 2002 and became operational in 2004. However, we consider alternative periods below in order to test the hypotheses introduced before.

Most importantly, we have to decide how to allocate MCC candidate countries to the treatment and control groups. Our baseline estimation assumes, as is in line with the reasoning in Section 2, that only countries that do not lie too far below the median with respect to the control of corruption have an incentive to improve on that indicator in order to become eligible for MCC aid. Countries below, but relatively close to the median (second quartile) thus qualify for our treatment group. The underlying argument is that the costs of compliance are relatively low for this quartile, while the prospect of being rewarded by MCC aid is relatively favorable. All other countries qualify for the control group in our baseline estimation, either because their position far below the median (first quartile) implies high costs of compliance or because their position above the median (third and fourth quartiles) does not preclude them from being eligible for MCC aid. In additional estimations, we redefine the treatment and control groups to account for more complex incentive effects. We introduce these alternatives in the next section, following the presentation of baseline results.

5. Results

a. Baseline results

The upper panel of Table 1 presents the difference (D) in the levels of the control of corruption index over the two-year periods in our sample, averaged for the treatment and control groups respectively. We include countries in the treatment group if their level of corruption is in the second quartile, and in the control group if otherwise. This spilt places 15 countries in the treatment group and 47 countries in the control group.[20] Countries' positions on other performance indicators are disregarded in Table 1, but are introduced further below.

The difference (D) results reported in panel (1) show that, prior to the announcement of the MCC (2002-2000), control of corruption decreased in the treatment group (i.e., perceived corruption became more pervasive), while it increased in the control group. This pattern is reversed in the 2004-2002 period, with an increase in control of corruption in the treatment group and a decrease in the control group.

The second panel in Table 1 reports the DDD results for equation (1) above.[21] The DDD is positive and significant at the one percent level, implying that the countries in the treatment group did indeed react to the incentives offered by getting access to the MCC. In other words, it appears that the MCC had positive incentive effects even before becoming operational, probably because prospective candidate countries anticipated that the proposal by President Bush would reward reform efforts with considerable amounts of additional aid. Contrary to what is shown in the previous literature with regards to the disappointing results of traditional ex ante conditionality, ex post selectivity can, arguably, work well.

The third panel of Table 1 slightly modifies equation (1), changing the periods employed for comparison:

$$\begin{aligned} DDD = & ((Corr^{T}_{2006} - Corr^{T}_{2004}) - (Corr^{T}_{2002} - Corr^{T}_{2000})) \\ & - ((Corr^{C}_{2006} - Corr^{C}_{2004}) - (Corr^{C}_{2002} - Corr^{C}_{2000})) \end{aligned} \tag{2}$$

[20] See Appendix B for countries included in the treatment and control groups according to the different variants of our DDD analysis.

[21] Standard errors and t-statistics come from a regression where the change in corruption in the different periods is specified as the dependent variable. Dummies for the treatment group and the second period (2004-2002) and an interaction term between the two dummies are included as independent variables. The coefficient on the interaction term corresponds to our DDD estimate.

Instead of capturing anticipation effects, we now consider the first two years of MCC operations. Again, the DDD is significantly positive at the one percent level, but substantially smaller in size. This weakening of the MCC Effect may be somewhat surprising. It becomes fairly plausible, however, once the "rough start" of the MCC is taken into account (Rieffel and Fox 2008: 6 and 7). It took longer than expected for President Bush to sign MCC-related legislation, and funding proposals met with "resistance from the Congress immediately." The first compact (with Madagascar) only came into effect in July 2005. Consequently, the prospect that reform efforts would be rewarded with additional US aid might have been diluted.

Comparing the 2008-2006 period with the 2002-2000 period (panel 4), the DDD is significant at the five percent level but its size is reduced further. Arguably, ongoing MCC operations led to increasing uncertainty about the timeliness and the amount of expected aid rewards. The number of signed compacts remained fairly small (Dreher et al. 2010). It became increasingly obvious that the actual MCC budget would persistently fall short of the originally proposed additional US aid of US$ 5 billion per annum.[22] At the same time, the MCC "has been extraordinarily slow in disbursing the sizeable amount of funding appropriated to it, raising questions about the efficacy of this new model of performance and ownership-based aid giving" (Lancaster 2008: 8). Sustained reform efforts were further eroded by rumors that the MCC might not survive as a distinct aid agency under the Obama administration.[23] In total, our results imply that the effect was strongest directly after the announcement of the MCC and decreased in the following years of operations.

