

Do Fairer Elections Increase the Responsiveness of Politicians?*

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Abstract

Leveraging novel experimental designs and 2,160 months of Constituency Development Fund (CDF) spending by legislators in Ghana, I examine *whether* and *how* fair elections promote democratic responsiveness. The results show that incumbents elected from constituencies that were randomly assigned to intensive election-day monitoring during Ghana's 2012 election spent 19 percentage points more of their CDFs during their terms in office compared to those elected from constituencies with fewer monitors. Legislators from all types of constituencies are equally present in parliament, suggesting that high levels of monitoring do not cause politicians to substitute constituency service for parliamentary work. Tests of causal mechanisms provide suggestive evidence that fairer election motivates high performance through incumbents' expectations of electoral sanction and not the selection of better candidates. The paper provides causal evidence of the impact of election integrity on democratic accountability.

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Election fraud is widely believed to undermine political responsiveness. Scholars and policymakers assume that vote rigging weakens the two channels through which elections can influence politician behavior: selection and sanction. When politicians can rig elections, it undermines citizens' ability to select competent or public-spirited politicians who share their interests (Fearon, 1999; Besley, 2005). Likewise, voters cannot vote out poorly performing or corrupt incumbents if officeholders can manipulate the polls (Ferejohn, 1986). Vote rigging breaks down the "electoral connection" between citizens and politicians, decreasing incumbents' incentives to work hard to win.

Despite the widespread belief that fair elections generate political responsiveness, and the billions of dollars spent annually to support programs such as domestic election monitoring to bolster electoral integrity (Annan et al., 2012; Norris, 2014), we lack solid evidence regarding *whether* and *how* high-quality elections incentivize politicians to be more responsive to citizens' needs.¹ I provide, to my knowledge, the first systematic analysis of the causal relationship between fair election and political responsiveness.

I theorize that high-quality elections increase political responsiveness because fair balloting limit politicians' ability to win through outright manipulation. Accordingly, programs such as election observation that constrain vote rigging will encourage officeholders to invest instead in efforts to meet the needs (and earn the support) of their constituents. My argument implies that incumbents who expect limited opportunities for election-day fraud — which increases the possibility of *electoral sanction* — will be more responsive to citizens' needs. Alternatively, higher quality elections may increase political responsiveness through enabling voters to *select* high-quality candidates to office.

¹For example, while Collier and Hoeffler (2015) find that fair elections incentivize national governments to deliver good economic performance, van Ham (2009) finds no such association between the two variables. Similarly, Bratton (2013) finds no relationship between citizens' perceptions of election integrity and their assessments of the responsiveness of politicians in sub-Saharan Africa.

Testing whether high-quality elections *cause* politicians to work harder on behalf of citizens requires exogenously varying the integrity of the election in which an officeholder is elected. This poses an empirical challenge because it is hard for researchers to randomly assign electoral districts (or countries) to different levels of election quality. To overcome this difficulty, I leverage insights from recent work on election observation, a popular initiative used by civil society groups to reduce election fraud and promote democratic accountability (Bjornlund, 2004).

Specifically, I use data from a field experiment that randomized the intensity of election observation (IO) by Ghana's largest domestic election observation group, the Coalition of Domestic Election Observers (CODEO), across 60 electoral districts in the country's 2012 elections (Asunka et al., 2017). Constituencies received one of three levels of election-monitoring intensities in which 30, 50, and 80 percent of a fixed proportion (30 percent) of polling stations were monitored. Given that observers reduce fraud and that greater intensities of observers reduce fraud more (Hyde, 2008; Ichino and Schündeln, 2012; Enikolopov et al., 2013), I use the IO within a constituency as an exogenous instrument for election integrity. I argue that experience with high IO incentivize democratic responsiveness because incumbents believe they cannot rig their reelection. Because the IO was randomized, differences in the performance of politicians elected in low- versus high- monitored constituencies during their four-year terms in office can be interpreted as the causal effect of fairer election on responsiveness.

It is not obvious that improving election quality through high-intensity election-day monitoring will generate political responsiveness. First, politicians may simply shift their fraudulent or undemocratic activities to the period prior to the next elections. For example, incumbents can circumvent the need for election-day fraud by inflating the voter list with unqualified voters (Ichino and Schündeln, 2012), bribing their way in legislative primaries (Ichino and Nathan, 2012) or engaging in vote buying (Kramon, 2016). Second, officeholders may simply discount their reelection prospects and maximize their rent-seeking opportunities because they cannot rig (Bates, 2008). Third, irrespective of their quality, elections may fail to motivate politicians to satisfy citizens'

needs if voters lack information on incumbent performance (Humphreys and Weinstein, 2012; Grossman and Michelitch, 2018) or are indifferent to officeholders' performance, and respond instead to ethnic or party cues, clientelistic arrangements or the instruction of traditional leaders (Posner, 2005; van de Walle, 2003; Wantchekon, 2003). Because of these theoretical possibilities, it is important to establish whether cleaner elections are fundamental to democratic responsiveness.

In many developing countries, including Ghana, scholars suggest that citizens are more likely to demand local public goods and private benefits from their legislators rather than legislation and executive oversight (Barkan et al., 2010; Lindberg, 2010).² Therefore, to measure responsiveness, I collected fined-grained data on Members of Parliament's (MP's) spending of their state-provided individual Constituency Development Funds (CDFs) during their four-year terms.³ Similar to legislators in other developing countries, MPs in Ghana established these funds to deliver both private benefits and public goods (infrastructure) to address the gaps in public service delivery in their constituencies (Baskin, 2014). However, prior work in India finds that, because using CDFs requires effort, representatives often do not use these funds unless they face high levels of electoral competition (Keefer and Khemani, 2009). Accordingly, CDF usage rate is an objective measure of responsiveness. The fact that MPs have discretion over the use of these funds also ensures that analyzing CDF spending reveals whether politicians prioritize local public goods or private benefits.

I supplement the information on CDF spending with data from two sources. First, I collected four years of administrative records on MPs' parliamentary attendance. Second, I conducted closed-ended surveys with MPs to investigate their experiences with past election monitoring (and assess their level of other constituency activities). Using a rich set of information on MPs' behavior allows me to examine which legislator roles — constituency service vs. legislative duties — fairer

²Also, see Figure C.1 in the Appendix C.

³In Ghana, these funds are referred to as the MP' Common Fund.

elections impact, and whether there are substitution effects (Ashworth and Bueno de Mesquita, 2006).

My main finding is that higher-quality elections increase the responsiveness of politicians. Specifically, the results show that politicians elected in intensely-monitored constituencies spent 19 percentage points more of their total funds compared to MPs elected in low-monitored constituencies. Additionally, my analysis shows that higher levels of spending on public goods *substantially* drives the significant difference in overall expenditure between MPs elected in high- versus low-monitored constituencies. To the best of my knowledge, these findings are the first to show that intensive election monitoring, by decreasing fraud and violence, also produces a downstream effect on political responsiveness, suggesting that cleaner elections generate concrete benefits for citizens. Finally, I find that politicians elected in high-monitored constituencies were equally as present as their counterparts elected in low-monitored constituencies during parliamentary meetings, which suggests that fairer elections do not encourage officeholders to attend more legislative sessions or to substitute constituency service for legislative work.

Tests of mechanisms suggest that incumbents' fear of voter sanction through intense election-day monitoring in the next election may explain my findings. First, survey evidence indicates that a majority of legislators believe that election monitoring reduces their ability to rig elections and that those in intensely-monitored constituencies were more likely to say they experienced more observers in the past elections. I assume that such experience with past monitoring influences an incumbent's belief about future observation and encourages them to work harder. Second, and to systematically test my assumption, I experimentally manipulate the expectations of high-level monitoring in future elections to see if this affects legislators' behavior. I do so by sending individual letters to 30 of the 60 MPs to say that they should expect to receive intense monitoring of their constituencies in the December 2016 parliamentary elections. MPs in the control group did not receive a letter.

Consistent with my expectation, I find that MPs in the treatment group further increased their spending by five percentage points, on average, relative to those who did not receive the letter. These effects are substantively (but not statistically) significant, and provide preliminary causal evidence for the proposed mechanism. In contrast, I do not find that the observer intervention significantly influenced the number of candidates or the profile of those elected, which would suggest a selection mechanism. I also do not find that the IO influences citizens' contact with officeholders, which would indicate a citizens' pressure mechanism, or an increase in the number of challengers in the next elections, which would imply a candidate entry channel of influence (Grossman and Michelitch, 2018).

This study makes three contributions to the literature on electoral accountability. First, it provides new evidence that the quality of elections is an important determinant of political responsiveness. My work complements previous findings that electoral integrity affects outcomes such as political participation (Birch, 2010), regime legitimacy (Berman et al., 2014), and stability (Hyde, 2008). Second, the literature on electoral accountability has thus far considered how institutional factors such as term limits, electoral systems, and rewards from office (see Ashworth, 2012) and information asymmetries (see Dunning et al., forthcoming) shape the efficacy of elections. I show that election-day manipulation also affects democratic accountability. Finally, I contribute to the literature on election observation, which to date has focused on the effect of observers on voter registration fraud before the polls (Ichino and Schündeln, 2012), and on polling station level fraud and violence on election day (Hyde, 2008; Enikolopov et al., 2013). I show that election observers can affect political outcomes long after election day.

1 Electoral integrity and politicians' responsiveness

Electoral accountability models suggest that elections affect politicians' performance through two distinct but reinforcing principal channels (Ashworth, 2012). First, elections help voters to screen

candidates, *selecting* competent or public-spirited types who voters believe work harder in office (Fearon, 1999; Besley, 2005). Indeed, empirical evidence suggests voters prefer honest and high-quality politicians in diverse settings (Besley, 2005; Galasso and Nannicini, 2011; Bratton, 2013).

Second, competitive elections can incentivize officeholders to perform well, irrespective of candidates' quality, because voters can retrospectively *sanction* poor performance (Ferejohn, 1986). While politicians may be self-interested and rent-seeking, expectations of electoral discipline motivates reelection-seeking incumbents to put in optimal effort, choosing a (costly) level of effort to satisfy voters' endogenously established welfare utility threshold (Mayhew, 1974).

While the selection and sanctioning models of electoral accountability provide plausible explanations for an incumbent's performance in office, both models typically assume that elections are run honestly—that the will of the voters is accurately reflected in the results. I argue that both channels of influence can be subverted by election-day fraud and that the extent to which politicians can rig elections influences their incentives to cater to citizens' demands (Collier and Hoeffler, 2015).

Concerning selection, other things being equal, election-day fraud may undermine citizens' ability to elect politicians who share their interests simply because the candidate most voters cast their votes for is not declared as the winner. Because the "winner" may not share the preferences of voters, (s)he is unlikely to satisfy citizens' needs. Regarding sanctioning, I argue that incumbents can either rig elections to remain in office or "earn" their re-election by working harder to meet voters' expectations. Obviously, incumbents can win office using other means such as vote buying, access to more campaign funds, media coverage (incumbency advantage), or obscuring information about their performance. Nevertheless, because officeholders cannot rely on these methods they often supplement these assets at their disposal with vote rigging. All else equal, I argue that when it is easy for incumbents to engage in election-day fraud, they can reduce the time, personal resources, and amount of effort they devote to address constituents' needs, and instead pursue their private business activities to earn outside rents.

In keeping with electoral accountability models, my argument implies that the quality of elections may encourage political responsiveness through two theoretically distinct channels. First, if we observe that an incumbent who was elected in a high-quality election (at time $t-1$) works harder in office (at time t), it is possible that voters succeeded in selecting a competent candidate who shares their preferences. We can examine this possibility by simply comparing the personal attributes or policy preferences of incumbents elected in cleaner elections to those selected through manipulated ones. Second, incumbents' *expectations* of competing in fairer election (at time $t+1$) that would strengthen voters' ability to punish shirking or "select them out" may incentivize higher performance (at time t). Such prospective beliefs may derive from past constraints on rigging or exogenous changes in election administration that would limit fraud.

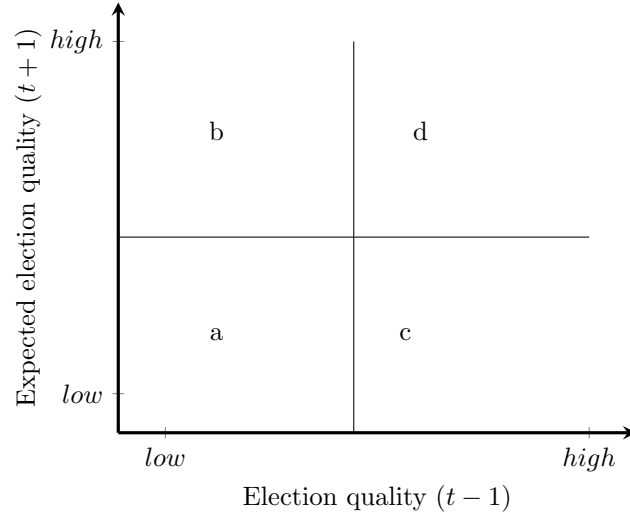
The latter channel of influence, *expectation of sanction*, highlights an important theoretical implication. It suggests that an incumbent's incentive to serve the interests of citizens depends not only on being elected in high-quality elections but also on "expecting" to compete in another one (at time $t+1$). Even when elected in credible polls, incumbents who believe they can rig future polls may simply shirk their duties.

Figure 1 summarizes my argument graphically concerning the expectation of electoral sanction. The model predicts that politicians who are elected in low-quality election (at time $t-1$) and expect that they can rig their reelection (at time $t+1$) (*a*) and those chosen through cleaner elections (at time $t-1$) but expect they can rig the next polls (at time $t+1$) (*c*) would be less responsive to citizens' demands (at time t). On the other hand, those who are elected in low-quality election (at time $t-1$) but expect to contest again in cleaner elections (at time $t+1$) (*b*) and those chosen through cleaner elections (at time $t-1$) and expect they cannot rig the next polls (at time $t+1$) (*d*) should be more responsive to the interests of voters. Accordingly, I expect $a \cong c$ and $b \cong d$.⁴ I adopt research designs that allow testing the effect of election quality on the performance of politi-

⁴In a selection model, $a \cong b$ and $c \cong d$ because it is the selection at time $t-1$ that matters for incumbents' performance.

cians *and* helps to examine possible channels of influence. Also, as I explain below, because I did not empirically assign those in *c* to expect low-quality reelection race for ethical concerns, I expect that $d > c > b > a$.

Figure 1: Model: the quality of elections, expectation of electoral sanction, and political responsiveness



Notes: The theoretical model predicts that $a \cong c$ and $b \cong d$. The specifics of this research design suggest $d > c > b > a$.

Political responsiveness involves doing what citizens want (Powell, 2005) or acting in ways that are consistent with voters' demands and interests (Pitkin, 1967). In democracies, legislators perform four core functions: legislation, executive oversight, constituency representation, and constituency service. The first three constitute work in the legislature (parliamentary work), while the latter (constituency service) involves satisfying citizens' non-policy concerns including the provision of local public goods and private benefits (Fenno, 1978).

Recent scholarship on African legislators suggest that citizens prioritize constituency service over parliamentary work (Lindberg, 2010). Therefore, I hypothesize that *officeholders elected in high-quality elections are likely to increase their supply of constituency service (H1)*. However, because citizens place less emphasis on legislation and executive oversight, *fairer elections may induce incumbents to reduce the effort they put into parliamentary work (H2)*, perhaps shifting

their efforts to providing constituency service (Ashworth and Bueno de Mesquita, 2006). Scholars consider most African parliaments as weak relative to the executive branch (Barkan, 2009). Thus, if fairer elections further cause legislators to reduce their attendance in parliament and instead dedicate their time to investigating citizens' local needs and to putting pressure on their local governments or seeking donor funds to provide them, that would be theoretically important to know.

Regarding the provision of constituency service, I argue that MPs can prioritize the provision of public or private goods in order to maximize their votes. Unfortunately there is no consensus of which type of good – public or private – is more important in determining vote choice in democracies in sub-Saharan Africa. A dominant narrative of African politics would lead us to believe that to win votes in fair elections MPs resort to providing benefits to individuals or groups (Wantchekon, 2003). Thus, I hypothesize that *legislators elected in high-quality elections are likely to satisfy citizens' demand for private goods (H1a)*.

However, emerging research suggests that African voters grant their votes to politicians in exchange for local public goods and services (Lindberg, 2010; Ichino and Nathan, 2013). Accordingly, *high-quality elections would induce MPs to provide more public goods (i.e., local infrastructure) (H1b)* including schools, clinics, bridges, and roads that are easily attributable to their efforts and enable them to satisfy more voters (Harding, 2015). Notwithstanding the above expectations, if they are risk-averse, politicians may deliver a combination of public and private goods. I combine original data on legislator spending and parliamentary attendance to examine these theoretical possibilities.

2 Study context: Ghana

Ghana is an ideal setting for this study because the level of electoral competitiveness and turnover means that politicians have real incentives to think about how they use their resources when seek-

ing re-election. Similar to many other countries, Ghana adopted multiparty elections in November 1992. Its 2012 general elections, which elected the 2013–2017 Parliament, were the sixth. Ghanaian legislators are elected to four-year terms from single-member districts using plurality rule; they are not subject to term limits. Currently, the Parliament is composed of 275 members.⁵ During the 2013–2016 Parliament, 148 MPs belonged to the ruling National Democratic Congress (NDC), 123 to the main opposition party, the New Patriotic Party (NPP), and one to the People’s National Convention. There were three independent MPs. The NPP and NDC have dominated Ghanaian electoral politics since 1996: the two parties have controlled over 98 percent of the seats. However, parliamentary races are increasingly competitive. Between 1996 and 2012, the average vote margin declined by about 11 percentage points.⁶ Also, between 2000 and 2012, the average turnover rates for incumbents seeking re-election was 24 percent.⁷

Despite the increasing electoral competitiveness, Ghanaians provide poor ratings of their legislators. For example, in Afrobarometer Round 6 conducted in 36 African countries, about 63% of Ghanaians said that they disapprove of their MP’s performance compared to the continental average of about 45%. Similarly, 48% of Ghanaians reported that all or most of their MPs are involved in corruption, compared to the continental average of 34%. These poor ratings may be explained by high expectations of Ghanaians of their representatives after more than two decades of democratic elections. However, they may also be due to politicians’ ability to manipulate local elections.

