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**Working Paper**

## "You Need to Have this Information!": Using Videos to Increase Demand for Accountability on Public Revenue Management

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# “You Need to Have this Information!”: Using Videos to Increase Demand for Accountability on Public Revenue Management

## Abstract

How can citizens be motivated to demand accountability in the management of public revenues? We carry out a video survey experiment among 2300 Ghanaian respondents to study the impact of information provision and encouragement messages by a politician and civil society leader on attitudes and demand for accountability in the management of petroleum revenues. We find that providing information significantly increases knowledge about current revenue management, satisfaction with the way revenues are handled and spent, and the intention to demand more accountability. The encouragement messages have an additional effect: they increase the sense that an individual can influence how petroleum revenues are used, and the intention to contact media and to vote differently to ensure better accountability. However, a follow-up survey two years later shows that these impacts do not last. The experiment suggests that providing relevant information affects attitudes and intended behavior in the short term and that role models can give valuable encouragement for behavioral change.

JEL-Codes: Q350, Q380, H410, H230, D800.

Keywords: accountability, survey experiment, video, Ghana, petroleum revenues, information treatment.

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## 1. Introduction

Accountability is seen as a cornerstone of government effectiveness. However, citizens require low barriers to citizen engagement to make their voice heard and to hold decisionmakers accountable (Hirschman, 1970). One such barrier can be the poor availability of relevant and timely information (Fung et al., 2007; Kosack and Fung, 2014). In the extractive industries, for example, the international community has pushed for transparent information provision to reduce revenue mismanagement and increase accountability of government to its citizens.<sup>1</sup> Around 3.5 billion people live in countries rich in oil, gas or minerals, but poverty and corruption remain a big challenge in many of these countries.<sup>2</sup> The idea behind transparency in this context is that citizens can use information on the management of valuable natural resources and their public revenues to form their views, contribute to debates on natural resource governance and, if necessary, voice their concerns and demand greater accountability of the involved parties, e.g., through changing voting behavior in democratic elections or lobbying against corruption and other mismanagement in public expenditure.<sup>3</sup>

A problem is that there is still little evidence that information disclosure increases demand for accountability in natural resource revenue management, reduces corruption, or improves government effectiveness (Kolstad and Wiig 2009; Rustad et al. 2017; Lujala 2018). Much of the empirical research on transparency in natural resource governance has focused either on the process of the information disclosure itself, or on the linkages between a transparency initiative and the levels of corruption and development in a country. Little research has been devoted to the intermediate steps connecting public information provision to the final outcomes of governance and development: from the information uptake by citizens to their subsequent attitudes and demand for accountability, and how these steps could be eased.<sup>4</sup>

In this paper, we investigate whether providing citizens with easily understandable and relevant information on public revenue management changes attitudes and demand for accountability, and we take inspiration from the growing role model literature to see whether encouragement to make use of citizen rights and take action to demand accountability from a

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<sup>1</sup> See e.g. Haufler (2010), David-Barrett and Okamura (2016), Kasekende et al. (2016), and Le Billon et al. (2021).

<sup>2</sup> Many resource-rich countries have seen relatively slow economic growth, high corruption levels and weak institutions, and increased probability of conflict (see e.g. van der Ploeg 2011 and van der Ploeg and Poelhekke 2017 for surveys of the literature on the resource curse).

<sup>3</sup> For the theory on transparency and accountability in the extractive sector, see e.g. Le Billon et al. (2021).

<sup>4</sup> Two recent contributions look at information channels and attitudes towards natural resource revenue management in Ghana (Lujala et al. 2020; Brunnschweiler et al. 2021).

well-known politician and a civil society leader has any additional impact on attitudes and behavior.<sup>5</sup> We focus on the management of petroleum revenues in Ghana, a relatively recent petroleum producer in West Africa with a strong transparency policy in place. We implement a large randomized survey experiment using three different videos. The first video contains information on oil and gas revenue management and region-specific expenditure; the second has the same information plus two encouragement statements – one from a well-known politician, the other from a civil society leader – that explain why this information is important, how citizens can use it, and why citizens should demand accountability in petroleum revenue governance. The third is a placebo video with general information on Ghana. The main survey was conducted in-person in late summer 2017 with over 2300 respondents in 120 districts across the country. A short telephone follow-up survey in early 2020 explores long-term effects among over 920 respondents from the original survey sample.