In the remaining panels of Table 1, we compare four-year periods in order to assess whether the findings reported so far are sensitive to the choice of two-year periods for the DDD calculations. Panel (5) separates the years 2008-2004 and 2004-2000. By taking 2004 as the cut-off, this specification disregards any anticipation effects and focuses on possible incentive effects during the full period of MCC operations for which data are available. The DDD is not significant at conventional levels. This is no longer surprising when recalling that we found strong anticipation effects before, while enthusiasm among candidate countries about prospective rewards appears to have cooled progressively in the course of MCC operations.

The strongly positive incentive effects found in panel (6) fit perfectly into this pattern. By comparing the years 2006-2002 and 2002-1998 we capture anticipation effects as well as

[22] The budget volume for 2010 amounts to only US$ 1.1 billion (http://www.mcc.gov/mcc/press/releases/release-uscongressapproves-121309.shtml).
[23] For instance, Rieffel and Fox (2008: 11) speculate that the MCC "is still 'small potatoes'" that may be moved into "a beefed up USAID."

the effects during the first phase of MCC operations. Recent years are excluded during which the sustainability of reform efforts has come under increasing threat as a result of the uncertainty of rewards. The quantitative difference given in panel 6 is relevant. It is, e.g., similar to the difference between Uganda (which is in our treatment group) and Nigeria (which is not). Of all the countries for which the control of corruption indicator is calculated, only 19 improved their indicator by at least this difference over the 2002-2006 period.

b. Refined treatment groups

It has so far been assumed that the incentive effects of the MCC are restricted to candidate countries that do not lie too far below the median score (second quartile) for the control of corruption indicator. The choice of the treatment group was based on the assumption that candidate countries far below the median (first quartile) had no reasonable chance to get their reform efforts rewarded by MCC aid and, thus, would not increase attempts to fight corruption effectively. We now test whether this assumption is valid by redefining the treatment group to include all countries below the median.

The results reported in Table 2 reveal that the incentive effects are indeed weakened when extending the treatment group in this way.[24] The significance of longer-term effects in the fourth panel of the table drops to the ten percent level. Compared to Table 1, the size of the DDDs decreases just slightly when covering recent MCC operations in the comparisons (panels 4 and 5). The decrease in the size of the DDDs is more pronounced, however, when covering anticipation effects and those effects during the first phase of operations (notably in panels 2 and 6).

In Table 3, we perform an additional calculation with the treatment group comprising exclusively candidate countries falling into the first quartile.[25] In this way, we can test whether candidate countries with unfavorable initial conditions nevertheless embark on reforms as a response to the announcement of the MCC. Our results clearly contradict such a proposition. The fairly remote chances that candidate countries who fall far below the median score will receive MCC aid appear to have eroded the incentives to fight corruption. In all panels of Table 3, the DDDs are insignificant at conventional levels. Note that not even the

[24] Note that the MCC, when calculating the country scores on the different indicators, includes countries that would be considered candidate countries but are subject to legal provisions that prohibit them from receiving US economic assistance. However, these countries are excluded in the subsequent analysis. This explains why the treatment and control groups do not precisely add up to the same number of countries in Table 2.

[25] Note that the control group is as before in Table 2, including countries above the median. However, the results reported in Table 3 hold, i.e., all DDDs remain insignificant at conventional levels when comparing the first and fourth quartiles within the treatment and control groups respectively.

(previously strong) anticipation effects are observed when initial conditions rendered it unlikely to have reform efforts rewarded through MCC aid.

In the next step, we take into account that candidate countries scoring just slightly above the median (third quartile) may also have an incentive to control corruption more effectively. Even though eligibility for MCC aid is based on 2004 scores, candidates in the third quarter may have to "defend" their position by further reform efforts relative to reformers in the second quartile in order to retain eligibility in the future. Therefore, we enlarge the treatment group in Table 4, including all candidates in the second and third quartiles (with the first and fourth quartiles representing the control group). This split places 30 countries in the treatment group and 32 countries in the control group. A country's position on the other indicators is still disregarded.

Overall, the effects are considerably weaker than those in Table 1. Nevertheless, there are several similarities. The comparison between the 2006-2002 and 2002-1998 periods in panel (6) again shows the strongest effects, significant at the ten percent level. As before, we find a positive effect – also significant at the ten percent level – when comparing the years 2004-2002 and 2002-2000 in panel (1). On the other three panels, none of the DDDs are significant at conventional levels. This underscores the overriding role of anticipation effects in MCC candidate countries; MCC effects were increasingly eroded over the time of actual operations.