Several studies indicate that the country’s elections are often characterized by some level of fraud and violence (Gyimah-Boadi, 2007; Jockers, Kohnert and Nugent, 2010; Ichino and Schündeln, 2012; Straus and Taylor, 2012). Scholars argue that the enormous benefits and patronage resources that officeholders receive encourage these practices (Gyimah-Boadi, 2009; Ninsin, 2016).

⁵Between 1993 and 2004, there were 200 MPs. The number rose to 230 in 2005 and 275 in 2012.

⁶The median vote margin decreased from 27.5 percent in 1996 to 17 percent in 2012 (a 38 percent decrease)

⁷The overall turnover rate for the Ghanaian Parliament between 2000 and 2012 is 45.38 percent (i.e., either retiring or losing through party primaries or general elections), and the percentage of seats changing between parties averaged 22.45 percent.

Election fraud (and violence) routinely goes unpunished. For example, following the 2012 general election, the main opposition party (NPP) filed a petition in the country’s Supreme Court pointing to several irregularities in the polls. While the Supreme Court acknowledged some of the allegations in its verdict, no election official or party was indicted, and the case was dismissed. Thus, fraud and violence are viable options for officeholders who face stiff competition or seek to ward off strong competitors (in non-competitive constituencies).⁸

To curb electoral fraud, civil society groups such as the Coalition of Domestic Election Observers (CODEO), with support from international donors, have monitored the country’s elections since 1996. CODEO has observed all of the country’s general and local government elections held since its formation in 2000. The group is composed of 34 independent civil society organizations including religious, professional, and student bodies. In 2012, CODEO deployed about 4,000 observers to polling stations around the country on election day. Similar to other domestic election observation groups, CODEO’s aim is to promote election integrity and strengthen political accountability. During the December 2012 elections, in collaboration with co-authors, I leveraged CODEO’s observation mission to examine the causal effects of election observers on indicators of election day fraud and violence (Asunka et al., 2017). Because observers wear uniforms (i.e., official CODEO T-shirts and caps), they are easily identifiable to election officials, party operatives and voters. Empirical work suggests that the presence of observers deter election-day fraud and violence at polling stations and within constituencies. Because election observation remains a popular approach to promoting election integrity, it is important to examine whether such efforts, by reducing opportunities for fraud, ultimately improve the quality of political representation in new democracies.

⁸While winning legislative party primaries may be a requirement for electoral success in non-competitive constituencies, we still observe election-day fraud and violence in these settings, which suggests that election-day outcomes remain important to politicians. In non-competitive electoral districts, incumbents may be interested in winning large margins of victory in the general elections to portray their “invincibility” and ward off competitors in future primaries and in the general election (Magaloni, 2006; Simpson, 2008).

3 Research design

3.1 Varying the quality of elections in which politicians are elected

In Ghana’s 2012 election, my co-authors and I employed a randomized saturation design (Baird et al., 2016) to measure the impact of monitors on election-day fraud and violence at polling stations across electoral constituencies. Using this design, we first assigned a regionally representative sample of 60 constituencies to one of three election observation intensities (IO): *low* (30%) (13 constituencies), *medium* (50%) (24), and *high* (80%) (23). The IO is the proportion of a fixed percentage (30 percent) of polling centers in a constituency to deploy monitors. Second, within these constituencies, CODEO deployed about 1,300 observers to the sampled polling stations with probabilities determined by the first-stage randomly assigned saturation. The observers stayed at their assigned stations throughout election day. Our study constituencies were nested within four of the country’s ten regions: Ashanti, Volta, Central, and Western regions, which we chose to get a mix of competitive (23) and non-competitive (37) constituencies.⁹

In addition to estimating the unbiased direct effect of observers on fraud and violence, the randomized saturation design allows us to calculate the total causal effect (TCE) of monitors in constituencies, accounting for possible spillover effects (Ichino and Schündeln, 2012). The key idea is that since monitors often cover only a fraction of stations within a constituency, political party operatives can move their fraudulent activities to unmonitored stations (i.e., displacement effect), or desist from electoral malpractices in nearby polling stations (i.e., deterrence effect). By assigning some constituencies to receive fewer monitors and others to receive significantly more observers, we can estimate the net effect of observers on fraud and violence within constituencies by comparing average electoral outcomes for (monitored and unmonitored) polling stations in

⁹We excluded the Greater Accra region, which contains the capital, to reduce the potential contamination of our treatment by foreign observers and smaller groups (Carothers, 1997). Details of the design (and relevant results) are presented in Online Appendix H. Table A.1 shows that the sampled constituencies are regionally representative.

intensely monitored districts to control stations in districts with fewer monitors, which by design are less susceptible to spillover effects.

Our estimates of the spillover-corrected direct and total effect of observers on election-day fraud suggests that intense election-day monitoring reduced the overall level of fraud and intimidation or made manipulation costly and risky for political parties. Specifically, we find that in medium and high IO constituencies observers reduced turnout rates by 7 and 6 percentage points (significant at the five percent level), respectively at polling station to which they were deployed. Regarding the TCE, we find that increasing the IO from low to medium or high reduced turnout by 5.6 ($p = 0.08$) and 5.5 ($p = 0.07$) percentage points, respectively (see Table H.1). Table H.1 also breaks the TCE results by level of electoral competition. The results show that the decreases in fraud are substantially large in competitive electoral districts (significant at the ten percent level) but small and not statistically significant in non-competitive electoral areas. As we argue in Asunka et al. (2017), these results suggest that while observers were able to reduce the overall level of fraud in competitive areas, they displaced it in non-competitive areas. Accordingly, in non-competitive constituencies, politicians were able to recover deterred fraudulent votes, but the presence of more observers likely increased the cost and risk of manipulation.

Concerning intimidation of voters, election monitors reduced violence by 4 and 6 percentage points at polling stations to which they were deployed in medium and high IO constituencies, respectively. These results are significant at the five percent level. However, we find that the TCE of monitors was only substantially large in non-competitive constituencies where observer reduced the incidents of voter intimidation by 7 ($p = 0.16$) and 9 ($p = 0.06$) percentage points in medium and high IO constituencies, respectively from a baseline of 13.5 percent. In competitive constituencies, the TCEs were an increase of 10.4 ($p = 0.19$) and 1.5 ($p = 0.59$) in medium and high IO electoral districts, respectively from 3.9 percent in the low IO, which suggest a potential displacement of violence. Accordingly, in the full sample, we find that observers reduced the overall level of voter intimidation by 5.4 percentage points in high-IO constituencies from 10.2 percent

in low-IO electoral districts, a 53 percent decrease. The results is only statistically significant at $p = 0.14$. In medium-IO constituencies the TCE is essentially zero.

In sum, higher IO reduced overall fraud or increased the cost of election manipulation across constituencies, on average. Important for my study, I *assume* that experiences with such intense monitoring will influence the prospective beliefs of incumbents about their ability to rig future polls and shape their behavior in office. I argue that because the IO was randomized, it offers a *relevant* exogenous instrument for the quality of elections—the intensity of election observation—in constituencies from which incumbents were elected. I refer to this initial random assignment of the intensity of election-day monitoring as Actual Intensity of Observation (AIO). Regarding election-day fraud, the effects of medium and high monitoring are not statistically distinguishable from one another. Given the limited initial sample of constituencies ($N = 60$) and the constraints it places on the statistical power on a follow-up experiment (described below) to examine causal mechanisms, I consider both medium and high constituencies as *high-AIO* districts (47). Accordingly, in the analysis below I compare the behavior of politicians elected in these intensely-monitored constituencies to those from *low-AIO* (13) electoral districts during their terms in office (at time t).¹⁰

3.2 Varying expectations about future election quality

In comparing the performance of incumbents elected in low-AIO to those in high-AIO, I assume that officeholders’ expectations of intensity of monitoring in the next polls coincide with previous levels. I provide evidence in section 5 that such an assumption is plausible. However, to test whether such beliefs influence performance, I complemented the initial experiment by dispatching letters to a random set of 30 of the initial 60 MPs (blocking on their initial AIO); MPs in the control group did not receive a letter. In keeping with recent research on monitoring corruption, the letter was designed to alter officeholders’ beliefs about the chances of election-day fraud

¹⁰Results for the three treatment arms are presented in Appendix E.

detection (Olken, 2007; Callen et al., 2016). In consultation with CODEO, the letters stated that evidence from academic research on the country’s 2012 elections shows that more observers in a constituency reduced the overall levels of fraud (i.e., suspicious turnout rates) and voter intimidation. The legislators were then told that, to corroborate these results, I was collaborating with CODEO to replicate the study because, if true, the findings hold promise for democratic consolidation in the country. Copies of these letters are provided in Appendix B.

The letter then informed the MPs that as part of the study, CODEO *plans* to deploy observers to 80 percent of polling stations in some constituencies in the upcoming (2016) elections, and that theirs happens to be one of those. The letter was stated in probabilistic terms because the number of observers CODEO could eventually deploy depended on the availability of donor funds, which was not known at the time I circulated the letters. However, I sent out the letters in November 2015 to give incumbents enough time to respond to the treatment in meaningful ways.¹¹ Indeed, CDF programs take time to implement. For example, Harris and Posner (2019) find that in Kenya 56 percent of the projects implemented by MPs using their CDFs took a year, while about a quarter took 2 years. Accordingly, the probabilistic nature of the letter represents a compromise with CODEO and implies that the treatment may be weak. Nevertheless, it provides a useful first step to understand the effects and potential causal channels through which quality elections influence political responsiveness.¹²

¹¹Note that it is the effect of the *expectation* of intense observation in their constituencies that is relevant for this part of the study, not the *actual* intensity. In 2016, observers were deployed to all constituencies, but CODEO deployed more observers to potential “trouble spots” in addition to their nationally representative sample to conduct a parallel vote tabulation (for more detail, see: <https://ufahamuafrica.com/2017/01/07/from-episode-1-what-were-reading-this-week/>, accessed April 14, 2017). Also, in contrast to my letter-treatment, CODEO traditionally announce the total number of observers it will deploy to polling stations across the entire country on the eve of election day (mine was a year ahead), which provides no variation in expectation of intensity of observation. MPs had mixed reactions to their letters. Some MPs simply said they know of CODEO’s activities and look forward to receiving them. Others said they would alert the local party about the situation. One MP sent me a list of polling stations to which CODEO should deploy monitors by email.

¹²It is possible that MPs in the control group will hear about my intervention and expect that their constituencies will also be intensely monitored on election day. While this is plausible and, if true, poses a threat to inferences about the unbiased effect of the treatment on legislator responsiveness, two key factors mitigate such concerns. First, I personalized my letters to individual MPs and did not say that CODEO will not deploy observers to other constituencies. The letter simply notified treated MPs that the presence of observers in their constituencies would be higher compared

I refer to the letter treatment as expected intensity of observation (EIO). I delivered letters to treated MPs in person and read the content of the letter to them.¹³ As a reminder, another letter was sent to MPs' mailboxes (followed by phone calls to confirm receipt) in April 2016. By sending letters to MPs who received intensive and less-intensive observation during the 2012 elections, during their last year in office, my experiments yield a 2×2 design with four types of incumbents (see Table 1).

Table 1: Experimental design

	Expected Intensity of Observation (EIO) (2016)		
	Received letter (t)		N
Actual Intensity of Observation (2012)	<i>Yes</i> ($l = 1$)	<i>No</i> ($l = 0$)	
<i>High</i> ($a = 1$)	Y_{11} (21)	Y_{10} (26)	47
<i>Low</i> ($a = 0$)	Y_{01} (9)	Y_{00} (4)	13
N	30	30	

In 2016, the two treatments at times $t-1$ (AIO (a)) and t (EIO (l)) generate four sets of MPs (Y_{al}) represented by the row and column cells of Table 1 as follows:

1. Y_{11} : MPs elected in high-AIO constituencies in 2012 who received a letter to expect a large number of observers in their constituency in the 2016 elections
2. Y_{10} : MPs elected in high-AIO constituencies in 2012 who did not receive a letter
3. Y_{01} : MPs elected in low-AIO constituencies in 2012 who received a letter to expect high IO in 2016
4. Y_{00} : MPs elected in low-AIO constituencies who did not receive a letter to expect high IO.

This set of potential outcomes allows us not only to test whether intensely-monitored elections induce greater incumbent effort, but also to examine causal mechanisms. The research design to others. Second, if some control MPs mimic the behavior of treated MPs by increasing their level of responsiveness, this will reduce the treatment effect.

¹³For the few (five) MPs who my research assistants could not meet in person, I first delivered their letters to their mailboxes in Ghana's Parliament House and followed up with a call to inform them of the letter and its content.

allows us to compare the performance of incumbents elected in intensely-monitored elections who did not receive a letter to those who were elected in constituencies with fewer monitors who also did not receive a letter ($E[Y_{10}] - E[Y_{00}]$). Concerning mechanisms, I compare the observable characteristic (i.e., quality) of incumbents elected in high-AIO vs. low-AIO constituencies ($E[Y_{10}] - E[Y_{00}]$) to test the plausibility of the selection mechanism. Finally, I examine whether receiving a letter to expect greater monitoring boosts performance ($E[Y_{01}] - E[Y_{00}]$, and $E[Y_{11}] - E[Y_{10}]$), which would be consistent with the “expectation” of sanction through fair election channel. In reference to Figure 1, because incumbents in the control group of the letter treatment did not receive a letter to *not expect* intense monitoring and should expect similar levels of prior monitoring, I suggest that $Y_{11}(d) > Y_{10}(c) > Y_{01}(b) > Y_{01}(a)$.¹⁴

The aforementioned set of analyses generated by the two treatments is limited to the last year of the four-year terms of MPs in the initial sample, and is constrained by the limited number of cases in each of the treatment conditions (as shown in parentheses). However, it provides an important complement to the primary analysis of whether improving the quality of the election at time $t-1$ increases the responsiveness of incumbents to fully explore causal mechanisms. It also provides a model for future research.

3.3 Measuring politicians’ responsiveness

To obtain direct measures of politician effort on constituency service and parliamentary work, I use data on legislators’ spending of their CDFs and attendance in parliament, respectively.

CDF spending provides an appropriate measure of responsiveness with which to test my theoretical predictions about the influence of quality elections on different types of constituency services for two reasons. First, MPs have to exert a significant amount of effort to use their funds,

¹⁴One can argue that $Y_{10}(c) = Y_{01}(b)$ because these are both about expectations. However, I argue that the actual exogenous shock at time $t-1$ should have a stronger impact compared to the letter treatment that was stated in probabilistic terms.

and their spending directly benefits members of their constituency.¹⁵ Ghana established its MPs' CDF in 1992 as part of the country's District Assembly Common Fund (DACF) [Article 252 of the 1992 constitution]. The DACF represents a proportion (at least 5 percent) of national revenues disbursed to the country's 216 local governments for community development projects.¹⁶

The central government sets aside a portion of the DACF, which it then allocates equally among MPs as CDFs each year. The national Fund Administrator (FA) deposits an MP's money into a bank account maintained by the local government that serves the legislator's constituency. To use these funds, MPs need to submit their plans to the local government and satisfy both legal and bureaucratic requirements. For example, to construct a bridge or repair a road in a local community, an MP must submit at least three price quotations from different vendors (Section 43 of the Public Procurement Act 663, 2003). The mayor and the procurement committee of the local government will then approve payment for the winner of the bid. These processes take time and energy.¹⁷ In the case of providing personal assistance such as paying the school fees or medical bills of individual constituents, MPs must write letters providing reasons for the requests and the lists of selected recipients. Because MPs can decide whether to use these funds, the rate of usage provides a reasonable measure of effort. In this regard, this study joins an emerging literature that uses politician spending of CDFs or other central government transfers in their electoral districts as a measure of responsiveness (e.g. Keefer and Khemani, 2009; Asunka, 2017; Harris and Posner, 2019).

¹⁵As Keefer and Khemani (2009) argue, CDF spending contrasts with other proxies for legislator effort such as politicians' subjective assessments, committee memberships, and sponsorship of bills, which tell us little about the actual amount of work an individual representative did, and who directly benefited.

¹⁶Electoral constituencies are embedded in administrative districts. In 2012, there were 275 constituencies and 216 districts. Accordingly, while some districts had more than one constituency, many were coterminous with a single constituency. In my sample of 60 constituencies, only 4 pairs shared a district. The results reported below are robust to clustering the errors at the district level (see Appendix E Table E.7).

¹⁷Table E.5 in appendix E shows that legislators who are co-partisans with the presidentially-appointed head of the local government spend more of their funds compared to opposition MPs, who sometimes get frustrated with strict requirements to comply with procurement laws. For example, see "Suhum MP and MCE haggle over the release of Common Fund," last accessed, May 14, 2016. However, Table E.5 also shows that the main results are robust to controlling for MP-mayor co-partisanship.

Second, when MPs decide to use their funds, they have discretion over the allocation. They can either decide to provide public goods or private benefits to their constituents. Analyzing how MPs allocate their funds provides a way to examine which types of citizen demands they prioritize. I consider the proportion of funds that each legislator spends on public goods and private benefits with the assumption that spending on the former is more responsive because it aligns with what majority of voters want.

Between 2014 and 2016, each Ghanaian MP was allocated GHC1,264,987 (\approx \$316,246).¹⁸ Unspent funds are rolled over to the next year. I gained access to and digitized 36 months of spending records for each of 60 MPs - totaling more than 9,400 ledger records - that had been submitted to the FA.