Our main survey provides three standout results: first, providing easily understandable visual information on petroleum revenue management with regional relevance significantly improves treated respondents' satisfaction levels with how revenues are managed in Ghana, and with the development projects funded by these revenues in their region. While our control group is on average dissatisfied on both counts, our treated subjects become satisfied. Second, providing information increases respondents' intention to demand more accountability through greater debate and contacting the official petroleum revenue watchdog. Third, our encouragement message had additional effects: it increased the sense that individuals can influence how petroleum revenues are used and the intention to contact the media and to vote differently in order to improve petroleum revenue management. The follow-up survey two years later, however, showed that these effects did not persist, and that intention to take action did not translate into noticeable differences in actions undertaken even among those who had stated their intention to act in the main survey.

Our findings suggest that future policy should simplify and localize information on how public revenues are being managed, and that the use of additional encouragement and motivation to act, e.g. by role models, could be a relatively low-cost complementary policy to encourage citizens to demand accountability. However, more research needs to be done to

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<sup>5</sup> See Haaland et al. (2023) for a valuable survey on information treatments in experiments. The term 'role model' was first used by Merton (1957). The theoretical framework in Morgenroth et al. (2015: 466) ascribes three possible functions to role models: (a) acting as behavioral models, (b) representing the possible, and (c) being inspirational. Our approach most closely reflects the first function, i.e. our two personalities share information that allows respondents to model their behavior.

determine whether repeated interventions would be able to maintain the short-term positive stated-intention outcomes and translate these into longer-term behavioral change.

In Ghana, like in many resource-rich developing countries, natural resources are a vital source of public revenue. Ghana is a major gold producer, and in 2007 it discovered offshore oil and gas in the Gulf of Guinea. Production began in 2010, and in 2018, the export of petroleum and minerals together accounted for 67 percent of Ghana's merchandized export revenues and 16 percent of its GDP (GHEITI 2019). The government of Ghana has taken several steps to bring transparency, accountability, and citizen participation into its natural resource governance, for which it has been widely lauded by the international community. It joined the Extractive Industries Transparency Initiative (EITI) – a global initiative to increase transparency within the industry – in 2003, and enacted the Petroleum Revenue Management Act (PRMA) in 2011. The PRMA emphasizes responsible, transparent, and accountable revenue management, and set up the Public Interest and Accountability Committee (PIAC) as the independent revenue watchdog that is tasked with ensuring compliance with the PRMA. Amongst PIAC's tasks are the publication on its website and presentation before parliament and citizens of two reports per year,<sup>6</sup> the publication of a summary of its findings in two national newspapers, and the creation of opportunities for public engagement with the management and utilization of petroleum revenues and involvement of communities hosting extraction and production activities in decisions on how natural resource revenues are spent locally (Dupuy, 2014; Lujala et al. 2020). The PRMA also mandated that a set annual amount of petroleum revenues, approved by the Ghanaian Parliament, is allocated to the Annual Budget Funding Amount (ABFA) for the implementation of development projects throughout the country.<sup>7</sup> At the time of our fieldwork, a maximum of 70 percent of petroleum revenues could be allocated to the ABFA (PIAC 2017), and ABFA funds had already been disbursed for projects in all regions of Ghana.

Despite the implementation of these strong transparency and accountability measures, a survey conducted in 2016 showed that Ghanaians were dissatisfied with how natural resource revenues were managed in the country, had limited access to relevant information regarding the extractives sector, and had rarely engaged in voicing their concerns about the sector and

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<sup>6</sup> One half-year and one annual report, freely available on [www.piacghana.org](http://www.piacghana.org).

<sup>7</sup> In addition to the ABFA, the PRMA also allocates petroleum revenues to the national oil company (Ghana National Petroleum Corporation GNPC), the Heritage Fund and the Stabilisation Fund. For more information on Ghana's petroleum revenue management framework, see e.g., Ogbe and Lujala (2021), Stephens (2019) and Graham et al. (2019).

how its revenues were used ( Lujala et al. 2020; Brunnschweiler et al. 2021). While PIAC reports are easily available on the Committee’s website, they generally run to over 100 pages of extensive and often technical national-level information with limited direct value for ordinary citizens. Edjekumhene et al. (2018) explore ways in which PIAC can improve both its public information dissemination strategy and its citizen engagement efforts: they recommend more decentralized information events and using information technology to build a cost-effective virtual information and citizen voice platform. We build on these results and examine specifically how increased personal relevance through easily understandable region-specific information and the use of potential role models to encourage individual engagement affect attitudes and demand for accountability.