When comparing the significant DDDs in Table 4 with those in Table 1, we find that they have halved. This seems to imply that it is mainly countries below the median that have fought corruption in response to the announcement of the MCC, while countries above the median have not been incentivized to control corruption more effectively in order to defend their favorable positions. It cannot be ruled out that countries in the third quartile were simply myopic and unaware of the risk of losing eligibility once reformers that previously scored below them climbed up in the ranking. More plausibly, however, it may be argued that their reluctance to step up efforts toward controlling corruption was rational. Performance-based selection of eligible countries notwithstanding, it was open to question whether the MCC would be equally strict in suspending eligibility once it had been granted.[26] According to the MCC's Policy on Suspension and Termination, its CEO "*may* make a recommendation to the Board" to suspend eligibility if the country has "engaged in a pattern of actions inconsistent

[26] Yemen appears to have been the first country (among very few cases up to now) that was suspended from MCC funding in late 2005, "due to policy slippage on a number of MCC's selection indicators" (http://www.mcc.gov/mcc/bm.doc/mcc-workingpaper-corruption.pdf).

with selection criteria."[27] In a public outreach meeting in early 2007, the (former) CEO of the MCC, John Danilovich, stated:[28]

> *I sent remediation letters to our partner countries that exhibited certain slippages in our criteria in the areas of ruling justly, investing in people and economic freedom. We are constructively and continuously engaging our Compact-eligible countries to help them create and implement a corrective plan of action to address these areas of slippage.*

This suggests that, in contrast to performance-based selection, the credibility of the MCC in suspending eligibility may be no greater than the credibility of traditional aid agencies in imposing sanctions against countries violating previously agreed-upon conditions for aid. This would explain why the MCC Effect weakened considerably once countries had passed the eligibility criterion of scoring above the median with regard to the control of corruption.[29]

c. *Complex incentive structure*

The separation of treatment and control groups has so far been based exclusively on the control of corruption. However, the incentives for candidate countries to fight corruption may also depend on where a country stands with respect to the other eligibility criteria used by the MCC. Deviation from other criteria requirements can be expected to weaken the incentive to fight corruption, even when a country is close to the median score on the control of corruption indicator. The costs of compliance would clearly be higher for countries that have to reform on various fronts in order to become eligible. At the same time, the prospect of being rewarded with MCC aid would be fairly remote. In the following, we take this into account by refining our classification of the treatment and control groups.

In Table 5 the treatment group consists of 11 countries that meet two requirements simultaneously. As before in Table 1, these countries score in the second quartile with respect to control of corruption. In addition, they score in the second, third or fourth quartile with respect to each of the three broad MCC categories of Ruling Justly, Investing in People and Economic Freedom. The average scores for these broad categories are calculated according to the aforementioned MCC rule that, in order to become eligible, a country has to score higher

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[27] See: http://www.mcc.gov/mcc/bm.doc/07-suspensionandterminationpolicy.pdf; emphasis added.

[28] See: http://www.mcc.gov/mcc/bm.doc/transcript-021507-publicoutreach.pdf

[29] Along similar lines, Haughton (2007) argues that the EU's influence tends to be greatest *before* opening accession negotiations, as the threat of being excluded from membership weakens once negotiations have started.

than the median on at least half the eligibility criteria in each category. A country attempting to obey by this rule at minimal costs of compliance would probably focus on those eligibility criteria in each category where it is already performing close to the median level. Consequently, we average the scores for the three indicators on which the country performs best in the categories Ruling Justly and Economic Freedom. The two best indicators are considered in the category Investing in People.[30] Countries falling into the first quartile in any of these three broad categories are included in the control group. The related costs of compliance tend to be highest for these countries and the prospects of receiving aid rewards are most unfavorable. Consequently, their incentives to fight corruption might be particularly weak.

Accounting for the more complex incentive structure in Table 5 leads to results that are surprisingly similar to those reported in Table 1 above. Again, the differences (D) in panel (1) show that, prior to the announcement of the MCC, control of corruption decreased in the treatment group, while it increased in the control group. This pattern is again reversed in the 2002-2004 period.