I then constructed a database that contains the totals of how MPs allocated their funds among five principal expense categories: *personal assistance* to constituents (e.g., school fees, medical bills, business support, house renovation, etc.); *local public goods* (e.g., construction or repairs of local roads, construction or rehabilitation of schools and clinics, streetlights, bridges); *monitoring of constituency projects and office expenses*; *transfers towards local government projects and activities* (e.g., funds for national independence day or farmers' day celebration); and *donations to support local groups to undertake projects or activities* (e.g., traditional authorities, religious groups, and youth associations). A last category of expenditure, which I code as *unclear*, include expenses for which the purpose or beneficiary was not clear from the ledger. Online Appendix I details my coding rules (Table I.1) and gives examples of the expenses sheets (Figures I.1 and I.2), as well as the summary statistics of these data (Table I.2).

In general, I code MPs' allocations that benefit individuals as private goods and those that serve communities as public goods. However, whether or not to consider MPs' expenses towards supporting local government activities or projects as public goods is hard. In some cases, the

¹⁸The government allocated each MP GHC348,667, GHC403,688, and GHC512,632 in 2014, 2015, and 2016, respectively. Data for the first year are incomplete because new administrative districts that were established prior to the elections were not fully functional. Accordingly, data from 2013 are not included in the study.

records show that these payments supported activities organized by the local government, while in others they are reported as ‘loans’ deducted from an MP’s CDF account to his or her, perhaps cash-strapped, local government (interview with DACF officials). These expenses may represent an MP’s support to public service provision, but because the local government is directly responsible for such activities, I consider them to be separate. Also, MPs’ payouts to groups only benefit particular members of their constituencies, and do not necessarily benefit entire communities. Some of the expenses in this category may serve patronage purposes but may also be intended to help build skills and sports development, especially of the youth or, in the case of traditional authorities, facilitate the provision of public goods (Baldwin, 2013).

Monitoring and office expenses provide insights into MPs’ personal activities in their constituencies. These expenses are for inspecting the implementation of development projects in MPs’ constituencies and operating a constituency office (including staff salaries). Such expenses indicate an MP’s dedication to constituency services and listening to constituents’ needs. Although I did not physically verify reported projects or survey personal assistance recipients, MPs do not control these data; the local government that supervises the corresponding legislator report the spending and is directly held accountable for missing funds or mishandling of reports by the country’s auditor general (Williams, 2017). Thus, these data are reliable for my analysis.¹⁹

3.4 Balance statistics

Before reporting the results of the effect of the intensity of observation in 2012 on politicians’ responsiveness, I show the differences-in-means tests for a set of covariates across the two levels of election monitoring (i.e., *low* and *high*).²⁰ Table A.2 in Appendix A shows the covariates’ balance statistics. Because of the small sample size, I use Kolmogorov-Smirnov test to ensure robustness. Constituencies had an equal number of candidates (4.5) contesting the 2012 polls

¹⁹When I asked, many MPs referred me to the CDF administrator for details of their projects and expenses.

²⁰I also show balance across the three treatment arms in Table A.3.

across both treatment arms, which suggests the AIO did not influence the number of candidates. I return to this fact in Section 5. Constituencies are also equidistant from the Parliament House in the capital across treatment arms (about 183 kilometers), which suggests that elected MPs would have to travel similar distances to visit their constituencies, on average.²¹ There is also a balance across treatments in citizens' assessments of the performance of the previous MP on constituency service, as well as support for the major parties (Table A.4), which suggest that the treatment did not affect previous performance or the support of major party candidates, respectively. Using the entropy measure of spatial segregation, I find a similar pattern of distribution of partisans within constituencies across the treatment groups (Reardon and O'Sullivan, 2004).²² I report similar balance statistics for the follow-up letter treatment in Table A.5 of Appendix A.

4 Results

In this section, I present the results from the initial assignment of actual intensity of election-day observation on the behavior of MPs during their four-year (2013-2016) terms. Because the follow-up experiment (EIO) that randomized letters to MPs was implemented during legislators' last year (2016) in office and was designed to explore possible mechanisms, I discuss its results in Section 5, where I examine the possible causal explanations for the main results.

²¹Scholars find that the distance to an MP's district influences how often they visit, which indicates levels of constituency service (e.g., Mayhew, 1974). I find similar evidence for Ghana (results not shown).

²²Scholars suggest that the spatial distribution of partisans or co-ethnics may affect the targeting and, perhaps, incentives of politicians to use their funds to provide local public goods (Harris and Posner, 2019; Ejdemyr, Kramon and Robinson, 2017). I use polling station level parliamentary results for 2016 for my calculation because I do not have similar data for 2008 or 2012.

4.1 Estimating the causal effect of AIO on constituency service

I estimate the average intention-to-treat (ITT) effect of the AIO on legislators' responsiveness.²³ Specifically, I compare the average outcomes for representatives elected in constituencies randomly assigned to high-AIO to those elected in low-AIO electoral districts. Formally, let $Y_i (M_i)$ denote the outcome of interest for legislator i elected from a constituency with an intensity of observation M . I estimate:

$$ITT = E[Y_i | M_i = \text{high}] - E[Y_i | M_i = \text{low}],$$

where $E[Y_i | M_i = \text{high}]$ is the average level of responsiveness of legislators elected in intensely monitored elections and $E[Y_i | M_i = \text{low}]$ represents that of legislators elected in low-AIO constituencies. Because of the small sample size, I use the HC3 version of the heteroskedasticity-consistent covariance matrix (HCCM) as described and suggested by Long and Ervin (2000) to estimate the standard errors associated with all the ITT estimates to check incorrect inferences. I also use randomization inference to generate *p-values* associated with the sharp null hypothesis of no treatment effect for each unit (Gerber and Green, 2012).

4.2 Average ITT effect of AIO on CDF spending

Table 2 shows a breakdown of the average total amounts spent by legislators of their allocated GHC1,264,987 in the various expenditure categories by treatment (between 2014 and 2016). I also disaggregate MPs' expenditures over time to examine possible time trends.²⁴ Table 2 displays four interesting patterns. First, MPs elected from intensely monitored constituencies spent more of their allocated funds (GHC573,548 (45.3 percent)), on average, compared to those from low-AIO

²³ Ideally, one would estimate the Local Average Treatment Effect (LATE) in a Two-Stage Least Squares (2SLS) regression. The ITT is appropriate in this context because there are no direct measures of overall "election fairness" at the constituency level. The AIO therefore serves as a weak instrument for election fairness (see Chernozhukov and Hansen, 2008), and the results can be interpreted as a lower-bound estimate of the intensity of observation on responsiveness.

²⁴ Table E.1 shows the distribution of spending across the three treatment arms.

constituencies, who spent only GHC336,630 (26.6 percent). While the level of spending increased over time across treatments, MPs in intensely monitored constituencies consistently outspent their counterparts elected in low-AIO constituencies (see Table E.6 in the Appendix). Insofar as the level of expenditure is indicative of an MP's effort, higher AIO elections increase democratic responsiveness.

Second, disaggregating the total expenditure into categories, I find that MPs elected from high-AIO constituencies spent significantly more of their CDFs on local public goods. However, MPs in high-AIO group appear to spend only slightly more of their funds on providing private benefits to citizens compared to those in the control group. Third, MPs elected in higher-quality elections donate more to organized groups, spend more on local government activities, and spend more on monitoring local projects and running their constituency offices. Finally, MPs elected in low-intensity monitored constituencies spent more on items that were hard to detect a purpose or who benefited based on the expenditure records, but further analysis show no statistically significant differences across treatment (see Table E.4 in appendix).

In line with my hypotheses, I focus on the causal effects of AIO on MPs' total expenditures (*utilization*) and allocations to public and private goods (i.e., the first two items in Table 2).²⁵

Figure 2 shows that MPs elected in intensely-monitored constituencies spent more of their available CDFs compared to those elected from electoral districts with fewer observers. The left side of Figure 2 shows average use of CDFs by legislators in the two treatment conditions along with 95 percent confidence intervals (CIs). The average CDF spending in the low-AIO constituencies is 26.6 percent (s.e. 3.2), while the average use in intensely monitored constituencies is 45.7 percent (s.e. 3.3).²⁶ The right side of Figure 2 shows the ITT effect (difference-in-means) as well

²⁵ Appendix D shows the density plots for my dependent variables in treatment and control groups. Table E.4 shows the results for the other expense categories.

²⁶ The failure to spend all allocated CDFs and other centrally allocated funds (i.e. "passing on pork") has been noted by scholars in a variety of settings including India (Keefer and Khemani, 2009) and Kenya (Harris and Posner, 2019). In Ghana the lack of spending may reflect the lack of public attention paid to the use of CDFs (no systematic study or report of MPs' use of CDFs is currently available), as well as the low levels or delay of actual disbursements. For example, in 2014 only 40 percent of the promised funds were disbursed to MPs.

Table 2: Average CDF spending across six expenditure categories by the intensity of election observation

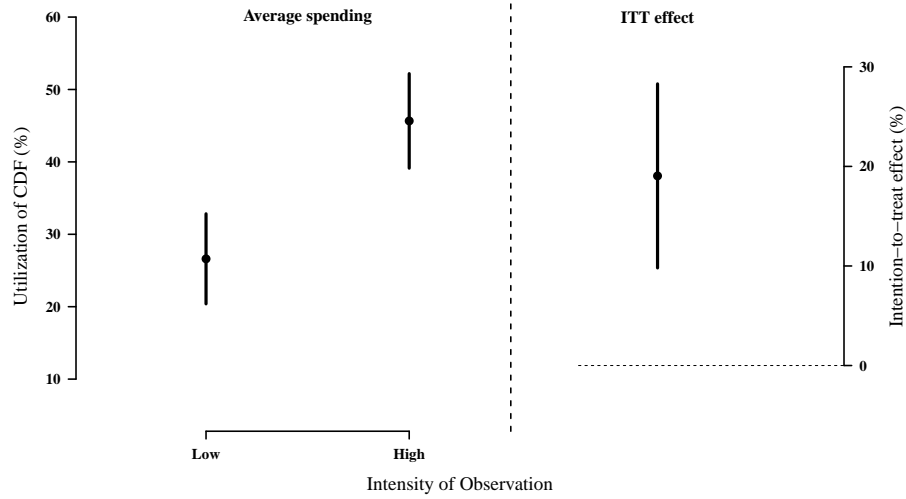
Expenditure Category	Total GHC		2014 GHC		2015 GHC		2016 GHC	
	<i>Intensity of Observation</i>		<i>Intensity of Observation</i>		<i>Intensity of Observation</i>		<i>Intensity of Observation</i>	
	<i>Low</i> (1)	<i>High</i> (2)	<i>Low</i> (3)	<i>High</i> (4)	<i>Low</i> (5)	<i>High</i> (6)	<i>Low</i> (7)	<i>High</i> (8)
Public goods	140,041 (85,995)	332,007 (244,539)	17,744 (19,296)	48,671 (47,725)	70,845 (54,498)	146,377 (122,106)	51,451 (30,471)	139,937 (122,257)
Private goods	122,003 (95,047)	129,832 (92,055)	15,735 (17,445)	21,175 (21,167)	45,434 (34,476)	48,830 (37,000)	60,834 (54,550)	61,127 (65,488)
Donations to local groups	15,113 (16,207)	35,651 (40,518)	1,500 (3,030)	3,088 (5,962)	6,333 (10,098)	15,643 (28,063)	7,279 (9,140)	17,288 (23,119)
Transfers to local government	9,675 (17,452)	45,057 (73,067)	1,316 (2,571)	8,833 (15,787)	1,735 (3,748)	17,489 (47,380)	6,625 (16,268)	19,142 (49,670)
Monitoring and office expense	3,282 (3,862)	9,778 (15,230)	1,119 (1,898)	2,645 (8,691)	829 (1,909)	2,867 (5,867)	1,334 (2,404)	4,359 (9,075)
Unclear purposed expenditure	46,516 (61,455)	21,223 (35,019)	4,806 (16,501)	2,396 (5,941)	15,330 (27,414)	8,733 (18,409)	26,380 (43,123)	10,313 (27,671)
Total	336,630 (144,758)	573,548 (291,687)	42,221 (28,445)	86,808 (64,019)	140,506 (67,151)	239,939 (143,604)	153,903 (89,591)	252,166 (160,371)

Notes:

1. Table 2 shows the average amount of CDF funds spent by Members of Parliament (MPs) in the sample between 2014 and 2016 by treatment conditions. Standard deviations are reported in parentheses. Amounts are in Ghana Cedis (GHC) (\$1 \approx 4).
2. *Source:* Author's coding of original expenditure sheets collected from Ghana's District Assemblies' Common Fund Administration.

as the 95 percent CI. The results show that MPs elected in high-AIO constituencies spent 19 percentage points (s.e. 4.7, $p = 0.006$) more of their allocated CDFs during the period, on average, which represents a roughly 71 percent increase from a baseline of 26.6 percent in low-AIO constituencies. Appendix E provides robustness checks to ensure that all results in this section are not driven by any single observation. These results support the hypothesis that an increase in the intensity of observation causes politicians to exert more effort ($H1$).

Figure 2: Average ITT effect of AIO on the use of CDF

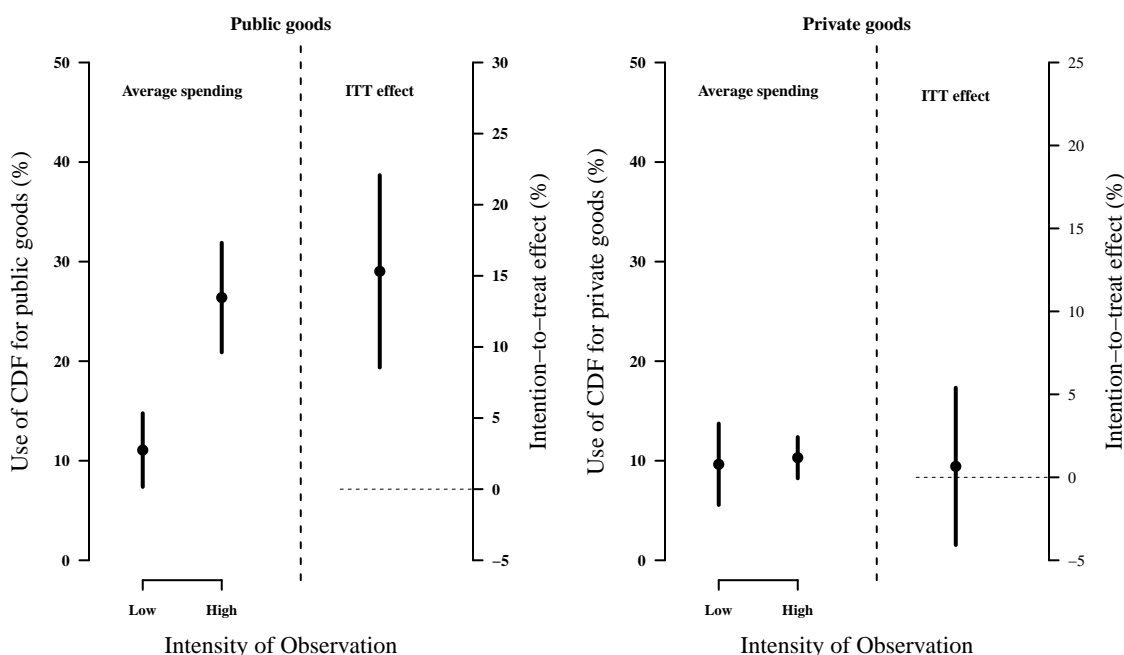


Notes: The left panel shows the mean of the percentage of available CDF (GHC 1,264,987) between 2014 and 2016 by AIO level. The right panel shows the average ITT effect of high election observation on CDF spending. Robust standard errors (HC3) are used to generate the 95 percent intervals around the average ITT effect.

In Figure 3, I disaggregate the results by the type of expenditure: public goods (left) and private benefits (right). I find that higher-intensity monitoring increases legislator spending on public goods, consistent with hypothesis $H1b$, but not on private goods ($H1a$). The left panel illustrates that the average use of CDF for public goods is 11.1 (s.e. 1.9) and 26.4 (2.8) percent in low- and high-AIO constituencies, respectively. An increase in the treatment from low to high led to an increase of about 15 percentage points in spending on public goods, which is substantially and statistically significant ($p = 0.008$). An increase in the intensity of observation more than dou-

bles legislators' spending on local public goods, suggesting that higher-integrity elections improve spending on public works. The right panel displays the results for spending on private goods. The average spending in low- and high-AIO constituencies is 9.6 (s.e. 2.1) and 10.3 (s.e. 1.1), respectively; this difference is not statistically significant ($p = 0.774$). This implies that AIO does not lead to a significant increase (or decrease) in spending on private benefits for constituents. In sum, the findings indicate that an increase in the quality of elections, induced by increased election monitoring, raises the responsiveness of politicians to constituents' demands for public goods.

Figure 3: Average ITT effect of AIO by expenditure type



Notes: The figure shows the results of MPs' use of CDFs for local public goods (left panel) and private goods (right panel) for constituents. In both cases, the left side of the figure displays the average for constituencies in each treatment condition along with 95 percent CIs. The right side of each panel shows the ITT effect estimates as the difference-in-means between low- and high-intensity monitored constituencies. Robust standard errors (HC3) are used to generate the 95 percent CIs around these ITT estimates.

The above results on CDF spending support MPs' self-reported frequency of visits to their constituencies and the activities they prioritize when they visit, which are used in the literature as indicators of constituency service. These results are presented in the Online Appendix J and

further indicate that MPs elected through intensely-monitored elections report to work harder to provide local public goods.

4.3 Do legislators substitute for legislative work with constituency services?

Finally, I estimate the ITT effect of high AIO on legislator absence from parliamentary meetings. Ghana's Parliament meets four times a week (Tuesday to Friday).²⁷ For each session, an MP may be present, absent with permission, or absent without permission. Using Parliamentary Hansards, I code legislator absence (without permission) for 346 parliamentary meetings between January 2013 and October 2016.²⁸ I compare the absence rates for legislators elected from constituencies that received low vs. high levels of observation.