Our paper contributes to the large literature on transparency, accountability, and government effectiveness, pioneered by Hirschman (1970) who analyzed the options – ‘voice’ or ‘exit’ – available to consumers who are dissatisfied with the quality of a good, and to citizens who are dissatisfied with their government. More recently, Besley and Burgess (2002) looked at public information and government responsiveness theoretically and empirically and concluded that state governments are more responsive in places with better information. Reinikka and Svensson (2011) find corruption-reducing effects of public information on the local handling of education funding in Uganda. Armand et al. (2020) show that a community-based information campaign in Mozambique relating to natural gas discovery was effective in raising awareness and knowledge of citizens; that information given instead only to leaders increased elite capture and rent-seeking; and that providing the general population with information and the opportunity for deliberation increased mobilization, trust and voice, and decreased violence. However, a meta-analysis by Fox (2015) shows limited impact of information provision on general public sector performance.

The EITI applies the theory of transparency to the extractives sector, but evidence on its effect on the final outcomes of government effectiveness and corruption reduction is mixed: for example, Kasekende et al. (2016) and Rustad et al. (2017) find no impact, while Fenton Villar (2021) shows improved corruption scores. We provide micro-level experimental evidence on how targeted and easily understandable information based on existing transparency reports can influence citizens’ satisfaction with public revenue use and their intention to use the ‘voice’ option and demand accountability.

The present study is also linked to the rapidly growing literature on the use of role models to provide inspiration and encouragement for behavioral change. Early contributions tended to focus on the political sphere and the influence of female politicians (e.g., Campbell &



Wolbrecht 2006; Ladam et al. 2018). Experimental economists have looked at the influence of leaders seen as role models on, for example, tax morale (Luttmer and Singhal 2014), ethical behavior (D’Adda et al. 2017), and a public bad investment that mimics environmental behavior (Moxnes and van der Heijden 2003). Gächter and Renner (2018) show that leaders function as role models and ‘belief managers’ in a public goods game. In development economics, the idea has inspired several studies into the use of role models in mass media, such as film and television, to deliver messages to change gender-related behaviors (e.g., Jensen and Oster 2009, Chong and La Ferrara 2009, La Ferrara et al. 2017), combat various aspects of poverty-related behaviors (e.g., La Ferrara 2017), improve education outcomes (Riley forthcoming), and reduce corruption (Blair et al. 2019).<sup>8</sup> Bernard et al. (2015) propose that video interventions with targeted information and relatable role models can be used successfully in small-scale video treatments to try to bring about behavioral change in poor countries, and discuss one application to encourage future-oriented behavior in rural Ethiopia. We experimentally test the use of encouragement and motivation by a political and civil society leader in videos to bring about improved accountability in natural resource revenue management, which to our knowledge is the first time this has been tried in this context.

The rest of the paper is structured as follows. Section 2 provides a brief theoretical background; Section 3 describes our experimental design and empirical methodology; Section 4 discusses our results; and Section 5 concludes.

## **2. Transparency and demand for accountability**

Transparency, i.e. the provision of timely and reliable information to relevant stakeholders (Bellver and Kaufman 2005), aims at reducing one of the barriers to accountability identified by Hirschman (1970). Transparency has some intrinsic value, but the concept has become popular largely because of its instrumental value as a means to an end “because it promotes democracy, trust in public institutions, or market efficiency” (Buijze 2013). Fung et al. (2007) and Kosack and Fung (2014) describe the transparency action cycle as (1) state institutions’ provision of salient and accessible information to citizens about practices and policies; (2) citizens receiving and (3) acting on the information, seeking to influence the state; (4) the state institutions finding the citizen action and feedback salient; (5) state institutions responding constructively through changing practices and policies; and finally (6) the state providing updated information to the public about the changes it has made to practices and policies for

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<sup>8</sup> See Della Vigna and La Ferrara (2015) for an overview of the economic and social impacts of mass media.

further evaluation. In this paper, we focus on phase (3) of this cycle. Le Billon et al. (2021) develop a theory of transparency for natural resource and environmental governance and propose three stylized models for how the transparency agenda of the EITI in particular can achieve its governance and development goals: (1) name-and-shame; (2) public debate; and (3) technical reform. In this framework, our paper contributes to model (2) of transparency.