The DDD is positive in all sample periods, though (as before) not significant at conventional levels when comparing the years 2008-2004 and 2004-2000 (panel 5). Table 5 also confirms that the effect is largest when comparing the years 2006-2002 and 2002-1998 (panel 6), followed by the effect shown in panel (1) for the years 2004-2002 vs. 2002-2000. In other words, the dominance of strongly positive anticipation effects is corroborated when refining the classification of treatment and control groups according to the more complex incentive structure. Likewise, taking account of all eligibility criteria hardly affects the previous finding that the MCC Effect weakened over time with rising uncertainty among candidate countries about the timeliness and amount of aid rewards.

d. Robustness tests

Finally, we perform a range of robustness tests. In particular, we assess whether previous results are sensitive to the classification of MCC candidate countries into treatment and control groups. We systematically combine alternative variants of the two dimensions of this

[30] Recall that the overall number of indicators in the category Investing in People is only four. Note also that inflation is considered for the average score in the category Economic Freedom and that we therefore do not consider the level of inflation as an independent criterion. It is highly unlikely that this will distort our results. Only two countries included in the treatment group in Table 3 have a rate of inflation above the threshold of 20 percent (20.7 percent and 26.7 percent respectively). It therefore seems that inflation is not a critical criterion for selection. In averaging the scores, all scores above the median of 50 are set equal to 50. This is because it has no implications for the costs of compliance whether a country performs considerably, or only slightly better than the median.

classification used before, namely the cut-off with regard to the control of corruption and the cut-off with regard to the three broad categories Ruling Justly, Investing in People, and Economic Freedom. In terms of the three categories, the treatment group either comprises all countries except those in the first quartile (variant 1), or all those above the median (variant 2). In terms of the control of corruption, the treatment group comprises countries scoring (a) in the second quartile (as in Tables 1 and 5), (b) in the second and third quartile (as in Table 4), or (c) below the median (as in Table 2). In Appendix B, we list the countries falling into the treatment groups under each alternative. All other candidate countries are placed in the corresponding control groups.

Table 6 lists the results starting with variant 1 of the cut-off for the three categories combined with alternative cut-offs for corruption in columns 1b and 1c.[31] Columns 2a to 2c present the results for combinations of variant 2 of the cut-off for the three categories with all three variants of corruption. We consider variant 2 in order to test whether our results are sensitive to the implicit assumption under variant 1 that scoring below the median in any category increases the costs of compliance to the same extent. It is hardly possible to relax this assumption by accounting for varying costs of compliance for each category as these costs cannot be observed. Instead, we require in variant 2 that countries in the treatment group perform better than the median in all three categories and, thus, do not incur additional costs of compliance. This “restrictive” refinement results in relatively small treatment groups (see Appendix B) whose incentives to fight corruption are not affected by varying costs of compliance across the three categories.

Table 6 only reports the DDDs for the five robustness tests, omitting differences and difference-in-differences. As can be seen, the results are similar throughout, corroborating the major findings reported above. First of all, the comparison of the years 2004-2002 and 2002-2000 reveals significantly positive DDDs in all five columns, at the ten percent level in column 1b, and the one percent level for the remaining specifications. This underscores the prominence of anticipation effects. It also turns out, as before, that the evidence for *sustained* reform efforts is weaker, as indicated by the comparison of the years 2008-2006 and 2002-2000. The DDD for this comparison is insignificant at conventional levels in column 1b and significantly positive only at the ten percent level in column 2b. Likewise, the MCC Effect during the first phase of operations appears to be weak in columns 1b and 2b where the treatment groups include candidates scoring in the second and third quartiles with respect to the control of corruption. This resembles the insignificant incentive effects reported in Table 4

[31] Note that the combination of variant *1* of the three categories and variant *a* of corruption is the same as that presented in Table 5 above.

that used the same cut-off for corruption. However, the MCC Effect during the first phase of operations turns out to be as strong as the anticipation effect, or even slightly stronger, in columns 2a and 2c.

Our previous results based on four-year periods for the DDD calculations, instead of two-year periods, are hardly affected by the redefinition of our treatment and control groups in Table 6. The DDD is largest throughout, and significant at the five percent level at least, when we compare the years 2006-2002 and 2002-1998 which attempts to capture anticipation effects together with the MCC effects during the first phase of operations. In sharp contrast, the DDDs become substantially smaller in size when comparing the four years of MCC operations with the four years before the MCC commenced operations, with three DDDs being completely insignificant.