Table 3 shows the average absence rate in the full sample in Column (1), and in low- and high-AIO constituencies in Columns (2) and (3), respectively. Standard errors of these estimates are shown in parentheses. The results show that MPs in the sample were absent about a quarter (26 percent) of the time during their four-year terms in office, on average. The absence rate was 25.4 and 26.2 percent in low- and high-AIO districts, respectively. The difference-in-means estimate indicates no significant difference in the absence rates among legislators across the two treatments, providing no support for hypothesis *H2*.

These results suggest that higher-quality elections neither cause MPs to shirk nor attend parliamentary meetings more regularly. The results also indicate that cleaner elections do not motivate politicians to substitute constituency service for legislative effort. The results may be explained by the fact that MPs can deliver constituency services when they visit their districts on the weekends or on Mondays when Parliament is not in session, or during their recess.

²⁷MPs must seek permission from the Speaker to excuse themselves from these meetings (Article 97(1c), 1992 Constitution).

²⁸The rate of absence with permission was about 3 percent, and including such absences does not impact the results.

Table 3: Similar absence rates in parliament among MPs elected from low and high intensely- monitored constituencies

	Full sample (1)	Intensity of Observation		ITT (4)
		Low (2)	High (3)	
Average absence rate	0.260 (0.019)	0.254 (0.030)	0.262 (0.023)	0.009 (0.039)
N	60	13	47	

Notes: Table 3 reports the intention-to-treat effect of intensity of observation on the absence of MPs from Parliamentary sessions. Columns (1)- (3) shows the means and standard errors for absence rate in the full sample, and the low and high intensities, respectively. Column 4 reports the average ITT effect. Each unit is weighted by the inverse of its treatment probability. Robust standard errors are reported in parentheses. Significance level indicated by * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ are based on two-sided hypothesis test.

5 Exploring the causal mechanism between election quality and responsiveness

In this section, I examine what might explain the causal relationship between high-quality elections, generated by intense election monitoring, and improved political responsiveness regarding constituency service. I argued above that election observation may strengthen the electoral connection by empowering citizens to either *select* quality candidates who in turn work hard in office, or by shaping incumbents' expectations that voters might *sanction* their poor performance. To distinguish between the two channels, I first draw on features of the initial randomization of AIOs, electoral outcomes, and data collected through closed-ended interviews with 47 of the 60 MPs in the study. Second, I report results from randomizing letters to 30 (of 60) MPs in the initial sample that informed them to expect intense monitoring in the next election.

My analyses suggest that the selection of better candidates through intensely monitored election may only play a minimal role in explaining the behavior of incumbents in this case for two main reasons. First, the intensity of election observation was not announced ahead of the 2012 elections when the initial experiment was implemented. Thus, the treatment could not have

influenced the candidate pool in the first stage of selection (Besley, 2005). Appendix A Table A.2 shows that an equal number of candidates contested across constituencies in each treatment condition. Second, although we show that the presence of observers reduced the level of fraud and violence at polling stations, I do not believe the effects were sufficient to influence who won the elections (second stage). While the treatment reduced the vote margins at the constituency level, especially in competitive districts, this reduction was not statistically significant. Also, the treatment did not produce legislators who were qualitatively different, on average, across multiple characteristics such as education, age, party affiliation, or term in office as I show in Appendix F Table F.1. While voters' choices may have been influenced by other candidate features that I do not capture here, based on the empirical evidence presented, the treatment is unlikely to have had a major influence on responsiveness through the selection of "quality" politicians.

Turning to the *sanction* mechanism, I provide tentative evidence to suggest that it provides a more plausible explanation for incumbents' behavior in this study. I argue that, for election observation at time $t-1$, to affect incumbents' performance during their terms in office (in time t), at least two conditions must hold. First, incumbents must be aware of the intensity of election observation in their constituencies in the prior election (at time $t-1$) and believe that monitoring was effective at reducing electoral fraud. Second, incumbents must believe that the intensity of election observation in their constituencies will be repeated during their reelection race (at time $t+1$), thus reducing their ability to rig their re-election balloting.

To test the first condition, I conducted closed-ended interviews with MPs to determine whether they were aware of the intensity of observation in their constituencies. I asked them if they saw observers at polling stations they visited during the 2012 polls. I find a positive association between a higher AIO and MPs reporting that they saw observers. A higher concentration of observers in a constituency increased the probability that an MP reported that he or she personally saw an observer at polling stations they visited by about 17 percentage points (41.67 percent in

low-AIO compared to 58.82 percent in high-AIO districts) ($p = 0.31$).²⁹ Moreover, MPs elected in intensely monitored elections reported that a higher proportion of polling stations (28 percent) was monitored in their constituencies, on average, compared to those who had fewer monitors (who reported that only 13 percent of stations were monitored), which represents a 15-percentage-point increase.³⁰ These estimates are similar to the concentration of monitors, on average, as shown in Table F.4 in Appendix F. While these results are not statistically significant at conventional levels they provide suggestive evidence that incumbents noticed the significant presence of observers in their constituencies during the 2012 election. I argue that this awareness, coupled with the reduction in fraud and violence induced by observers or the significant challenge in executing fraud pose by intense monitoring, signaled to MPs that they could not rely on future rigging.

Testing the second condition, that MPs' past experiences influence their beliefs about the future, is more challenging. It is not clear that incumbents' experiences with observers in their constituencies at time $t-1$ will automatically shape their beliefs about the intensity of observation in time $t+1$. While we can safely assume that MPs would expect some future monitoring in their constituencies because CODEO is credibly committed to observing each election, we cannot be certain about the *intensity* of observation that MPs would expect. Furthermore, we cannot be sure that these expectations map onto the treatment assignment in the 2012 elections. While the above results on the effect of AIO on politician performance imply incumbents were behaving as if they expected intense election observation, a randomized treatment to manipulate beliefs about future monitoring would allow making causal claims about the expectation of sanctioning mechanism.

To test the causal effect of expected intense monitoring on responsiveness, I analyze the outcome of my follow-up experiment that sent letters to half of the MPs in the sample a year before the 2016 elections.³¹ In Panel A of Table 4, Column (1) shows the average proportion

²⁹See Appendix F Table F.3.

³⁰See Appendix F Table F.4. Since only 18 MPs responded to this survey question, this result is not statistically significant and only suggestive.

³¹Table G.1 in Appendix G presents the actual spending levels.

of CDF spent in 2016 by incumbents elected in low-intensely monitored elections according to whether or not they received a letter to expect more observers. Column (2) shows that for MPs elected in intensely-monitored elections. Standard errors for the averages in each experimental cell is reported in parentheses. The conditional effects of the letters on spending is shown below Panel A, with standard errors presented in parentheses. Column (3) reports the weighted average treatment effect of the letter treatment. Note that the average ITT effects reported in Section 4 are consistent with the differences-in-means estimates of the average proportion of funds spent by incumbents elected in low vs. high AIOs who did not receive a letter (EIO) for all types of spending.

Consistent with expectations, the results presented in Panel A show that receiving a letter increased the proportion of CDF spent in 2016 by 4.9 (s.e. 0.08) percentage points (one-tailed test, $p = 0.265$), on average. Disaggregating the results by the initial AIO, I find an increase of 5.9 (s.e. 0.08) and 4.6 (s.e. 0.094) percentage points for incumbents elected in low- and high-AIO constituencies, respectively. These effects are large (although not statistically significant), representing about a 23 and 10 percent increase, respectively. Moreover, the spending by legislators in each of the experimental categories is consistent with predictions under the expectation of electoral sanction model (i.e., $d > c > b > a$) in section 1. The results suggest that these letters may have reinforced the initial treatment, boosting incumbents' fear of future sanctioning through fairer elections, and thus triggered additional effort (an additive effect).

Disaggregating these results into public goods (Panel B) and private goods (Panel C), the latter seems to drive the increase in CDF spending. Specifically, while MPs who received a letter did not substantially change their expenditure on public goods, they increased their spending on private benefits. Specifically, on average, the letter treatment increased spending on private benefit by 3.6 (s.e. 3.2) percentage points (one-tailed test, $p = 0.14$). For MPs who were elected in low-AIO districts, sending them a letter boosted their spending on individual benefits by 4.9 percentage points, a 58 percent increase. Those in high-intensity constituencies spent 3.2 percentage points

more, a 30 percent increase in their expenditure on private benefits, compared to if they had not received the letter.

In interpreting these results, I argue that the timing of the EIO treatment may explain the high levels of spending on private benefits. MPs had a year to respond to the treatment. While it may take a while to plan and execute more public infrastructure projects, it takes relatively less effort to underwrite constituents' school fees or medical bills, or to grant financial support to individuals to start businesses. Note that incumbents elected in the initial high-AIO treatment continued to spend more on public goods and that the letter-treatment effect only represents additional spending during this period. While such expenditures may be less responsive to the general public, they are consistent my expectations above (H1b).³²

Together, these results provide tentative causal evidence that expectations of high election-day monitoring can increase the responsiveness of incumbents. However, I acknowledge that a design with greater statistical power is required to confirm these results.

³²Indeed, such an increase in spending on private goods during an election year may raise concerns about vote buying. However, it is hard to infer vote buying from the type of spending I code as private goods, which includes paying out scholarships, apprenticeship fees, and medical bills. Indeed, Table E.6 shows no apparent trends in the effects of AIO over time, which implies that incumbents just further increase spending on an easier dimension. Future research could also vary the time to the next election when such information is sent to politicians to examine whether that affects the type of good produced.

Table 4: Effect of expectation of intense election monitoring conditional on prior intensity of observation

Type of spending	Expected IO	Intensity of observation Low (1)	High (2)	Weighted ATE of letter
Panel A: Utilization (total)				
	Received letter	0.318 (0.068) (N=9)	0.517 (0.071) (N=21)	
	No letter sent	0.259 (0.045) (N=4)	0.471 (0.062) (N=26)	
	Conditional ATEs of EOI (letters)	0.059 (0.082)	0.046 (0.094)	0.049 (0.075) CI 90%: [-0.074, 0.171] P-value =0.265
Panel B: Public Goods				
	Received letter	0.092 (0.022) (N=9)	0.282 (0.056) (N=21)	
	No letter sent	0.118 (0.024) (N=4)	0.266 (0.045) (N=26)	
	Conditional ATEs of EOI (letters)	-0.026 (0.033)	0.016 (0.072)	0.007 (0.056) CI 90%: [-0.083, 0.010] P-value =0.459
Panel C: Private Goods				
	Received letter	0.134 (0.039) (N=9)	0.137 (0.029) (N=21)	
	No letter sent	0.084 (0.038) (N=4)	0.105 (0.025) (N=26)	
	Conditional ATEs of EOI (letters)	0.049 (0.055)	0.032 (0.038)	0.036 (0.032) CI 90%: [-0.016, 0.089] P-value =0.138

Notes: Table 4 shows the proportion of legislator spending in each experimental cell. It also shows the effect of expectation of intense observation on spending conditional on prior intensity of election monitoring in MPs' constituencies (blocking variable), and the corresponding weighted ATEs. Randomization inference (accounting for the blocks) is used to generate the standard errors, 90% confidence intervals, and the one-tailed test of the sharp null of no effect for each MP for the estimated weighted ATEs. I conducted 10,000 simulations.

Further, I do not find support for two alternative explanations. The first indicates that the AIO treatment may have strengthened citizens' pressure on the incumbent to supply constituency service. Using Afrobarometer data of respondents sampled from my study constituencies, I show in Appendix Table F.5 that the treatment had no influence on the number of times constituents report to have contacted their MPs, attended community meetings, joined a group to raised an issue, request government action, contacted local government officials, or their beliefs that it the duty of voters to ensure MPs do their work once elected.³³ Second, the AIO treatment did not affect the number of candidates competing in the next election in 2016, which would indicate incumbents' fear of the entry of new challengers encouraged by cleaner elections (Besley, 2005; Grossman and Michelitch, 2018) (see Table F.6). Ghana's strong two-party system ensures that similar number of candidates usually run in each constituency.³⁴

6 Conclusion

In this article, I combine experimental research designs and original data on legislator spending and records on parliamentary attendance to investigate whether and how fair elections incentivize political responsiveness. The results indicate that legislators elected in electoral districts that were randomly assigned to intense election-day monitoring, and thus had limited opportunities for fraud, worked harder during their four-year terms in office to satisfy their constituents' demand for local public goods and services compared to those elected in constituencies with fewer observers. The treatment did not change MP's provision of private benefits to constituents (although a further exogenous shock that strengthened incumbents' beliefs about future intense monitoring a year before the elections increased spending on citizens' private needs). Experimental and observation

³³The AB data is not representative at the constituency level, but my analysis here captures the attitudes of citizens sampled from electoral districts in the different treatment conditions.

³⁴Also, it is unlikely that treatment influenced the performance of incumbents through their expectation that CODEO, the observation group, will monitor their spending and attendance in parliament because the organization does not conduct such audits.

data suggest that the effect of fairer election, induced by intense election observation, is better explained by incumbents' beliefs about their potential inability to rig their reelection polls, and that citizens' selection of better candidates to office, in the first place, played a minimal role. Together, these results provide, to my knowledge, one of the first systematic analysis of the causal relationship between election integrity and political responsiveness.

The results have implications for both pro-democracy actors and scholars of democratic consolidation and electoral fraud. For promoters of democracy, they suggest that systematic election monitoring by local civil society groups plays a significant role in promoting electoral integrity, which corroborates earlier findings, and that election observation eventually promotes democratic accountability. However, Ghana's strong two-party system and a well-established civil society groups, which regularly monitor national and local elections and make the threat of electoral sanction more credible, may drive these results. Accordingly, efforts to strengthen such independent civil society organizations, which now operates in more than 60 developing countries around the world (see Grömping, 2017), may be required to achieve similar results elsewhere. Future research in such settings using the research designed proposed in this study would provide a more robust test of the external validity of the findings. Also, while I focus on election observation, the primary findings suggest that institutions such as independent election management bodies, and biometric voter registration and voting systems that significant reduce electoral fraud hold the potential to improve political responsiveness. Finally, my findings suggests that because elections remain the primary mechanism through which citizens demand accountability from their representatives in many settings, attention must be paid not only to the regular conduct of elections, but also to strengthening their integrity.

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Online Appendix

A Summary statistics of sampled constituencies and covariate balance

Table A.1: Summary statistics of sampled constituencies

Variable	Constituencies		Min	Max	P-value (KS-test)
	Study region N= 122	Sample N= 60			
Part A: Constituency electoral characteristics					
# Polling stations	96.074 (30.707)	99.333 (30.049)	36	174	0.989
Log # Voters	10.788 (0.402)	10.830 (0.376)	9.399	11.630	0.598
# Candidates (2012)	4.496 (0.887)	4.517 (0.868)	3	8	0.996
Area (km. sq.)	651.986 (605.497)	711.375 (653.081)	3.064	3,710.232	0.996
Distance to constituency	185.681 (60.560)	183.182 (65.234)	27.951	321.141	0.989
Voter density (Area (km. sq.)/# voters)	817.401 (2,837.714)	501.435 (1,117.443)	3.256	25,611.890	1.000
Part B: Constituency characteristics-district census					
Rural population	0.587 (0.291)	0.557 (0.290)	0.00003	1	0.887
Proportion of pop. with electricity	0.586 (0.188)	0.584 (0.177)	0.258	0.893	0.985
Fuel (electric and gas)	0.112 (0.112)	0.111 (0.110)	0.006	0.358	1.000
Cement walls	0.532 (0.227)	0.539 (0.210)	0.076	0.886	0.911
Muslim population	0.105 (0.063)	0.107 (0.074)	0.009	0.445	1.000
Population in Agriculture	0.463 (0.247)	0.465 (0.240)	0.033	0.846	0.998
%Ashanti	0.256 (0.295)	0.257 (0.303)	0.001	0.855	1.000
%Fante	0.165 (0.250)	0.147 (0.231)	0.001	0.945	0.907
%Ewe	0.188 (0.300)	0.197 (0.318)	0.004	0.957	0.970
%Dagomba	0.007 (0.011)	0.008 (0.013)	0	0.088	1.000
Education (primary or less)	0.905 (0.062)	0.902 (0.068)	0.674	0.983	1.000
Employed	0.498 (0.047)	0.495 (0.046)	0.396	0.634	1.000

Notes: Table A.1 shows the summary statistics of constituencies in the four regions of the study and the sample. I obtained data on the electoral characteristics of constituencies from Ghana's Electoral Commission. To calculate distances from the capital to constituencies, I use the `geocode` function in the `ggmap` package in R to take the geocoordinates of constituency capitals. Using the geo-coordinates of Ghana's parliament, I calculated the euclidean distances between constituency capitals and the Parliament. Data on the socio-economic characteristics of constituencies are from Ghana's 2010 national census.