The importance of information for behavioral outcomes is based on standard economic assumptions of rational choice theory. We focus on three aspects of the information-behavior link: the ease of understanding and the personal relevance of the information; and the use of messages to encourage and motivate behavioral change. The first two aspects are addressed by designing simple informational videos with details on regional rather than national revenue management (the latter being the standard focus of resource revenue transparency reports in Ghana and elsewhere). The third aspect is covered by the use of two ‘role models’ who deliver complementary messages (see below for details).

Our basic hypotheses are that providing easily understandable and region-specific information on Ghana’s management of petroleum revenues will have a positive effect on personal satisfaction with how resource revenues are handled; a positive effect on the sense that the respondent can influence how revenues are handled; and increased (intention to take) action to make use of citizens’ voice option. The encouragement messages by our ‘role models’ are expected to be able to additionally affect respondents’ sense of personal influence and provide more reasons for taking action.

### **3. Research design and empirical methodology**

#### ***3.1. Sampling and experimental design***

We analyse data from a survey experiment conducted in July-August 2017 that was part of the endline survey of a field experiment. The field experiment evaluated the impact of PIAC’s transparency and accountability efforts, targeting both local leaders and citizens. Between the baseline conducted in June-August 2016 and the endline survey, PIAC ran two externally funded interventions in a 2x2 factorial design with a control group (see Edjekumhene et al., 2018). The unit for treatment was the district.<sup>9</sup> A telephone follow-up survey was conducted in February-March 2020.

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<sup>9</sup> Controlling for treatment status in the underlying field experiment does not affect our results, see below.

The field experiment was conducted in 120 out of 216 districts throughout Ghana and the endline sample consists of 2363 adult (18 years and over) respondents who all participated in the field experiment baseline. In the endline survey, respondents were interviewed face-to-face by Ghanaian enumerators in English (30%; the official language), Twi (54%) or Ewe (3%).<sup>10</sup> All participants from the endline survey were followed up by telephone in early 2020, and 925 respondents were interviewed, with similar language shares (see below for more details).

For inclusion in the field experiment, a combination of blocking and clustering was used. All six oil and 25 mining districts<sup>11</sup> were included, while the remaining 89 districts were selected randomly among remaining districts with probability proportional to population size. The districts included in the experiment are shown in the map in Figure 1. Treatment assignment for the field experiment was block-randomized to ensure balanced representation of oil and mining districts in each treatment arm.

In each district, five electoral areas were randomly selected using the Electoral Commission's list of electoral areas as the sample frame. One District Assembly (DA) member per electoral area was randomly selected from a list obtained from the district administration. The selected DA member was contacted and an appointment made to meet in their electoral area. Each DA was asked to suggest one member of a Unit Committee (UC; the lowest administrative level in Ghana); one Chief or other member of the traditional authority such as a Queen Mother; and one other opinion leader (for example, a journalist or teacher) in their electoral area. The non-random selection of these duty bearers was chosen as there are no reliable lists available. Lastly, two ordinary citizens (1 male and 1 female) were randomly selected in each electoral area.<sup>12</sup> The baseline sampling structure therefore targeted 30 respondents per selected district, with an average of 20 respondents per district included in the endline survey and survey experiment.<sup>13</sup> Due to limited involvement of women in local and national politics in Ghana, women are underrepresented among the duty bearers, but they make up 46% of the common citizen sample.<sup>14</sup>

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<sup>10</sup> In 12% of cases, an interpreter was used to conduct the survey in another of Ghana's languages.

<sup>11</sup> The list of mining districts was obtained from the Ghana Minerals Commission.

<sup>12</sup> Two enumerators first agreed on who would interview a male and female respondent, alternating respondent gender across electoral areas. Then the two enumerators each went 100 steps in opposite directions from the spot where they met the DA and interviewed the closest person of the selected gender willing to participate in the survey.

<sup>13</sup> The most difficult to reach were the traditional leaders. When a representative for the traditional authority could not be interviewed, an additional opinion leader was identified instead.