Interestingly, the DDDs are generally larger in columns 2a and 2c where the definition of the treatment group applies variant 2 of the cut-off for the three broad categories. As noted above, this definition is relatively rigorous and results in comparatively small treatment groups. It is plausible that larger DDDs result from relegating those countries which fall below the median in at least one category to the control group. These countries have weaker incentives to fight corruption effectively as the costs of compliance tend to be higher if reforms are required on several fronts.[32] However, applying variant 2 of the cut-off for the three broad categories yields rather ambiguous results (with DDDs being small compared to column 1c) when treatment in terms of corruption includes candidate countries from the third quartile (column 2b). This corroborates the previous argument that the MCC Effect might weaken considerably once countries have been selected as eligible as the threat to suspend eligibility in the case of policy slippage does not appear particularly credible.

6. Summary and conclusion

Performance-based aid has been proposed as an alternative to the failed traditional approach of donors making aid conditional on reform promises of recipient countries. However, empirical evidence on the effectiveness of ex post rewards of reforms hardly exists. We attempt to fill this gap by investigating the so-called MCC Effect. The Millennium Challenge Corporation was explicitly established as a new US aid agency to pursue an innovative approach to aid allocation. Strict selectivity in granting aid exclusively to needy and well performing recipients was expected to strengthen the reform-mindedness of possible recipient countries.

[32] Recall, however, that we cannot compare the costs of compliance across the three categories.

The analysis in this paper has focused on the control of corruption – an aspect of reform that commands widespread support from the aid community and features most prominently in the MCC's aid eligibility criteria. Employing a difference-in-difference-in-differences (DDD) approach, we find that the MCC was successful in promoting better control of corruption. Candidate countries that had reasonably good chances of gaining access to the MCC – having scored relatively close to the selection criteria thresholds – fought corruption more effectively than other candidate countries. This finding suggests that performance-based aid may succeed in buying reforms, in contrast to aid conditioned on recipients' promises to reform.

However, the MCC experience also reveals that the incentive effects of performance-based aid are rather weak, or even absent, under several circumstances. While we find surprisingly strong anticipation effects, i.e., that candidates fought corruption even before MCC operations started, the incentive effects weakened over time. Arguably, this was mainly because it became increasingly uncertain whether the timeliness and magnitude of the MCC's aid rewards would sufficiently compensate for the costs of reform efforts. In other words, sustained reform efforts may suffer not only from insufficient willingness on the part of aid recipients, but also from broken promises and delayed aid on the part of donors.

Even if the rewards for reform could be taken for granted, the incentive effects appear to be restricted to a sub-group of candidate countries. According to our results, the MCC failed to give any impetus to the fight against corruption in candidate countries that scored far below the eligibility threshold. Economically, this finding is plainly intuitive: These countries had only remote chances to receive MCC aid as a reward for reforms, while the costs of complying with MCC conditions were comparatively high. The implication is rather troubling, however, as the MCC concept of performance-based aid tends to fail exactly where the need for reforms is most urgent.

Arguably, the MCC concept should be adapted to strengthen the incentive effects for countries where starting conditions are unfavorable. Rather than offering fruits that simply hang too high, the thresholds for eligibility could be designed relative to a country' own performance. A country could be eligible, e.g., if it improved its control of corruption score by a predefined amount over a specific period of time. This modified approach would also take into account that the costs of corruption to a country do not arise from its relative position compared to other countries, but from absolute corruption levels. The modified approach would thus help reduce corruption in those countries suffering from it the most.

Another limitation of the MCC concept relates to those candidate countries that have already passed the eligibility criteria. As long as they are not too far above the threshold, one would expect that, by judging performance relative to the median, the MCC would provide incentives for these candidates to further improve their score on the control of corruption. Our results suggest, however, that candidates having passed the threshold did not intensify reform efforts in an attempt to defend their position against reformers trying to become eligible. More research is necessary in order to identify more clearly the reasons behind this apparently irrational, or at least myopic, behavior.

As it seems, the MCC concept is flawed in its ability to encourage continued reform efforts once a country has passed the gate-keeping stage of becoming eligible. In contrast to strict selectivity in defining eligible countries, the MCC's credibility in suspending eligibility does not appear to be stronger than the credibility of traditional aid agencies in imposing sanctions against countries that violate previously agreed-upon conditions for aid. The conclusion is obvious, but may be hard to enforce: Strict selectivity must be complemented with automatic suspension for performance-based aid to have better chances at succeeding across the board.