Table A.2: Covariate balance: AIO treatment (two treatment arms)

Variable	Intensity of observation (Treatment)		Min	Max	Diff-in-means	T-test <i>P</i> – value	KS-test <i>P</i> – value
	Low (13)	High (47)					
Part A: Constituency electoral characteristics							
# Polling stations	95.462 (29.028)	100.404 (30.544)	36	166	4.943	0.597	0.597
Log # voters	10.814 (0.367)	10.815 (0.423)	9.399	11.605	0.001	0.991	0.253
Log # valid votes (2012)	10.581 (0.300)	10.535 (0.400)	9.106	11.257	-0.045	0.660	0.660
# Candidates (2012)	4.500 (0.979)	4.521 (0.847)	3	6.500	0.021	0.944	0.991
Vote margin (2012)	0.311 (0.290)	0.320 (0.262)	0.012	0.873	0.009	0.922	0.536
Turnout (2012)	0.787 (0.044)	0.763 (0.048)	0.639	0.868	-0.024	0.103	0.365
Term of MP	1.462 (0.776)	1.979 (1.170)	1	5	0.517	0.070	0.685
Area (km. sq.)	526.984 (396.877)	762.376 (702.635)	13.387	3,710.232	235.392	0.127	0.616
Distance to constituency	182.374 (67.115)	183.930 (65.719)	27.951	320.692	1.556	0.942	0.972
Voter density	786.787 (1,345.280)	422.508 (1,048.844)	3.256	5,918.110	-364.279	0.380	0.546
Spatial segregation of partisans (Entropy)	0.090 (0.067)	0.092 (0.056)	0.019	0.249	0.002	0.922	0.721
Incumbent party	0.385 (0.506)	0.596 (0.496)	0	1	0.211	0.197	0.754
Part B: Constituency characteristics-district census							
Rural population	0.523 (0.311)	0.566 (0.286)	0.00003	0.956	0.044	0.654	0.754
Proportion of pop. with electricity	0.591 (0.178)	0.582 (0.178)	0.275	0.893	-0.008	0.884	0.963
Fuel (electric and gas)	0.117 (0.117)	0.109 (0.109)	0.006	0.358	-0.008	0.827	0.908
Cement walls	0.564 (0.227)	0.532 (0.208)	0.086	0.883	-0.032	0.655	0.980
Muslim population	0.099 (0.059)	0.110 (0.078)	0.009	0.445	0.011	0.581	0.972
Population in Agriculture	0.453 (0.266)	0.468 (0.235)	0.033	0.833	0.015	0.860	0.956
%Ashanti	0.303 (0.326)	0.244 (0.299)	0.001	0.855	-0.060	0.559	0.982
%Fante	0.125 (0.212)	0.153 (0.238)	0.001	0.944	0.028	0.684	0.804
%Ewe	0.190 (0.331)	0.199 (0.317)	0.004	0.957	0.009	0.932	0.997
%Dagomba	0.006 (0.009)	0.008 (0.014)	0	0.088	0.002	0.604	0.944
Education (primary or less)	0.899 (0.086)	0.903 (0.064)	0.674	0.983	0.005	0.860	0.997
Employed	0.494 (0.047)	0.496 (0.046)	0.396	0.598	0.002	0.887	0.877

Table A.3: Covariate balance: AIO treatment (three treatment arms)

Variable	Intensity of observation (Treatment)			ANOVA <i>P – value</i>
	Low N	Medium	High	
	(13)	(24)	(23)	
Part A: Constituency electoral characteristics				
# Polling stations	95.462 (29.028)	100.083 (31.887)	100.739 (29.791)	0.643
Log # Voters	10.814 (0.367)	10.788 (0.500)	10.844 (0.333)	0.776
Log valid votes (2012)	10.581 (0.300)	10.486 (0.470)	10.587 (0.313)	0.821
# Candidates (2012)	4.500 (0.979)	4.542 (0.920)	4.500 (0.783)	0.974
Vote margin (2012)	0.311 (0.290)	0.264 (0.238)	0.378 (0.278)	0.348
Turnout (2012)	0.787 (0.044)	0.758 (0.044)	0.768 (0.052)	0.389
Term of MP	1.462 (0.776)	2.167 (1.373)	1.783 (0.902)	0.613
Area (km. sq.)	526.984 (396.877)	929.261 (858.774)	588.236 (446.287)	0.911
Distance to constituency	182.374 (67.115)	182.697 (61.085)	185.216 (71.597)	0.891
Voter density	786.787 (1,345.280)	498.218 (1,327.712)	343.505 (666.657)	0.266
Spatial segregation of partisans (Entropy)	0.090 (0.067)	0.084 (0.036)	0.101 (0.071)	0.501
Incumbent party	0.385 (0.506)	0.708 (0.464)	0.478 (0.511)	0.867
Part B: Constituency characteristics-district census				
Rural population	0.523 (0.311)	0.588 (0.309)	0.544 (0.265)	0.930
Proportion of pop. with electricity	0.591 (0.178)	0.556 (0.192)	0.610 (0.162)	0.626
Fuel (electric and gas)	0.117 (0.117)	0.103 (0.120)	0.116 (0.098)	0.950
Cement walls	0.564 (0.227)	0.497 (0.216)	0.570 (0.196)	0.763
Muslim population	0.099 (0.059)	0.099 (0.046)	0.121 (0.101)	0.324
Population in Agriculture	0.453 (0.266)	0.510 (0.249)	0.424 (0.216)	0.581
%Ashanti	0.303 (0.326)	0.209 (0.292)	0.279 (0.309)	0.961
%Fante	0.125 (0.212)	0.217 (0.287)	0.086 (0.153)	0.420
%Ewe	0.190 (0.331)	0.176 (0.291)	0.222 (0.348)	0.720
%Dagomba	0.006 (0.009)	0.006 (0.008)	0.010 (0.019)	0.317
Education (primary or less)	0.899 (0.086)	0.919 (0.055)	0.887 (0.069)	0.465
Employed	0.494 (0.047)	0.510 (0.043)	0.481 (0.046)	0.264

Notes: *P-values* corresponding to *F-test* statistics obtained using analysis of variance(`aov()` in R) are shown in the table.

Table A.4: Covariate balance: post-election survey of citizens' assessment of 2012 incumbent MPs' performance and vote choice in 2018

Variable	Intensity of observation (Treatment)		Min	Max	Diff-in-means	T-test	KS-test
	Low N (12)	High (47)				<i>P – value</i>	<i>P – value</i>
Part A: 2012 Survey: respondent’s rating of 2012 incumbent performance							
Delivering public service to community	0.512 (0.171)	0.472 (0.177)	0.042	0.848	-0.041	0.474	0.845
Helping the national economy	0.438 (0.153)	0.406 (0.164)	0.029	0.750	-0.032	0.530	0.901
Improving your family’s economic situation	0.380 (0.134)	0.347 (0.170)	0.029	0.750	-0.033	0.485	0.757
Providing peace and security	0.509 (0.179)	0.512 (0.193)	0.058	1	0.004	0.951	0.940
Helping the poor	0.402 (0.147)	0.408 (0.181)	0.028	0.846	0.006	0.907	0.919
Managing country’s new oil revenues	0.422 (0.154)	0.368 (0.186)	0.029	0.750	-0.054	0.313	0.526
Part B: 2012 Survey: respondent’s party choices in 2008							
Prop. voting for NPP parliamentary candidate	0.423 (0.243)	0.421 (0.230)	0	0.818	-0.002	0.983	0.860
Prop. voting for NDC parliamentary candidate	0.413 (0.229)	0.446 (0.199)	0.111	0.950	0.033	0.659	0.625

Notes: Part A of Table A.4 shows balance for citizens' ratings for their MP who served 2009-2013 terms in a post-election survey (N=6176) that I conducted with my collaborators immediately after the 2012 elections. These ratings were in response to the question was: "How would you rate your incumbent MP's performance in the following areas?" Respondents had five options: "excellent," "good," "fair," "poor," and "don't know." I created a dummy with the the first two options taking a value of 1. Accordingly, the average across treatment represents the proportion of respondents who believed the incumbent had performed "excellent" or "good." Part B of Table A.4 reports voters' reported vote choice in the prior (2008) parliamentary elections. The data is then summarized at the constituency level. Standard standard deviations of the group means are reported in parentheses. *P-values* corresponding to a two-sample T-tests and Kolmogorov-Smirnov test are reported.

Table A.5: Covariate balance: letter treatment (EIO)

Variable	Incumbent received letter (Treatment)		Min	Max	Diff-in-means	T-test	KS-test
	No N= 30	Yes N= 30				<i>P</i> – value	<i>P</i> – value
Part A: Constituency electoral characteristics							
# Polling stations	103.767 (30.643)	94.900 (29.281)	36	166	-8.867	0.257	0.236
Log # Voters	10.855 (0.343)	10.775 (0.467)	9.399	11.605	-0.080	0.452	0.808
Proportion of monitored ps (2012)	0.224 (0.072)	0.216 (0.089)	0.085	0.457	-0.008	0.696	0.586
Log # Valid votes (2012)	10.576 (0.346)	10.514 (0.413)	9.106	11.257	-0.062	0.529	0.239
# Candidates (2012)	4.467 (0.850)	4.567 (0.898)	3	6.500	0.100	0.659	0.952
Vote margin (2012)	0.294 (0.259)	0.341 (0.275)	0.012	0.873	0.046	0.506	0.958
Turnout (2012)	0.775 (0.055)	0.761 (0.038)	0.639	0.868	-0.014	0.262	0.393
Term of MP	1.867 (1.224)	1.867 (1.008)	1	5	0	1	0.998
Area (km. sq.)	749.573 (572.144)	673.176 (733.055)	13.387	3,710.232	-76.398	0.654	0.808
Distance to constituency	191.094 (64.261)	176.092 (66.854)	27.951	320.692	-15.002	0.379	0.388
Voter density	455.650 (976.962)	547.219 (1,257.627)	3.256	5,918.110	91.568	0.754	0.808
Spatial segregation of partisans (Entropy)	0.100 (0.067)	0.084 (0.047)	0.019	0.249	-0.016	0.287	0.958
Incumbent party	0.567 (0.504)	0.533 (0.507)	0	1	-0.033	0.799	1
Part B: Constituency characteristics-district census							
Rural population	0.590 (0.286)	0.523 (0.294)	0.00003	0.956	-0.067	0.374	0.388
Proportion of pop. with electricity	0.575 (0.171)	0.593 (0.185)	0.275	0.893	0.019	0.684	0.952
Fuel (electric and gas)	0.100 (0.101)	0.122 (0.119)	0.006	0.358	0.023	0.430	0.799
Cement walls	0.520 (0.209)	0.559 (0.213)	0.086	0.883	0.039	0.474	0.388
Muslim population	0.119 (0.089)	0.096 (0.054)	0.009	0.445	-0.024	0.214	0.799
Population in Agriculture	0.483 (0.225)	0.446 (0.256)	0.033	0.833	-0.037	0.557	0.586
%Ashanti	0.264 (0.305)	0.249 (0.307)	0.001	0.855	-0.015	0.851	0.799
%Fante	0.163 (0.251)	0.130 (0.213)	0.001	0.944	-0.033	0.585	0.952
%Ewe	0.175 (0.297)	0.219 (0.340)	0.004	0.957	0.044	0.593	0.998
%Dagomba	0.008 (0.017)	0.007 (0.008)	0	0.088	-0.002	0.577	0.952
Education (primary or less)	0.909 (0.063)	0.896 (0.074)	0.674	0.983	-0.013	0.450	0.799
Employed	0.500 (0.042)	0.490 (0.050)	0.396	0.598	-0.009	0.436	0.952

Notes: Table A.5 shows the covariate balance for electoral and geographic variables across treatments. I ran 58 iterations of randomization until I obtained a treatment and control group where the smallest p-value associated with the covariates' difference in means was $p\text{-value} \geq 0.21$. This approach is referred to as “big stick” method (Bruhn and McKenzie, 2009). I used the `randomize` function from the `ri` package in R specifying the AIO as the block.

B Treatment letters

Figure B.1: Treatment: letter to Members of Parliament

PHONE:
EMAIL:
November 15, 2015

Dear **Hon. «MP»**:

As you may recall, I asked during our interview whether you or your agents saw independent election observers at polling stations in your constituency during last year's elections. In 2012, I was part of a research team from [redacted] that worked with CODEO to study the impact of observers on election day irregularities at a sample of the polling stations in the country. As part of this study, some constituencies were randomly selected to have a higher proportion (about 80 percent) of their polling stations monitored by observers during the polls.

We found that constituencies that had a higher proportion of their polling stations monitored by observers had lower incidence of electoral fraud. This was a credit to domestic election observation and the important role they play in promoting electoral integrity and democracy in Ghana.

To validate our finding, I am seeking to collaborate with CODEO to repeat this study in a random set of constituencies. While I await confirmation to implement this study, I have already selected my sample of constituencies and randomly assigned some to have about 80 percent of stations observed. As a courtesy, I want to inform you that your constituency happened to be one of those that will receive observers at 80 percent of stations.

I will get back in touch with you once I have confirmation that the study will go ahead, but I am at this point very hopeful that it will happen.

Sincerely,

Figure B.2: Treatment: follow-up letter to Members of Parliament

PHONE:
EMAIL:
April 15, 2016

«title» «MP_name_new»
«CON_NAME»
«address»
«location».

Dear Hon. «MP_name_new»:

Thank you for your participation in my MPs' survey last year (November and December, 2015).

As you may recall, I mentioned that I am seeking to collaborate with the Coalition of Domestic Election Observers (CODEO) to study the impact of domestic election observers on election day processes in Ghana's November 2016 general elections. While I await confirmation to implement this study, I have already selected my sample of constituencies and randomly assigned some to have about 80 percent of stations observed by CODEO monitors.

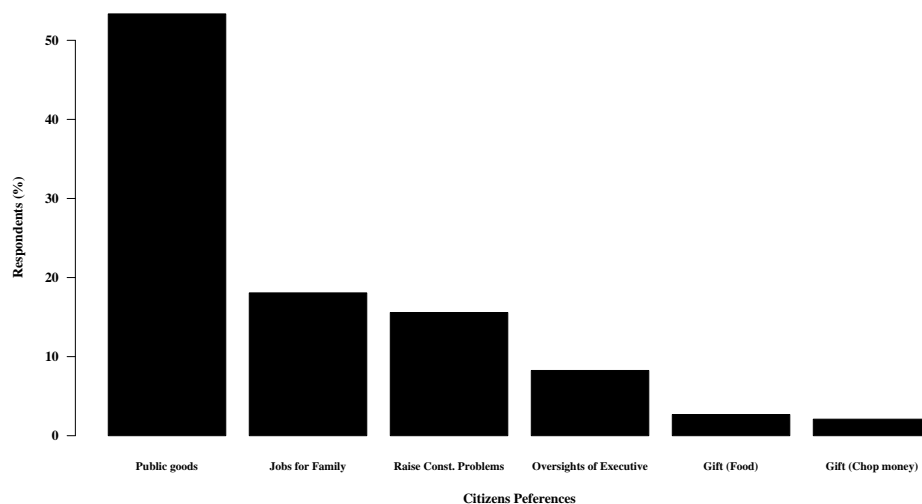
As a courtesy, **I want to remind you that your constituency is one of those that would receive observers at 80 percent of polling stations on election day.**

I will get back in touch with you once I have confirmation that the study will go ahead, but I am at this point very hopeful that it will happen.

Sincerely,

C What constituents want from their Members of Parliament in Ghana

Figure C.1: Constituents' preferences



Notes:

1. Response to the question: “You said you would probably vote for the parliamentary candidate of ...if the election was held today. Consider if another candidate from another party did one of the following things, and tell me which ONE could possibly make you switch.”
2. Source: Data shared by Cheeseman, Lynch, and Wallis (2015)

D Density distribution of dependent variables across treatment conditions

Figure D.1: Density plots of the percentages of CDFs used by MPs across treatments conditions

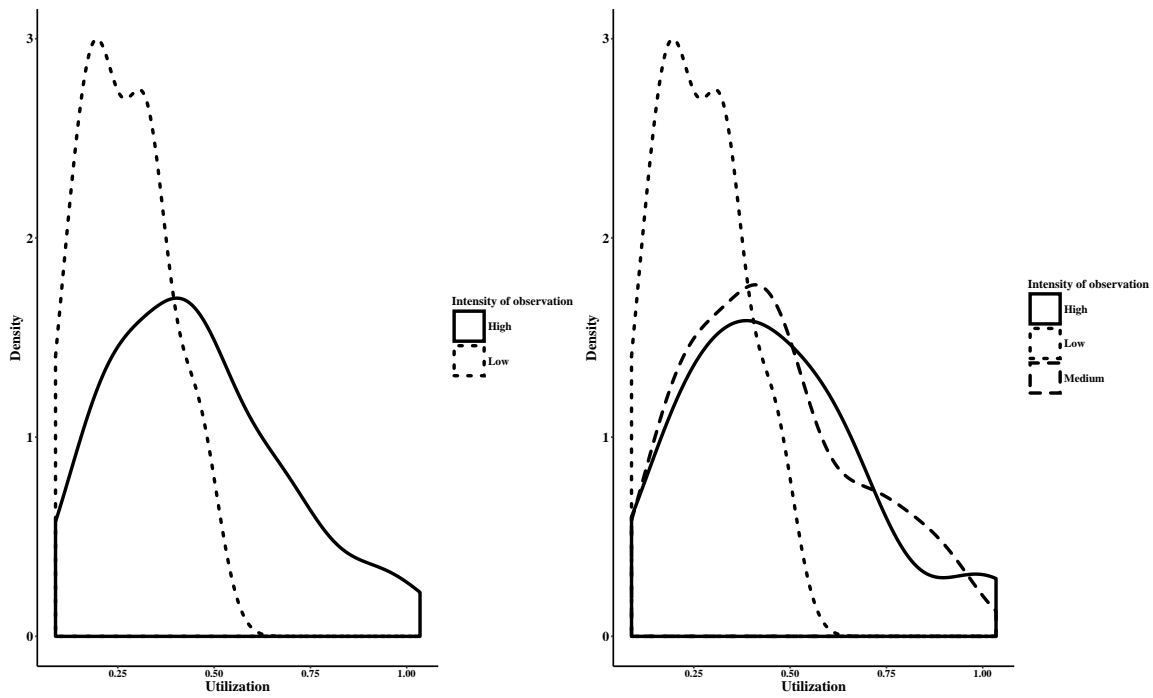
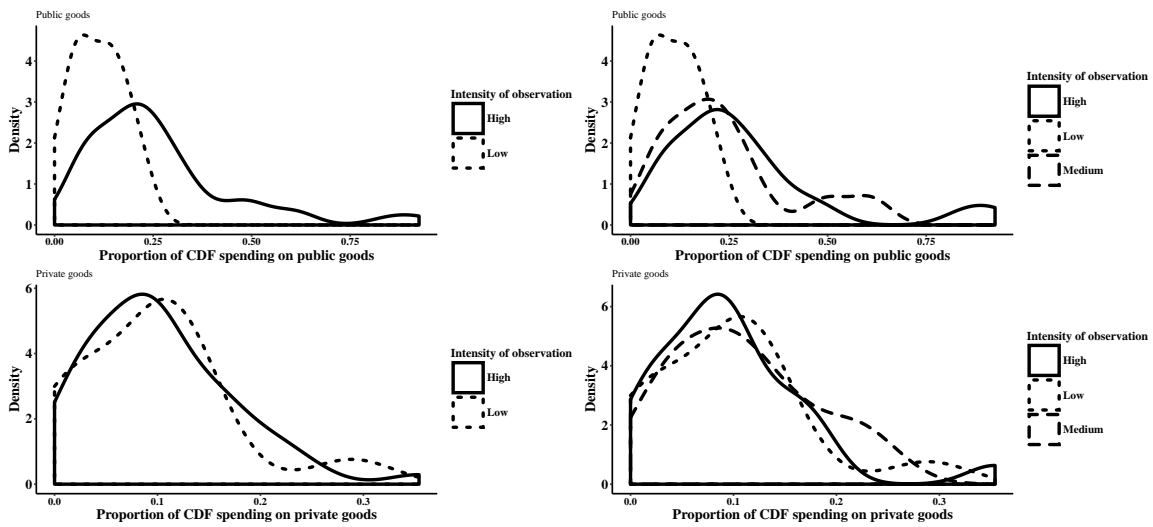


Figure D.2: Density plots of the percentages of CDFs used by MPs for public and private goods provision by treatment conditions



E Main Effect Tables and Robustness checks

In this section, I show that the main results reported in Section 4 across the three treatment arms. I also show that the results are robust to potentially influential observations or outliers. To ensure that the results presented in Section 4 are not artifacts of the small sample size, I use randomization inference to estimate 10,000 average ITTs under the sharp null hypothesis of no effect for each unit. Figure E.1 and E.3 show the distribution for the two and three treatment arms, respectively. To examine whether the results presented in Section 4 is not driven by one influential case, I reestimate the average ITT effects coefficients 59 times sequentially removing one observation at a time. The estimated ITT effects for *utilization*, and *public* and *private* expenditures are displayed in Figures E.2.