<sup>14</sup> See Lujala et al. (2020) and Brunnschweiler et al. (2021) for more details on the baseline survey.

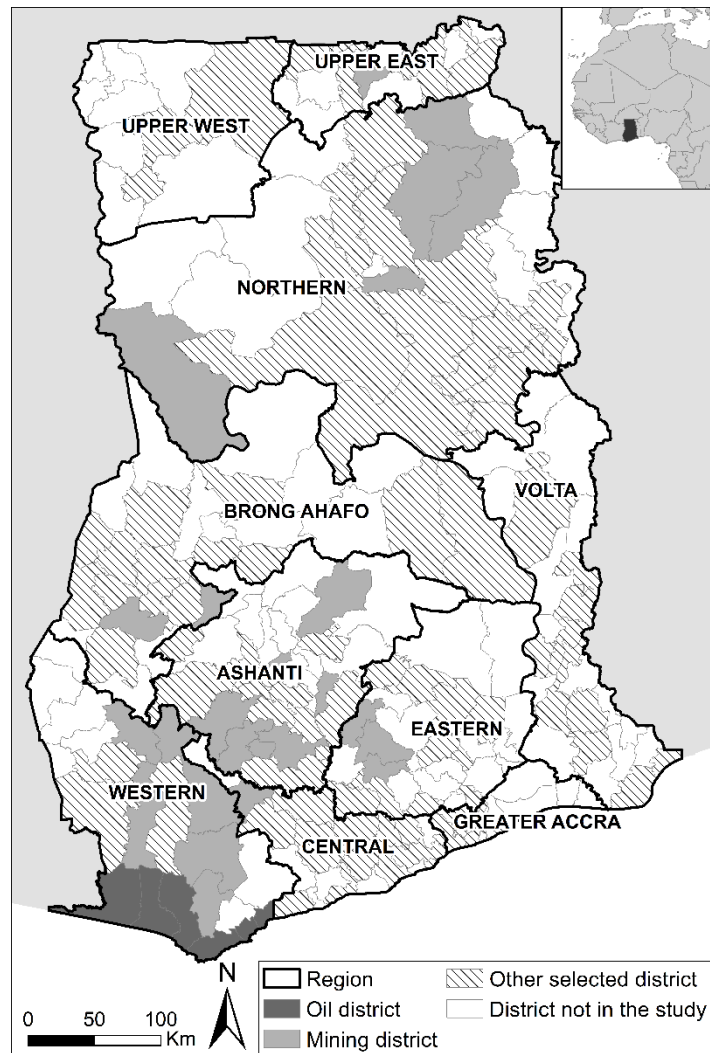


Figure 1. Map of Ghana showing survey districts (all shaded). Note: Districts and regions are shown as of 2016.

The survey experiment was the final part of the endline survey. The preceding field experiment endline survey included blocks of questions on the respondent's household and background; on knowledge and information sources about natural resource revenue management;<sup>15</sup> on the respondent's satisfaction with how resource revenues are handled in Ghana and the respondent's home area; on the respondent's beliefs about her opportunities to influence revenue management locally and nationally; and on the respondent's plans for future action to influence resource revenue management. DA and UC members, as well as traditional leaders, were also asked questions about their discussion of natural resource revenue management with their peers, other local leaders, and ordinary community members. There was thus a fair amount of priming on issues related to the extractive industry, which is likely to (temporarily) inflate their importance among respondents. This priming, however, was equal

<sup>15</sup> To gauge the respondent's level of knowledge, she was asked questions about the PRMA, GHEITI, PIAC, and the ABFA.

across all respondents. In our analysis below, we focus on the sign and significance of our survey treatment effects, rather than their magnitude.