In summary, conditionality can work well if properly designed. Rather than making continuous small tranches of aid disbursements conditional on future changes in policies (i.e., on ex ante conditions), donors should consider making credible promises that larger amounts of aid will be disbursed after key reforms have been implemented (i.e., ex post conditionality). While these reforms could be reversed after disbursements materialize, the changes in policies could equally well steer support for their maintenance, effectively giving rise to a new political equilibrium: "For the initiator [of a new system] has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who would gain by the new ones."[33]

[33] Machiavelli, The Prince, 1513, cited in Feinberg (2006).

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Table 1: MCC Eligibility and Control of Corruption (2nd quartile)

(1)

	D Treatment			
Period	02-00	04-02	06-04	08-06
Mean	-0.13	0.12	0.08	0.01
SE	0.05	0.08	0.05	0.04
SD	0.20	0.30	0.18	0.14
Countries	15	15	15	15

	D Control			
Period	02-00	04-02	06-04	08-06
Mean	0.04	-0.04	0.01	0.03
SE	0.03	0.03	0.04	0.02
SD	0.20	0.22	0.25	0.16
Countries	47	47	47	47

	Period		DD Treatment	DD Control	DDD	t-value
(2)	2004-2002	Mean	0.24	-0.08	0.32	3.56 ***
	2002-2000	SE	0.08	0.04	0.09	
(3)	2006-2004	Mean	0.21	-0.03	0.24	2.64 ***
	2002-2000	SE	0.08	0.04	0.09	
(4)	2008-2006	Mean	0.14	-0.01	0.15	2.08 **
	2002-2000	SE	0.06	0.04	0.07	
(5)	2008-2004	Mean	0.10	0.04	0.07	0.59
	2004-2000	SD	0.10	0.06	0.11	
(6)	2006-2002	Mean	0.37	-0.08	0.44	3.29 ***
	2002-1998	SE	0.12	0.07	0.13	

Notes: treatment group: corruption 2nd quartile; control group: corruption 1st, 3rd or 4th quartile; * (**,***): significant at the ten (five, one) percent level.

Table 2: MCC Eligibility and Control of Corruption (below median)

(1)

	D Treatment			
Period	02-00	04-02	06-04	08-06
Mean	-0.06	0.07	0.07	0.03
SE	0.04	0.05	0.03	0.03
SD	0.21	0.25	0.14	0.14
Countries	28	28	28	28

	D Control			
Period	02-00	04-02	06-04	08-06
Mean	0.05	-0.06	-0.01	0.02
SE	0.03	0.04	0.05	0.03
SD	0.20	0.23	0.28	0.16
Countries	34	34	34	34

	Period		DD Treatment	DD Control	DDD	t-value
(2)	2004-2002	Mean	0.13	-0.11	0.24	2.97 ***
	2002-2000	SE	0.06	0.05	0.08	
(3)	2006-2004	Mean	0.13	-0.06	0.19	2.43 **
	2002-2000	SE	0.06	0.05	0.08	
(4)	2008-2006	Mean	0.09	-0.03	0.12	1.91 *
	2002-2000	SE	0.05	0.04	0.06	
(5)	2008-2004	Mean	0.10	0.02	0.08	0.79
	2004-2000	SD	0.07	0.07	0.10	
(6)	2006-2002	Mean	0.23	-0.13	0.36	3.06 ***
	2002-1998	SE	0.09	0.08	0.12	

Notes: treatment group: corruption below the median; control group: corruption above the median; * (**,***): significant at the ten (five, one) percent level.

Table 3: MCC Eligibility and Control of Corruption (1st quartile)

(1)

	D Treatment			
Period	02-00	04-02	06-04	08-06
Mean	0.02	0.02	0.07	0.06
SE	0.05	0.05	0.03	0.04
SD	0.20	0.18	0.10	0.15
Countries	13	13	13	13

	D Control			
Period	02-00	04-02	06-04	08-06
Mean	0.05	-0.06	-0.01	0.02
SE	0.03	0.04	0.05	0.03
SD	0.20	0.23	0.28	0.16
Countries	34	34	34	34

	Period		DD Treatment	DD Control	DDD	t-value
(2)	2004-2002	Mean	-0.01	-0.11	0.10	1.08
	2002-2000	SE	0.08	0.05	0.10	
(3)	2006-2004	Mean	0.04	-0.06	0.10	0.99
	2002-2000	SE	0.09	0.05	0.10	
(4)	2008-2006	Mean	0.04	-0.03	0.07	0.82
	2002-2000	SE	0.07	0.04	0.08	
(5)	2008-2004	Mean	0.09	0.02	0.07	0.52
	2004-2000	SD	0.11	0.07	0.13	
(6)	2006-2002	Mean	0.07	-0.13	0.19	1.39
	2002-1998	SE	0.12	0.07	0.14	

Notes: treatment group: corruption 1st quartile; control group: corruption above the median; * (**,***): significant at the ten (five, one) percent level.