E.1 Main results

Table E.1: Average CDF spending across six expenditure categories by the intensity of election observation

Expenditure Category	Total GHC			2014 GHC			2015 GHC			2016 GHC		
	Intensity of Observation			Intensity of Observation			Intensity of Observation			Intensity of Observation		
	Low (1)	Medium (2)	High (3)	Low (4)	Medium (5)	High (6)	Low (7)	Medium (8)	High (9)	Low (10)	Medium (11)	High (12)
Public goods	140,041 (85,995)	299,421 (209,280)	366,009 (277,270)	17,744 (19,296)	45,913 (47,724)	51,548 (48,625)	70,845 (54,498)	119,611 (87,539)	174,306 (146,857)	51,451 (30,471)	139,719 (113,964)	140,155 (132,608)
Private goods	122,003 (95,047)	136,081 (88,798)	123,311 (96,892)	15,735 (17,445)	22,896 (24,496)	19,379 (17,404)	45,434 (34,476)	48,530 (36,506)	49,144 (38,327)	60,834 (54,550)	67,466 (59,401)	54,788 (71,832)
Donations to local groups	15,113 (16,207)	33,041 (32,489)	38,373 (48,103)	1,500 (3,030)	2,678 (3,353)	3,516 (7,886)	6,333 (10,098)	12,579 (25,800)	18,839 (30,494)	7,279 (9,140)	18,557 (23,077)	16,018 (23,608)
Transfers to local government	9,675 (17,452)	57,709 (75,222)	31,856 (69,932)	1,316 (2,571)	12,897 (19,345)	4,593 (9,647)	1,735 (3,748)	30,102 (64,134)	4,328 (6,246)	6,625 (16,268)	15,349 (21,367)	22,935 (67,526)
Monitoring and office expense	3,282 (3,862)	12,569 (17,890)	6,865 (11,533)	1,119 (1,898)	2,925 (11,025)	2,353 (5,539)	829 (1,909)	4,248 (7,215)	1,425 (3,644)	1,334 (2,404)	5,631 (10,792)	3,087 (6,972)
Unclear purposed expenditure	46,516 (61,455)	22,506 (40,568)	19,885 (28,982)	4,806 (16,501)	3,551 (7,536)	1,192 (3,386)	15,330 (27,414)	8,126 (15,310)	9,367 (21,510)	26,380 (43,123)	11,300 (34,554)	9,326 (19,238)
Total	336,630 (144,758)	561,328 (284,893)	586,299 (304,484)	42,221 (28,445)	90,860 (69,452)	82,580 (59,078)	140,506 (67,151)	223,197 (141,639)	257,409 (146,699)	153,903 (89,591)	258,022 (159,395)	246,310 (164,706)

Notes:

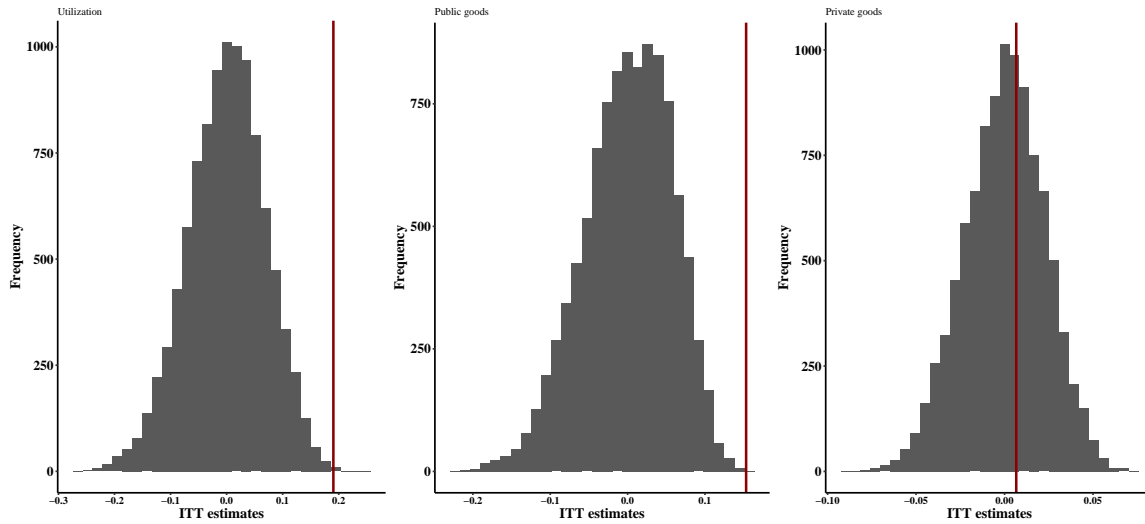
1. Table 2 shows the average amount of CDF funds spent by Members of Parliament (MPs) in the sample between 2014 and 2016 by treatment conditions. Standard deviations are reported in parentheses. Columns (1)-(2) shows total for the three year period while columns (3)-(8) breaks the spending for each year by treatment. These estimates suggest that MPs elected through intensely monitored election spent more of their available funds overall and in each year compared to their counterparts elected in constituencies with fewer monitors. Amounts are in Ghana Cedis (GHC) (\$1 \approx 4).
2. *Source:* Author's coding of original expenditure sheets collected from Ghana's District Assemblies' Common Fund Administration.

Table E.2: ITT effect of intensity of observation on the use of CDF

	Intensity of Observation		ITT	P-value (RI)
	<i>Low</i>	<i>High</i>		
Utilization	0.266 (0.032)	0.457 (0.033)	0.190*** (0.047)	0.006
Public Goods	0.111 (0.019)	0.264 (0.028)	0.153*** (0.034)	0.0079
Private Goods	0.096 (0.021)	0.103 (0.011)	0.007 (0.024)	0.7739

Notes: Members of Parliament elected in high intensely monitored constituencies spent more of their available CDFs between 2014 and 2016 compared to those elected from low-intensely monitored electoral districts. Two-tailed randomization inference (RI) based on 10,000 permutation of the initial randomization. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Figure E.1: Distribution of average ITTs generated using randomization inference under the null hypothesis tests for main results (two treatment arms)



Notes: The red vertical lines indicate the estimated average ITT effect.

Figure E.2: Estimates of the ITT effect of intensity of observation on MPs' use of CDFs is not driven by a single case

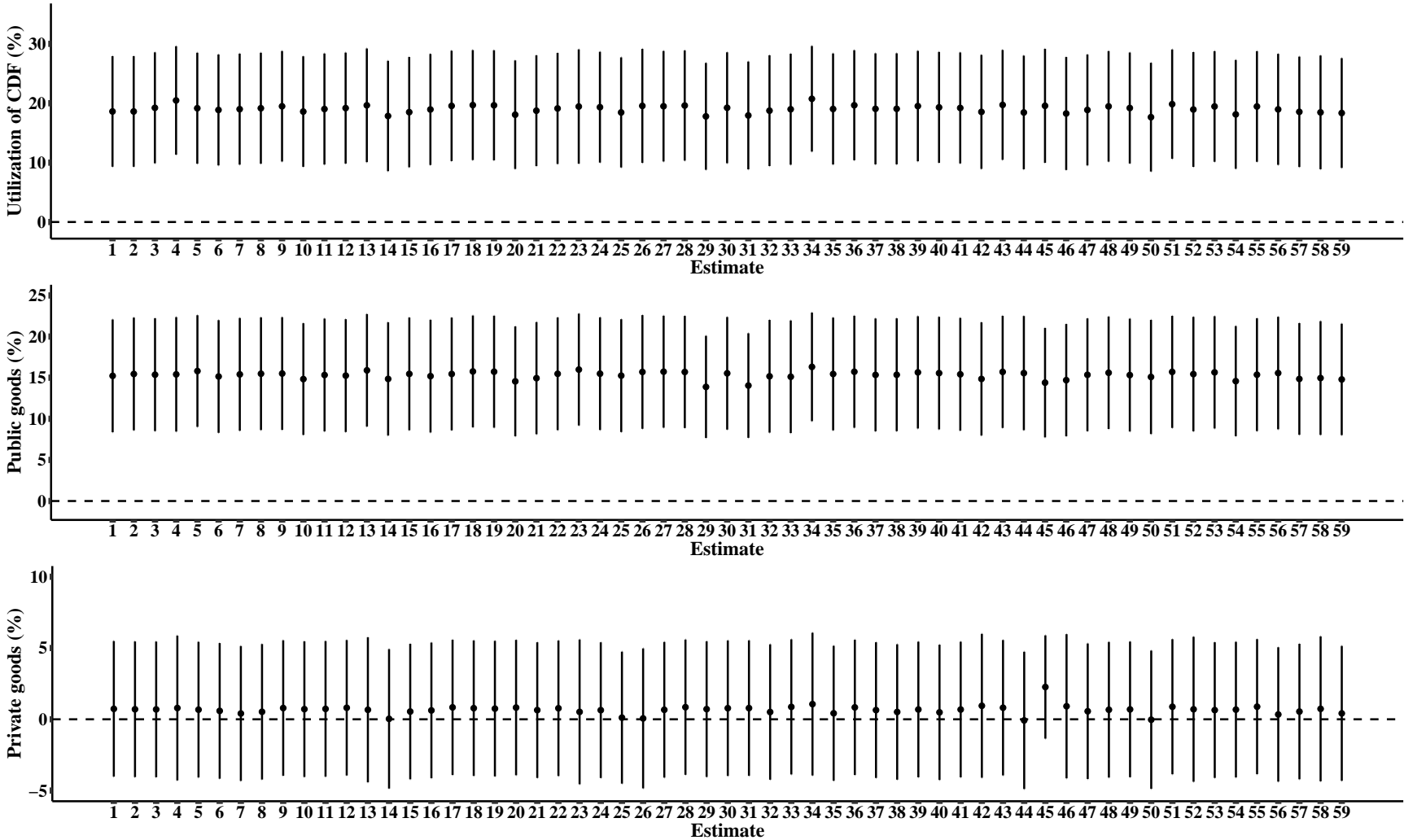
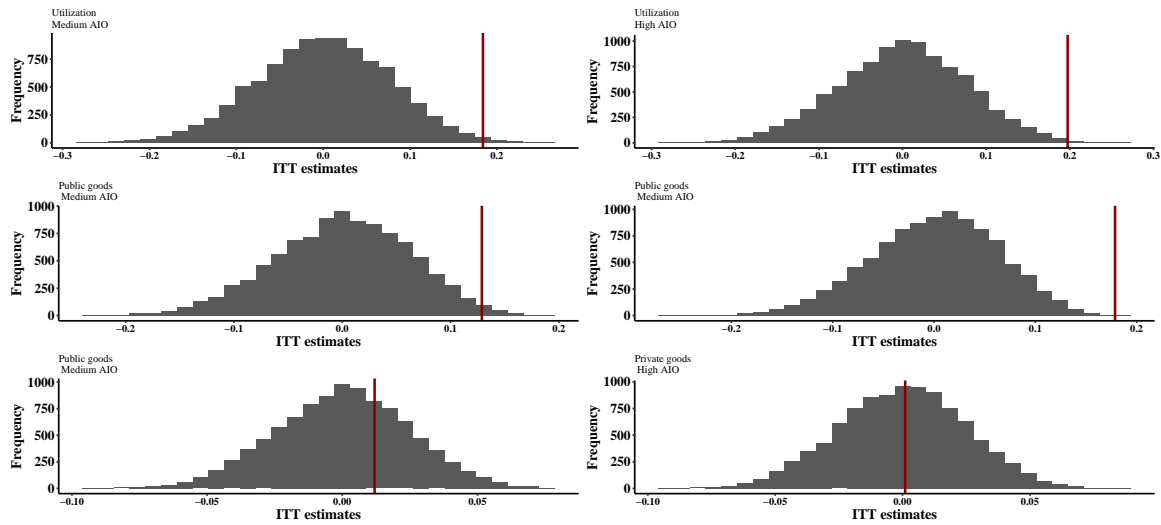


Table E.3: ITT effect of intensity of observation on CDF use across three treatment arms

	<i>Dependent variable:</i>		
	Utilization (1)	Public goods (2)	Private goods (3)
Medium AIO	0.184*** (0.057) [0.015]	0.129*** (0.039) [0.037]	0.012 (0.026) [0.629]
High AIO	0.197*** (0.061) [0.008]	0.179*** (0.051) [0.004]	0.001 (0.027) [0.969]
Constant	0.266*** (0.033)	0.111*** (0.020)	0.096*** (0.022)
Observations	60	60	60
R ²	0.184	0.191	0.006
Adjusted R ²	0.155	0.163	−0.029

Notes: *P* – values generated from a two-tailed RI tests based on 10,000 permutation of the initial randomization are reported in brackets for each ITT estimate. *p<0.1; **p<0.05; ***p<0.01

Figure E.3: Distribution of ITTs generated from randomization inference under the null hypothesis tests using the three treatment arms



Notes: The red vertical lines indicate the estimated ITTs.

E.2 Average ITT effects of AIO: other expenses, over time, control for co-partisanship with local mayor, and clustering errors at district-level

Table E.4: ITT effect of intensity of observation on the use of CDF for other types of expenses

	<i>Dependent variable:</i>			
	Donations to local groups	Transfers to LGs	Monitoring and office expenses	Unclear expenses
	(1)	(2)	(3)	(4)
Medium AIO	0.015** (0.007)	0.040*** (0.013)	0.007** (0.003)	-0.019 (0.016)
High AIO	0.018** (0.009)	0.018 (0.012)	0.003 (0.002)	-0.021 (0.015)
Constant	0.012*** (0.004)	0.008* (0.004)	0.003*** (0.001)	0.037** (0.014)
Observations	60	60	60	60
R ²	0.085	0.112	0.093	0.068
Adjusted R ²	0.053	0.081	0.061	0.035

Notes: *p<0.1; **p<0.05; ***p<0.01

Table E.5: ITT effect of intensity of observation on the use of CDF use adjusting for partisan affiliation

	<i>Dependent variable:</i>						
	Utilization	Public goods	Private goods	Donations	Transfers to LG	Monitoring/Office expenses	Unclear
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Medium AIO	0.117* (0.062)	0.094** (0.046)	0.005 (0.026)	0.010 (0.007)	0.026** (0.012)	0.005* (0.003)	−0.023 (0.017)
High AIO	0.178*** (0.053)	0.169*** (0.047)	−0.001 (0.027)	0.017* (0.009)	0.014 (0.011)	0.002 (0.002)	−0.022 (0.015)
Incumbent party (NDC=1)	0.206*** (0.053)	0.106** (0.047)	0.022 (0.020)	0.014* (0.008)	0.042*** (0.012)	0.008*** (0.002)	0.014 (0.009)
Constant	0.187*** (0.039)	0.070** (0.029)	0.088*** (0.025)	0.007 (0.006)	−0.008 (0.006)	−0.001 (0.001)	0.031*** (0.012)
Observations	60	60	60	60	60	60	60
R ²	0.327	0.212	0.028	0.109	0.227	0.206	0.100
Adjusted R ²	0.291	0.170	−0.024	0.061	0.185	0.164	0.051