### 3.2. Treatments

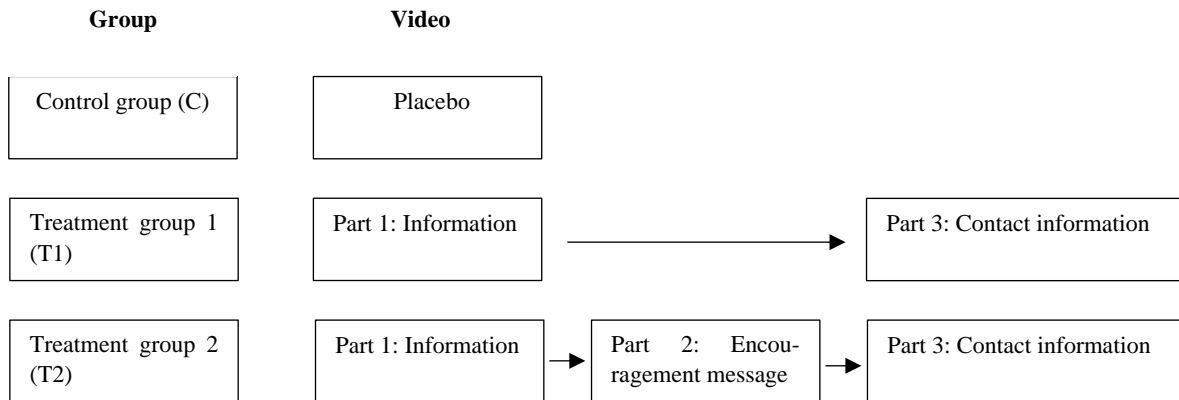


Figure 2. Video design. Transcripts of all three videos (English version) can be found in Appendix B.

In the survey experiment, three different videos were randomly assigned to respondents across all three treatment arms of the original field experiment. Randomization was done at the individual level by simple random pick.<sup>16</sup> This resulted in 636 respondents in the control group (C), 944 in the treatment video 1 group (T1), and 783 in the treatment video 2 group (T2). The videos were shown to the respondent on the tablet used for survey data collection with selection of voiceover in English, Twi, or Ewe. All videos were followed by a short survey with our main questions of interest (see Section 4), which concluded the whole endline survey. Both the survey and videos were piloted before the survey experiment started.

All videos were factual and consisted of a voiceover and slideshow with animations to illustrate the voiceover.<sup>17</sup> We had two treatment videos and one placebo video for the control group. The design of the three videos – Placebo, T1 and T2 – is shown in Figure 2. The two-minute placebo video presents basic information about Ghana, its administrative set-up, demography (population ratio, median age, birth and death rate), and ethnic, linguistic, and religious composition.

The first treatment video gives information on oil and gas production and revenue management. The video was designed to be neutral in tone and language. It introduces the oil producing areas, production volume and value for the period 2010-2016, and the amount of

<sup>16</sup> This randomization method was chosen due to the underlying RCT. Randomization for our experiment was done by the survey program through random choice of one number from 1-3, with each number linked to one of the three videos. Checks showed that all respondents watched their assigned video until the end.

<sup>17</sup> All video voiceovers in the English version are fully transcribed in Appendix B.