Table 4: MCC Eligibility and Control of Corruption (2nd or 3rd quartile)

(1)

	D Treatment			
Period	02-00	04-02	06-04	08-06
Mean	-0.03	0.05	0.04	0.02
SE	0.04	0.05	0.04	0.03
SD	0.20	0.25	0.19	0.14
Countries	30	30	30	30

	D Control			
Period	02-00	04-02	06-04	08-06
Mean	0.03	-0.05	0.01	0.03
SE	0.04	0.04	0.05	0.03
SD	0.21	0.24	0.27	0.16
Countries	32	32	32	32

	Period		DD Treatment	DD Control	DDD	t-value
(2)	2004-2002	Mean	0.08	-0.08	0.16	1.93 *
	2002-2000	SE	0.06	0.06	0.08	
(3)	2006-2004	Mean	0.07	-0.02	0.09	1.12
	2002-2000	SE	0.06	0.06	0.08	
(4)	2008-2006	Mean	0.05	0.00	0.04	0.67
	2002-2000	SE	0.05	0.05	0.07	
(5)	2008-2004	Mean	0.04	0.06	-0.02	-0.24
	2004-2000	SE	0.07	0.07	0.10	
(6)	2006-2002	Mean	0.15	-0.08	0.23	1.95 *
	2002-1998	SE	0.09	0.08	0.12	

Notes: treatment group: corruption 2nd or 3rd quartile; control group: corruption 1st or 4th quartile; * (**,***): significant at the ten (five, one)

Table 5: MCC Eligibility and Control of Corruption (complex incentive structure)

(1)

	D Treatment			
Period	02-00	04-02	06-04	08-06
Mean	-0.13	0.10	0.10	0.05
SE	0.06	0.07	0.06	0.04
SD	0.20	0.23	0.19	0.13
Countries	11	11	11	11

	D Control			
Period	02-00	04-02	06-04	08-06
Mean	0.03	-0.02	0.01	0.02
SE	0.03	0.03	0.03	0.02
SD	0.20	0.24	0.24	0.16
Countries	51	51	51	51

	Period		DD Treatment	DD Control	DDD	t-value
(2)	2004-2002	Mean	0.23	-0.05	0.28	2.72 ***
	2002-2000	SE	0.09	0.04	0.10	
(3)	2006-2004	Mean	0.23	-0.02	0.24	2.39 **
	2002-2000	SE	0.09	0.04	0.10	
(4)	2008-2006	Mean	0.17	-0.01	0.18	2.19 **
	2002-2000	SE	0.08	0.04	0.08	
(5)	2008-2004	Mean	0.17	0.03	0.14	1.12
	2004-2000	SD	0.12	0.05	0.13	
(6)	2006-2002	Mean	0.39	-0.05	0.44	2.85 ***
	2002-1998	SE	0.14	0.06	0.15	

Notes: treatment group: corruption 2nd quartile,the three categories 2nd, 3rd, or 4th quartile; control group: corruption 1st, 3rd or 4th quartile or at least one category 1st quartile; * (**,***): significant at the ten (five, one) percent level.

Table 6: Tests for Robustness

Period		(1b) DDD	(1b) t	(1c) DDD	(1c) t	(2a) DDD	(2a) t	(2b) DDD	(2b) t	(2c) DDD	(2c) t
2004-2002	Mean	0.16	1.94 *	0.28	3.02 ***	0.38	3.28 ***	0.25	2.71 ***	0.33	3.11 ***
2002-2000	SE	0.08		0.09		0.12		0.09		0.11	
2006-2004	Mean	0.09	1.07	0.23	2.48 **	0.37	3.26 ***	0.16	1.71 *	0.36	3.46 ***
2002-2000	SE	0.08		0.09		0.11		0.09		0.10	
2008-2006	Mean	0.11	1.60	0.20	2.69 ***	0.26	2.76 ***	0.14	1.80 *	0.28	3.28 ***
2002-2000	SE	0.07		0.07		0.09		0.08		0.08	
2008-2004	Mean	0.03	0.33	0.15	1.28	0.25	1.72 *	0.04	0.36	0.30	2.33 **
2004-2000	SD	0.10		0.11		0.14		0.11		0.13	
2006-2002	Mean	0.27	2.15 **	0.39	2.86 ***	0.58	3.35 ***	0.35	2.53 **	0.52	3.34 ***
2002-1998	SE	0.12		0.14		0.17		0.14		0.16	