Notes: *p<0.1; **p<0.05; ***p<0.01

Table E.6: ITT effect of intensity of observation on the use of CDF by year

	<i>Dependent variable:</i>						
	Utilization (1)	Public goods (2)	Private goods (3)	Donations (4)	Transfers to LG (5)	Monitoring/Office expenses (6)	Unclear (7)
Panel A: 2014							
Medium AIO	0.140*** (0.048)	0.081** (0.033)	0.021 (0.021)	0.003 (0.003)	0.033*** (0.012)	0.005 (0.007)	−0.004 (0.014)
High AIO	0.116*** (0.043)	0.097*** (0.034)	0.010 (0.018)	0.006 (0.005)	0.009 (0.006)	0.004 (0.004)	−0.010 (0.014)
Constant	0.121*** (0.024)	0.051*** (0.016)	0.045*** (0.014)	0.004* (0.003)	0.004* (0.002)	0.003** (0.002)	0.014 (0.014)
Observations	60	60	60	60	60	60	60
R ²	0.096	0.085	0.018	0.019	0.114	0.008	0.025
Adjusted R ²	0.065	0.053	−0.016	−0.015	0.083	−0.027	−0.009
Panel A: 2015							
Medium AIO	0.205** (0.088)	0.121** (0.060)	0.008 (0.031)	0.015 (0.015)	0.070** (0.033)	0.008** (0.004)	−0.018 (0.021)
High AIO	0.290*** (0.091)	0.256*** (0.087)	0.009 (0.032)	0.031* (0.018)	0.006 (0.004)	0.001 (0.002)	−0.015 (0.023)
Constant	0.348*** (0.048)	0.175*** (0.039)	0.113*** (0.025)	0.016** (0.007)	0.004 (0.003)	0.002 (0.001)	0.038* (0.020)
Observations	60	60	60	60	60	60	60
R ²	0.104	0.120	0.002	0.035	0.097	0.081	0.018
Adjusted R ²	0.072	0.089	−0.033	0.001	0.066	0.049	−0.016
Panel A: 2016							
Medium AIO	0.203** (0.083)	0.172*** (0.050)	0.013 (0.039)	0.022** (0.011)	0.017 (0.013)	0.008* (0.005)	−0.029 (0.028)
High AIO	0.180** (0.085)	0.173*** (0.058)	−0.012 (0.043)	0.017 (0.011)	0.032 (0.030)	0.003 (0.003)	−0.033 (0.026)
Constant	0.300*** (0.050)	0.100*** (0.017)	0.119*** (0.031)	0.014*** (0.005)	0.013 (0.009)	0.003* (0.001)	0.051** (0.024)
Observations	59	59	59	59	59	59	59
R ²	0.074	0.104	0.008	0.042	0.019	0.043	0.045
Adjusted R ²	0.040	0.072	−0.027	0.008	−0.016	0.009	0.011

Notes: *p<0.1; **p<0.05; ***p<0.01

Table E.7: Robustness: ITT effect of intensity of observation on the use of CDF

	<i>Dependent variable:</i>						
	Utilization (1)	Public goods (2)	Private goods (3)	Donations (4)	Transfers to LG (5)	Monitoring/Office expenses (6)	Unclear (7)
Medium AIO	0.184*** (0.054)	0.129*** (0.038)	0.012 (0.025)	0.015** (0.006)	0.040*** (0.013)	0.007** (0.003)	−0.019 (0.015)
High AIO	0.197*** (0.060)	0.179*** (0.050)	0.001 (0.029)	0.018** (0.008)	0.018 (0.012)	0.003 (0.002)	−0.021 (0.014)
Constant	0.266*** (0.031)	0.111*** (0.019)	0.096*** (0.021)	0.012*** (0.004)	0.008** (0.004)	0.003*** (0.001)	0.037*** (0.013)
Observations	60	60	60	60	60	60	60
R ²	0.127	0.134	0.006	0.057	0.085	0.072	0.060
Adjusted R ²	0.096	0.104	−0.029	0.023	0.053	0.039	0.027

Notes: Robust standard errors clustered at the district level are reported in parentheses. *p<0.1; **p<0.05; ***p<0.01

F Testing the mechanisms through which electoral integrity affect MPs' behavior

Table F.1: The intensity of observation has no effect on the characteristics of elected candidates

Incumbents Characteristics	N	Intensity of observation			P-value
		Low	Medium	High	
# Parliamentary Terms-incumbent MP	60	1.4615	2.1667	1.7826	0.6131
Female	60	0.0769	0.1667	0.00	0.2652
Minister	60	0.1538	0.2083	0.00	0.0953
Incumbent Party MP	60	0.3846	0.7083	0.4783	0.8666
Age	60	47.6923	50.2917	45.4348	0.2309
Highest education	60	5.0769	5.1667	5.1304	0.9073

Note: Data on MPs' gender, age, and education was coded from the handbook "Know Your MPs (2013-2017)." (Vieta, 2013). I coded incumbents' term in office and party affiliation using election results obtained from Ghana's Electoral Commission. I coded ministerial status from parliamentary records. While there are substantive differences across treatment regarding MPs' gender, ministerial position, and co-partisanship with the president (and thus the local mayor), Table F.2 shows that only the latter is significantly associated with the dependent variable (CDF spending). Voters may have chosen candidates who belonged to the incumbent party, who they believe can spend more of their CDF. However, the main results in this paper do not substantively change when I account for co-partisanship with the local mayor (see Table E.5). The group means and p-values corresponding to the F-test statistic of all three treatment conditions are shown in the last column of the table.

Table F.2: Association between MPs characteristics and CDF spending

	<i>Dependent variable:</i>						
	CDF spending						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
# Parliamentary Terms-incumbent MP	-0.001 (0.027)						0.019 (0.029)
Female		0.037 (0.105)					0.022 (0.112)
Minister			0.131 (0.111)				0.025 (0.139)
Incumbent Party MP (NDC)				0.216*** (0.050)			0.202*** (0.058)
Age					0.007* (0.004)		0.002 (0.004)
Highest Education						0.033 (0.029)	0.019 (0.026)
Constant	0.416*** (0.058)	0.412*** (0.031)	0.400*** (0.030)	0.296*** (0.030)	0.091 (0.173)	0.245 (0.150)	0.061 (0.226)
Observations	60	60	60	60	60	60	60
R ²	0.00001	0.002	0.036	0.238	0.053	0.021	0.259
Adjusted R ²	-0.017	-0.015	0.020	0.224	0.037	0.004	0.175

Note:

*p<0.1; **p<0.05; ***p<0.01

Table F.3: Suggestive evidence that MPs elected in higher-intensity of observation are more likely to report they saw an observer at a polling station they visited

	<i>Actual Intensity of Observation</i>	
	Low	High
MP saw Observers	41.67 (5)	58.82 (20)
MP did not see observers	58.33 (7)	41.18 (14)

Notes: Specific question: “Did you personally see observers at some of the polling stations you visited?” N= 46 MPs, Chi-squared= 1.05, P-value= 0.31

Table F.4: Suggestive evidence that MPs were aware of the intensity of observation within their constituencies

	<i>Intensity of Observation</i>		<i>ITT</i>
	Low	High	
MPs estimate of intensity of observation	0.133 (0.153)	0.283 (0.312)	0.150 (0.136)
N	3	15	
Empirical intensity of observation	0.145 (0.054)	0.249 (0.077)	0.104*** (0.021)
N	13	47	

Note: Table F.4 (upper panel) report the average of MPs’ estimates of the proportion of polling stations in their constituencies that were monitored by election observers with standard deviations reported in parentheses. Their estimates were in response to the question: *For every twenty (20) polling stations in your constituency, how many would you say were monitored by domestic election observers.* Table F.4 (lower panel) also provide the average of the empirical saturation of observation across the three treatment intensities below these estimates with standard deviations reported in parentheses. Empirical intensity of observation refers to the actual proportion of polling stations within the entire constituency, and not the experimental sample, that were monitored by observers. *p<0.1; **p<0.05; ***p<0.01

Table F.5: The intensity of election observation in a constituency neither affected citizens' pressures on MPs or government officials to provide public goods and services

	<i>Dependent variable:</i>					
	Contacted MP (1)	Attended Community Meeting (2)	Joined Group to Raise Issue (3)	Requested Government Action (4)	Contacted Government Official (5)	Voters' Duty that MPs' Work (6)
High Intensity of Observation	−0.020 (0.034)	−0.022 (0.087)	−0.063 (0.051)	−0.041 (0.049)	0.003 (0.028)	0.026 (0.056)
Constant	0.123*** (0.029)	0.453*** (0.077)	0.406*** (0.042)	0.170*** (0.045)	0.132*** (0.023)	0.358*** (0.047)
Observations	447	447	447	447	447	447
R ²	0.001	0.0003	0.003	0.003	0.00001	0.001
Adjusted R ²	−0.001	−0.002	0.001	0.0003	−0.002	−0.002

Notes: Table F.5 presents results from analysis of Ghana's Afrobarometer Round 6 data conducted in 2014. I analyze questions related to potential increase in citizens pressures on MPs within constituencies to deliver public goods as a results of the treatment. For easy analysis and interpretation of results, I coded these questions as dummies indicating whether citizens took the stated action. The specific questions are as follows: Column (1): "During the past year, how often have you contacted any of the following persons about some important problem or to give them your views: A Member of Parliament"; Columns (2)-(3): "Here is a list of actions that people sometimes take as citizens. For each of these, please tell me whether you, personally, have done any of these things during the past year": Attended a community meeting (Column (2)), and Got together with others to raise an issue (Column (3)). Columns (4)- (5) : "Here is a list of actions that people sometimes take as citizens when they are dissatisfied with government. For each of these, please tell me whether you, personally, have done any of these things during the past year. If not, would you do this if you had the chance?": Joined others in your community to request action from government" (Columns (4)) ; and Contacted a government official to ask for help or make a complaint (Column (5)). Column (6): "Who should be responsible for: Making sure that, once elected, Members of Parliament do their jobs?" [Coding: The voters (1) as oppose to The president/executive or The Parliament/local council, or their political party (0)]. Standard errors are clustered at the constituency level. *p<0.1; **p<0.05; ***p<0.01

Table F.6: Effect of AIO on the number of candidates and female candidates in 2016

	<i>Dependent variable:</i>	
	Number of candidate	Number of Female candidates
	(1)	(2)
Medium AIO	−0.058 (0.344)	0.199 (0.226)
High AIO	0.258 (0.361)	0.311 (0.209)
Constant	4.308*** (0.247)	0.385** (0.146)
Observations	60	60
R ²	0.017	0.026
Adjusted R ²	−0.017	−0.008
<i>Note:</i>		*p<0.1; **p<0.05; ***p<0.01

G Effect of expectation of intense monitoring on CDF spending

Expenditure category	Intensity of Observation			
	Low		High	
	MP received letter to expect high observation			
	No	Yes	No	Yes
Public goods	60,555 (25,063)	47,405 (33,126)	136,225 (115,993)	144,356 (132,087)
Private goods	43,314 (39,418)	68,621 (60,492)	53,617 (64,456)	70,067 (67,154)
Donations to local groups	12,927 (11,714)	4,769 (7,128)	16,816 (22,861)	17,849 (23,975)
Transfers to local government	1,375 (2,750)	8,958 (19,345)	15,933 (30,258)	22,964 (66,514)
Monitoring and office expense	0 (0)	1,926 (2,717)	4,004 (8,852)	4,781 (9,537)
Unclear purposed expenditure	14,786 (29,572)	31,533 (48,624)	14,888 (35,424)	4,867 (12,633)
Total	132,957 (46,187)	163,213 (104,513)	241,482 (158,274)	264,885 (165,813)
N	4	9	25	21

Table G.1: Average legislator CDF spending by intensity of observation and expectation of future high monitoring in 2016

Table G.2: Average treatment effect of letter on other expense categories

	<i>Dependent variable:</i>			
	Donations to local groups	Transfers to LGs	Monitoring and office expenses	Unclear expenses
	(1)	(2)	(3)	(4)
Received letter (=1)	−0.0005 (0.012)	0.014 (0.027)	0.002 (0.005)	−0.012 (0.015)
High (medium and high) AIO	0.019** (0.009)	0.028 (0.021)	0.006* (0.003)	−0.034 (0.025)
Constant	0.015 (0.010)	0.003 (0.020)	0.001 (0.003)	0.060** (0.025)
Observations	59	59	59	59
R ²	0.028	0.016	0.020	0.047
Adjusted R ²	−0.006	−0.019	−0.015	0.013

Note:

*p<0.1; **p<0.05; ***p<0.01

Notes: Units are weighted by the inverse probability treatment that accounts for the block randomization procedure.
*p<0.1; **p<0.05; ***p<0.01

H Total causal effect of observers on fraud and violence

H.1 Saturation design: two-stage randomization of observers

In this section, I fully describe the research design reported in Asunka et al. (2017). The experimental design involves a two-stage randomization of treatment (i.e., observation). In the first stage, we assigned the 60 constituencies in our study to one of three *intensity of observation (IO)* levels: *low*, *medium*, or *high*. We then randomly sampled 30 percent of polling stations from each of our selected constituencies to form our study sample. In *low* intensity constituencies, CODEO agreed to send observers to 30 percent of polling stations in the sample. In the *medium* and *high* intensities, CODEO deployed observers to 50 percent and 80 percent of polling places of the study samples, respectively. We assigned the 60 constituencies to low IO with 20 percent probability and to medium and high IOs with 40 percent probabilities.³⁵ Thirteen constituencies were assigned

³⁵Our decision to adopt these probabilities was based on how we compute spillover effects of observers. See authors for details.

to low IO, while 24 and 23 were assigned to medium and high, respectively. Figure H.1 shows the treatment conditions of constituencies in the sample. CODEO also deployed monitors to the remain constituencies outside our sampled constituencies using their own protocols.

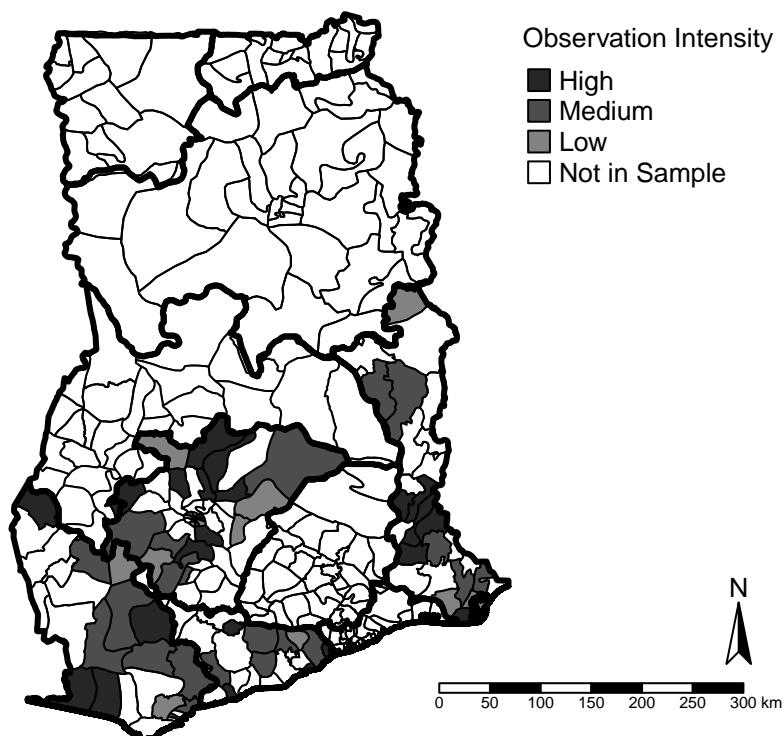
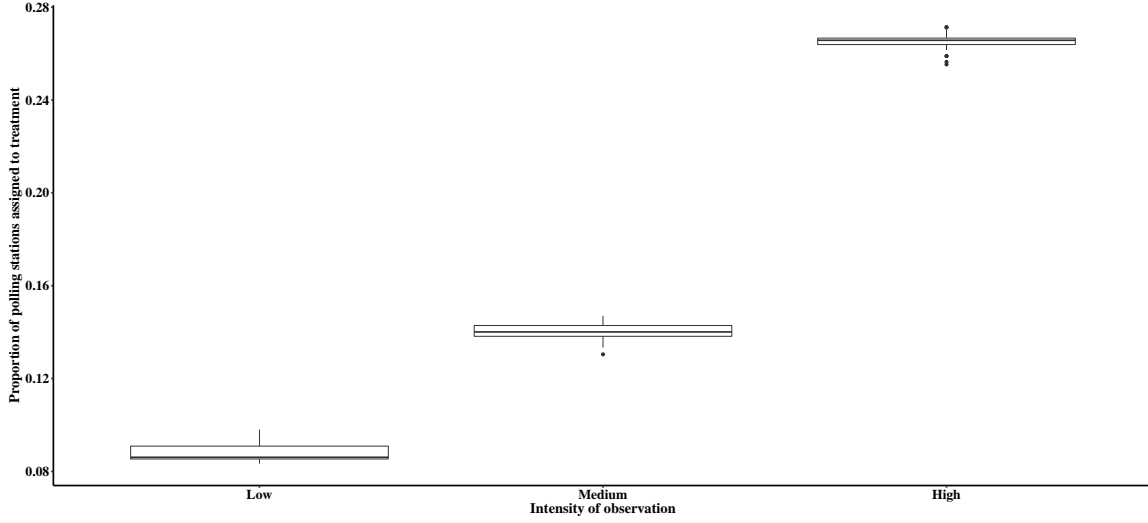


Figure H.1: Map of Ghana: treatment conditions of constituencies

In the second stage, we assigned our sampled polling stations nested within each of the 60 constituencies to treatment (i.e., *observation*) with probabilities based on the intensities assigned to their constituencies in the first stage. Therefore, the actual concentration of observers in a constituency is $m * 0.3 * PS$, where PS represent the total number of polling stations in a constituency and $m \in \{0.3, 0.5, 0.8\}$ represent the assigned intensity of observation. There were 2,310 polling stations in the sample and 1,292 were assigned to treatment. Figure H.2 shows the distribution of the proportion of polling stations in the entire constituencies assigned to receive observers by treatment saturation.

Figure H.2: Distribution of the proportion of polling stations in constituencies assigned to treatment by saturation



H.2 Measuring the total causal effect of intensity of observation on electoral fraud

To estimate the total average causal effect of observers at the constituency level, TCE , I compare the average fraud and violence outcomes for all stations (treated and control) at medium (high) IO constituencies to the average outcome in control units in low IO constituencies. The control stations in the low IO constituencies serve as the estimate of the level of fraud in the absence of observers at a given IO taking into account potential spillover effects. Thus, I calculate the $TCE(m)$ as follows:

$$TCE(m) = E(Y_{ij} | M_j = m) - E(Y_{ij} | T_{ij} = 0, M_j = low)$$

where $E(Y_{ij} | M_j = m)$ is the average level of fraud or violence for polling station i located in constituency j with intensity of observation $m \in \{medium, high\}$. $E(Y_{ij} | T_{ij} = 0, M_j = low)$ measures the average outcome for all control stations in *low* IO constituencies. $T_{ij} = t$ represents the

treatment status of polling station i located in constituency j , where $t \in \{\text{treated} = 1, \text{control} = 0\}$.