Notes:
(1b) treatment group: 2nd or 3rd quartile of corruption and not in the 1st quartile on any category; control group: corruption 1st or 4th quartile or at least one category in the 1st quartile.
(1c) treatment group: corruption below the median and not in the 1st quartile on any category; control group: corruption above the median or at least one category in 1st quartile.
(2a) treatment group: corruption in the 2nd quartile, above the median on the three categories; control group: corruption 1st, 3rd or 4th quartile or at least one category below median.
(2b) treatment group: 2nd or 3rd quartile of corruption and above the median on the three categories; control group: corruption 1st or 4th quartile or at least one category below median.
(2c) treatment group: corruption below the median, the three categories above median; control group: corruption above the median, at least one category below median.

t=t-value; * (**, ***): significant at the ten (five, one) percent level.

Appendix A: MCC candidate countries in 2004 (63 countries)

Afghanistan	Georgia	Nicaragua
Albania	Ghana	Niger
Angola	Guinea	Nigeria
Armenia	Guyana	Pakistan
Azerbaijan	Haiti	Papua New Guinea
Bangladesh	Honduras	Rwanda
Benin	India	Sao Tome And Principe
Bhutan	Indonesia	Senegal
Bolivia	Kenya	Sierra Leone
Bosnia-Herzegovina	Kiribati	Solomon Islands
Burkina Faso	Kyrgyzstan	Sri Lanka
Cameroon	Laos	Tajikistan
Cape Verde	Lesotho	Tanzania
Chad	Madagascar	Timor-Leste
Comoros	Malawi	Togo
Congo	Mali	Tonga
Congo, Dem. Rep.	Mauritania	Uganda
Djibouti	Moldova	Vanuatu
Eritrea	Mongolia	Vietnam
Ethiopia	Mozambique	Yemen
Gambia	Nepal	Zambia

Note: Countries that would be considered candidate countries but are subject to legal provisions that prohibit them from receiving U.S. economic assistance are excluded. In the empirical analysis, Timor-Leste is excluded because of missing values for the control of corruption index.

Appendix B: Countries in the respective treatment group

Country	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6				
						(1b)	(1c)	(2a)	(2b)	(2c)
Afghanistan		X	X							
Albania	X	X		X	X	X	X	X	X	X
Angola		X	X							
Armenia				X		X			X	
Azerbaijan		X	X							
Bangladesh		X	X				X			X
Benin				X		X			X	
Bolivia	X	X		X	X	X	X	X	X	X
Bosnia-Herzegovina				X		X			X	
Cameroon		X	X							
Chad	X	X		X						
Comoros				X						
Congo	X	X		X						
Congo, Dem. Rep.		X	X							
Djibouti				X		X				
Gambia	X	X		X	X	X	X	X	X	X
Georgia	X	X		X	X	X	X	X	X	X
Guinea				X						
Guyana				X		X			X	
Haiti		X	X							
Honduras				X		X			X	
Indonesia		X	X				X			X
Kenya		X	X				X			
Kyrgyzstan	X	X		X	X	X	X			
Laos		X	X							
Malawi	X	X		X	X	X	X	X	X	X
Moldova	X	X		X	X	X	X	X	X	X
Mozambique	X	X		X						
Nicaragua				X		X			X	
Niger		X	X				X			
Nigeria		X	X							
Pakistan				X						
Papua New Guinea	X	X		X	X	X	X			
Rwanda				X		X				
Sierra Leone				X						
Solomon Islands	X	X		X						
Tajikistan		X	X							
Tanzania	X	X		X	X	X	X	X	X	X
Togo				X		X				
Uganda	X	X		X	X	X	X			
Vietnam				X		X			X	
Yemen				X		X				
Zambia	X	X		X	X	X	X	X	X	X
Number of countries	15	28	13	30	11	22	15	8	15	10

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