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H.3 First-stage results of treatment

Table H.1 reports the treatment effect of IO on fraud and violence. I include the results for indicators of fraud and violence, *turnout* and *intimidation of voters* during voting, reported in (Asunka et al., 2017). To be sure, turnout is not fraudulent in itself. It only serve as an indicator of fraud insofar as they systematically vary with randomly placed observers. That is, in the absence of fraud in the form of multiple voting and ballot stuffing, we should expect similar turnout rates and vote counts for parties, on average, in treated (monitored) and control (unmonitored) polling stations.

Columns (1) and (2) report the TCEs of intensity of the IO on turnout and intimidation of voters in the full sample. Columns (3 and 4) and (5 and 6) breaks these results by levels of electoral competition at the constituency level. These first-stage results (discussed in section 3) suggest that increasing the intensity of observation in a constituency reduces overall levels of fraud and violence. Further, they justify using IO as an instrument for the integrity of elections.

³⁶Based on the operational structures of political parties in Ghana, we assume that spillover effects will be confined within constituencies. That is, we assume no interference across constituencies.

Table H.1: Higher intensity of election observation reduces constituency-level fraud and violence

	<i>Dependent variable:</i>					
	Full sample		Competitive constituencies		Non-competitive constituencies	
	Turnout	Intimidation of voters	Turnout	Intimidation of voters	Turnout	Intimidation of voters
	(1)	(2)	(3)	(4)	(5)	(6)
Medium intensity of observation	−0.056* (0.032)	−0.004 (0.049)	−0.095* (0.054)	0.104 (0.080)	−0.032 (0.034)	−0.069 (0.049)
High intensity of observation	−0.055* (0.030)	−0.054 (0.036)	−0.102* (0.053)	0.015 (0.027)	−0.026 (0.031)	−0.091* (0.048)
Constant	0.889*** (0.027)	0.102*** (0.035)	0.920*** (0.049)	0.039* (0.023)	0.871*** (0.026)	0.135*** (0.047)
Observations	1,622	1,554	667	639	955	915
R ²	0.005	0.009	0.012	0.025	0.002	0.012
Adjusted R ²	0.003	0.008	0.009	0.022	−0.0005	0.010

Notes: I use two indicators of election-day fraud and violence: *turnout* and *intimidation during voting*. The unit of analysis is the polling station. Columns 1 and 2 shows the results for these two indicators in the full sample while columns 3 and 4, and 5 and 6 shows those for competitive and non-competitive constituencies, respectively. The *Total Causal Effect (TCE)* represents the *overall effect* of observers within constituencies monitored adjusting for potential spillover effects. Standard errors reported in parentheses are clustered at the constituency level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

I Measuring responsiveness: use of Constituency Development Funds

I use legislators' spending of their state-provided CDFs as my measure of responsiveness regarding constituency service. I use monthly reports of MPs' expenses to record and classify the type of goods and services to which MPs allocate their funds. Figures I.1 and I.2 provide examples of the expense sheets I coded. These records submitted by the local government (District Assembly) of the MPs are available at the Ghana District Assemblies' Common Fund Administration (DACF) at Accra in Ghana. I coded MPs expenses between 2014 and 2016 that were available in the archives of the DACF office. Between this period I coded 2,160 months of expenditure sheets for 60 MPs. Table I.1 shows the six main expenditure types as well as their sub-categories and my coding rule.

I.0.1 Summary statistics of expenses

Table I.2 presents the summary statistics of MPs' use of their CDF in general (total spending) and across different expenditure categories (Panel A). The total amount of funds that MPs expect

M

JAN 2014

ASSEMBLY: MAMPONG MUNICIPAL

MENTS

C

W

Date	Payee	Particulars of Payments	Folio	P.V. No.	Chq. No.	Bank
16-1-14	Boateng Yaw	Being financial assist.		01	640307	1200.00
	Owusu Stephen	once to students				
6-01-14	Boateng Yaw	Being payment in resp.		02	640308	1500.00
	Owusu Stephen	of Ashanti Mps foot.				
		ball club.				
6-01-14	Boateng Yaw	Being donations to		03	640309	2500.00
	Owusu Stephen	churches				
16-01-14	K. Ofori Bawa	Being payment to supp-		04	640310	2200.00
	moh	one of the mosque project				
6-01-14	K. Ofori Bawa	Being payment of fin-		05	640311	1700.00
	moh	ancial assistant to				
		students				
6-01-14	Blessed Home	Being 100 bags of cement		06	640312	2294.25
	Super Cement	in support of the construc-				
		tion of Teacher's quarters				
		at Kyekyerewi.				
16-01-14	C.R.A.	5% W.H.T			640313	120.75
13-01-14	C.R.A.	5% W.H.T			640317	126.00
6-01-14	Geoff Gb	Being 100 bags of Cem-		07	640314	2294.25
		ent in support of const-				
		ruktion of a community				
		Centre for Bopofom				
6-01-14	C.R.A.	5% W.H.T			640315	120.75
14-01-14	Edwin B.	Being payment in ter-		08	640318	19000.00
		rest of a 10-seater				
		KVIP place of convenience				
		for Kyekyerewi community				
14-01-14	C.R.A.	5% W.H.T			640319	1000.00
21-01-14	N.L.B.	Bank charges				60.00
						33990.00
						34116.00
						9285.64
						43401.64
		Bal c/d				

Figure I.1: Exhibit 1: MPs' CDFs expenditure sheet

Notes: MPs' CDFs expenditure sheets are month-by-month reports of itemized spending by an individual legislator. These sheets are submitted by MPs' local governments to the national fund administrator.

ASSEMBLY: SEKYE KUMA
MENTS C

Date	Payee	Particulars of Payments	Folio	P.V. No.	Chq. No.	Bank
02/10/14	Gideon Appiah (Charles Appiah)	Being financial support to Charles Appiah (blind) to complete his house project.		01/10/14	687462	200.00
02/10/14	Herbert A. Boateng	Being financial assistance, a student at Offinso Coll. of Educ.		02/10/14	687464	400.00
02/10/14	Seedorf Amekahene	Being financial assistance, a student of University of Ghana		03/10/14	687465	300.00
13/10/14	Dadease Community	Being financial support for electricity extension project		04/10/14	687466	700.00
13/10/14	Dadease Community	Being financial support for renovation of B/A 'A' JHS Block		05/10/14	687467	1,200.00
13/10/14	Akotoku Community	Being financial support for toilet project		06/10/14	687468	1,000.00
13/10/14	Akrofozo Unit Committee	Being financial support for completion of toilet project		07/10/14	687469	1,000.00
15/10/14	Pepease Community	Being financial assistance for the construction KVIP		08/10/14	687470	1,000.00
20/10/14	Fether Gyekye	Being financial assistance, a student of SDA College of Education		09/10/14	687471	400.00
20/10/14	Tweneboah Koduah S.H.S.	Being financial assistance to Koduah Salomey A., a student at TK S.H.S.		10/10/14	687472	300.00
20/10/14	Tweneboah Koduah S.H.S.	Being financial assistance to Osei Francis.		11/10/14	687473	300.00
20/10/14	Ejisu S.H.S.	Being financial assistance to Frank Adu Poku.		12/10/14	687474	300.00

Figure I.2: Exhibit 2: MPs' CDFs expenditure sheet

Notes: MPs' CDFs expenditure sheets are month-by-month reports of itemized spending by an individual legislator. These sheets are submitted by MPs' local governments to the national fund administrator.

Table I.1: Classification of MPs' spending of Constituency Development Funds

Type	Categories	Criteria
Public goods	Education	Construction or repair of school buildings, extra classes for schools, mock exams for final year students, and textbooks and other school supplies distributed to schools.
	Health	Construction or repair of local clinics, clearing of community dumpster, immunization exercises, and health awareness programs.
	Repair and construction	Road, bridges, water pumps, and purchase of construction materials to support community initiated projects (electoral area is specified).
	Safety and Security	Police operations (i.e., providing security for community events) and providing street lights or replacing street bulbs.
Personal goods	Education	Scholarship for "needy but brilliant" students, including scholarships for education abroad. Also include sponsorship for apprenticeships (driving school, hairdressing, and dressmaking).
	Health	Medical bills for individuals (including medical surgeries).
	Business	Support constituents to start their own businesses including farms and retail shops.
	Needy	Replacing roofing sheets, and pocket money (general financial assistance).
Donation to groups	Religious/traditional authorities	Donation to church fundraising activities (e.g., church building and annual harvest). Donation to traditional festivals, funerals, and repairs of the chief's palace.
	Youth organizations	Sponsor capacity building workshops and soccer tournaments.
Transfers to District Assembly	Organization of national events locally	Payment for national events held locally, including independence day celebration and national farmers' day celebration.
	Operational cost	Repair works on local government buildings and infrastructure, fuel local government vehicles and maintenance of machinery. Transfers to local government account often stated as a loan.
Monitoring and Office Expense	Monitoring of MPs' project	Paid directly to MPs to cover their inspection of projects in their constituency.
	Office expense	Office building rent, operational expenses, and staff salary for MPs' office in the constituency.
Unclear Purpose Expenditure	Beneficiary or purpose of payment is unclear	Examples include: MP direct purchase (e.g., TV sets, cutlasses, etc.) for which the Fund Manager deducted amounts; purchase of building materials for which the purpose was not stated; purchase of motorbikes with no stated beneficiary or purpose; purchase of food items (e.g., bags of rice, oil etc.) with no stated beneficiaries; and transfers to individuals or business organizations with no stated service provided or materials supplied.

in any particular fiscal year is contained in a legislation referred to as the District Assemblies Common Fund Formula, which is passed each year. Funds are then released to MPs in four tranches during the fiscal year. In anticipation of these disbursements, MPs may provide benefits to their constituencies and reimbursed their creditors when funds are released. When MPs make direct purchases, the FA deducts the amount used before transferring the remaining (net amount) to MPs' CDF account managed by their local governments. These deductions are reflected in the records submitted by the DA and often *unclear* what goods were purchased or who the target beneficiaries.

Table I.2 Panel B shows the summary statistics of the dependent variables used in my analysis, which I created using the data on expenditure. *Utilization* measures the proportion of allocated funds (i.e., GHC 1, 264, 987) spent between 2014 and 2016. *Public Goods* and *Private Goods* measures the proportion of allocated funds used by an MP to provide public and private goods, respectively.

Statistic	N	Mean	St. Dev.	Min	Max
		GHC	GHC	GHC	GHC
<i>Panel A: CDF Spending</i>					
Public goods	60	290,414	233,426	0	1,169,500
Private goods	60	128,136	91,951	0	447,886
Donation to local groups	60	31,201	37,499	0	185,489
Transfers to local government	60	37,391	66,637	0	344,885
Monitoring and office expenses	60	8,371	13,826	0	60,681
Unclear purposed expenditure	60	26,703	42,834	0	198,811
<i>Total spending</i>	60	522,216	283,345	111,400	1,308,597
<i>Panel B: Dependent variables</i>					
<i>Utilization</i>	60	0.415	0.223	0.088	1.034
Public goods	60	0.231	0.184	0.000	0.925
Private good	60	0.102	0.072	0.000	0.354
Donation to local groups	60	0.025	0.030	0.000	0.147
Transfers to local government	60	0.030	0.053	0.000	0.273
Monitoring and office expenses	60	0.007	0.011	0.000	0.048
Unclear expenses	60	0.021	0.034	0.000	0.157

Table I.2: Summary statistics of MPs' use of their CDFs between 2014 and 2016

Notes: Table I.2 shows the summary statistics of the use of CDFs by MPs. Part A presents the summary statistics of legislators' itemized expenses as well as their total expenditure in actual amounts. Part B shows the proportion of available funds between 2014 and 2016, GHC 1,264,987 that were used up by MPs in general (*Utilization*) as well as on the different expenditure types. Amounts are in Ghana Cedis (GHC)(the exchange rate was $GHC3.72 = \$1$ in August 2014 according to <http://freecurrencyrates.com/en/exchange-rate-history/USD-GHS/2014/yahoo>).

J Interviews with MPs

I conducted interviews with 47 out of 60 MPs in my sample between November 2015 and January 2016. The purpose of these interviews was twofold. First, it was to assess MPs' responsiveness to their constituents indicated by how they report allocating their time. Second, it was to examine some potential mechanism that drives the results in this study. I show some of the interview results on the latter in Section F. In this section, I report on the first. The results broadly support the findings presented in the paper that MPs elected in intensely monitored constituencies provide greater constituency services.

Table J.1 shows MPs' self-reported levels of provision of constituency services (Part A) and legislative activities (Part B). In Part A, I show results for the following: (1) the percentage of MPs' times spent in the constituency (during parliamentary sessions); (2) number of times they visit their constituency in a year; (3) whether they have applied for external funds to support constituency development projects; and (4) whether they organize monthly meetings to listen to constituents demands. In Part B, I report results on whether an MP has spoken frequency (7 or more) during their term in office on: (1) National policy or project implementation issues; and (2) Constituency development issues.

The results show that MPs elected from intensely monitored constituency report to spend a higher proportion of their time in their constituencies compared to those elected from low-intensity observation constituencies. They also visit more annually. Also, representatives elected from high-integrity elections report to seek external funds to support projects in their constituencies and organize meetings frequently (monthly) to listen to their constituents concerns. While not all estimates on these indicators are statistically significant, they appear substantively large. Together, these results suggest that high-election integrity increases the level of effort legislators exert in constituency services. However, while those elected in intensely-monitored elections also appear

to report slightly more activities in the legislature, these differences are neither substantively nor statistically significant.

	Full sample	<i>Actual Intensity of Observation</i>		<i>ITT</i>
	(1)	Low (2)	High (3)	(4)
Constituency Services				
Percentage of MPs' time spent in constituency	41 (11.34)	34.33 (10.57)	43.29 (10.8)	8.95** (3.17)
# of MP visits to constituency annually	38.35 (12.03)	33.82 (15.01)	39.77 (10.8)	5.95 (5.09)
MP applied for donor funds to support constituency	0.28 (0.45)	0.17 (0.39)	0.31 (0.47)	0.15 (0.14)
MP organizes monthly constituents' meeting	0.62 (0.49)	0.4 (0.52)	0.69 (0.47)	0.29 (0.19)
Legislative Activities				
National policy or project implementation	0.38 (0.49)	0.25 (0.45)	0.43 (0.50)	0.18 (0.16)
MP raise concerns of constituency	0.38 (0.49)	0.33 (0.49)	0.40 (0.50)	0.07 (0.17)
N	47	12	35	

Table J.1: Higher-intensity of observation increases MPs' constituency services, but have no effect on MPs' legislative activities

Note: Table J.1 presents result from a survey of MPs on their constituency services and legislative activities. A standard instrument was used to conduct these interviews with the help of research assistants. Columns (1)-(3) report the means and standard deviation (in parentheses) for each MPs self-reported activities in the Full sample, and Low and High intensely-monitored constituencies, respectively. Columns (4) report the average ITT effects (difference in means) of the treatment with robust standard errors (HC2). *p<0.1; **p<0.05; ***p<0.01

Table J.2 display results for how MPs report spending their time on the top three activities that take the most of their time when they visit their constituency. I provided MPs with six items (and they were free to add other activities). I gave MPs the following options: holding a one-to-one meeting with constituents; holding community with constituents; holding meetings with community leaders; holding meetings with party executives; inspecting constituency projects; and attending social events such as funerals, religious activities, traditional festivals, etc. They were first to choose the three activities and then divide their 100 percent working time to these three things. For most of these activities, I find no significant difference among MPs across the treatment who chose them, suggesting they dedicate a similar amount of time. Interesting, among the few MPs who chose “inspecting constituency projects” as one of their three key activities, those elected in intensely-monitored constituencies spend a higher percentage of their time on this activity. They, however, dedicate less time to social events such as funerals and church services. These results support my claim that high-integrity elections encourage legislators to exert a higher effort in providing public goods (works) to their constituents.

	Full sample (1)	<i>Intensity of Observation</i>		
		Low (2)	High (3)	ITT (4)
Holding one-to-one meeting with your constituents	38.32 (12.42)	36.30 (10.55)	39.29 (13.35)	2.99 (4.61)
Holding community meeting with your constituents	34.77 (14.70)	30.38 (16.47)	36.36 (14.07)	5.99 (6.94)
Holding meetings with community leaders	19.09 (4.91)	15 (7.07)	20 (4.33)	5 (7.23)
Holding meetings with party executives	34.82 (13.83)	32.50 (11.90)	35.33 (14.48)	2.83 (7.72)
* Inspecting constituency projects	26.33 (10.23)	10 ()	29.60 (7.13)	19.60** ()
Attending events such as funerals, church services, durbars (festivals), etc.	32.71 (12.54)	38.55 (12.14)	30.57 (12.19)	-7.98 * (4.46)

Table J.2: When visiting their constituency, MPs elected from higher-intensity observation districts spend more time on inspecting constituency development projects, and less on attending social events

Note: Table J.2 presents results from a survey of MPs on how they divide their time when they visit their constituencies. MPs were provided with all the activities in the table and asked to choose the top three that took most of their time. They were then asked to allocate what proportion of their time they assigned to their top three choices. The specific question was: “When in your constituency, which THREE of the following activities take up the most of your time? Please tell me what percentage of your time you spend on each of these three:.. ” Table J.2 Columns (1)-(4) reports the means and standard deviations (in parentheses) of the time MPs report they allocate to each of these activities, if they selected it as one of their top three, in the Full sample, and Low, Medium, and High intensely monitored constituencies, respectively. Columns (5) and (6) report the ITT effects of intensity of observation in Medium and High IO constituencies, respectively along with robust standard errors. *p<0.1; **p<0.05; ***p<0.01