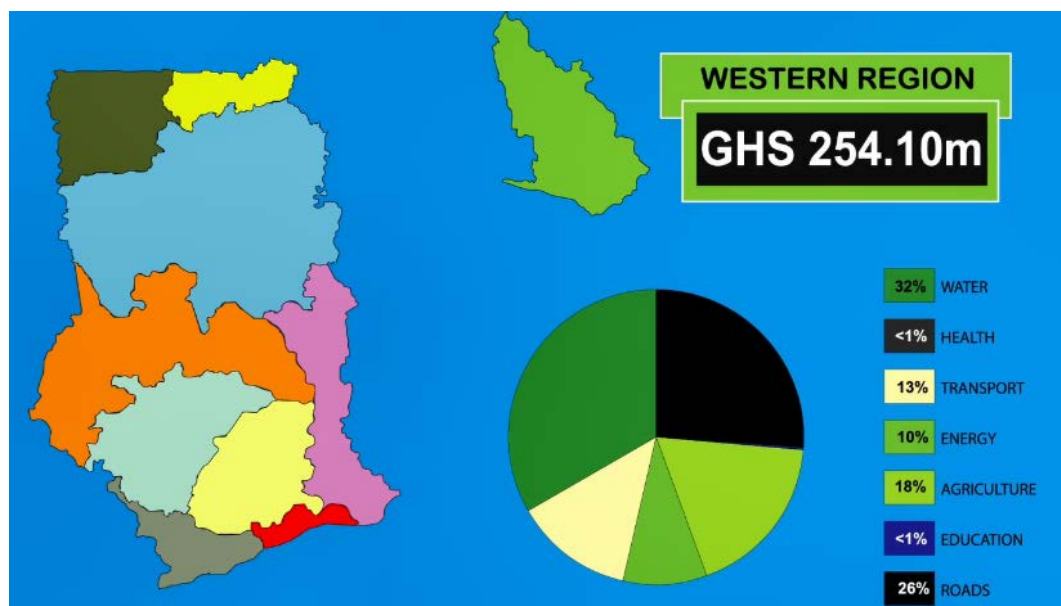


Figure 3. Treatment video excerpt: ABFA spending in Western Region

revenues received by the government of Ghana. The video then explains how the revenues are shared between the Stabilization Fund, Heritage Fund, ABFA, and the Ghana National Petroleum Corporation; how the revenues going to the ABFA have been spent; how much ABFA funding each of the then ten regions has received; and on what type of projects ABFA funding has been spent in each region. Figure 3 shows a sample slide on ABFA revenue distribution to one of Ghana's regions. The final slide provided sources for more information, including the respondent's member of parliament and PIAC. In total, the first treatment video is around five minutes long.

The second treatment video consists of the first treatment video and two messages from our 'role models', an elected politician and a civil society leader, which are added after the main informational slides (common to both treatment videos).<sup>18</sup> The statements are introduced by the narrator asking "So why is it important for citizens to know about how oil and gas revenues are being utilised?", and then continuing with "Let's listen to what key stakeholders have to say". The first statement is from a well-known member of parliament (MP) from the Western Region (which contains the six oil districts) who has regularly featured in national and subnational news on issues regarding natural resource management.<sup>19</sup> In the video, the MP calmly and clearly explains why transparency is important in oil and gas revenue management;

<sup>18</sup> The politician and civil society leader were clearly identified by their name and job title in a caption at the bottom of the screen.

<sup>19</sup> At the time of writing, the politician 1 is Deputy Minister for Lands and Natural Resource, a position he has held since July 2021.

what PIAC is and what its role is; and that PIAC produces two reports per year. He goes on to detail how he – like all MPs – has just received a copy of the latest PIAC report, and states that he “is still going through” the report. He then promises to “get back to [his] constituency” to explain to them how “our oil money is being used”, because “it is important that our people” know “how these resources are utilized by our leaders”.

The second statement is from the Director of the Centre for Extractives and Development, Africa (CEDA), a Ghanaian NGO established in 2014 that focuses on policy analysis, advocacy, and citizen mobilization and training on extractives issues.<sup>20</sup> Directly engaging with the listener both in language and gestures, our civil society leader emphasizes the importance of petroleum-related information for all citizens, explaining that “governments are meant to collect the revenues and use [them] to improve the life of people by constructing roads, schools, hospitals and things like that”. He stresses that “you the citizens [...] need to have this information” to ensure that the projects that should have been realized with resource revenues have been implemented, and to “hold government to account” on how oil revenues are spent “because that is what our democracy is about”. The concluding slide with the contact details, in common with the first treatment video, is shown at the end of this second treatment video to make it around seven minutes long.

The rapidly growing literature on role models gives varying interpretations of who or what a ‘role model’ is. Morgenroth et al. (2015: 466) set up a theoretical framework to enable a more systematic interpretation and ascribe three possible functions to role models: (a) acting as behavioral models, (b) representing the possible, and (c) being inspirational. We are reluctant to call our two personalities ‘role models’ due to the common interpretation that role models should be either famous and therefore aspirational, or similar to subjects and therefore relatable.<sup>21</sup> Nevertheless, our two personalities and the content of their messages most closely corresponds to the first function of Morgenroth’s theory. That is, we use our speakers to try to influence what our subjects perceive as the behavior to be adopted in the context of NRR management.

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<sup>20</sup> Prior to joining CEDA, our civil society leader was responsible for establishing the institutional and programme presence of the Natural Resource Governance Institute (formerly Revenue Watch) in sub-Saharan Africa as Africa regional coordinator and later served as deputy director, Africa, from 2008 to 2016. He started working for the Ford Foundation in 2021.

<sup>21</sup> Note that the theory does not require role models to be well-known to subjects. Much of the experimental literature in fact sets a randomly chosen ‘leader’ to act as a role model in experiments, see e.g., Moxnes and van der Heijden (2003), Gächter and Renner (2018) and the contributions cited therein. In robustness tests described below, we test for heterogenous effects among the respondents most likely to know our two speakers and find that our main results hold.

### 3.3. Telephone follow-up

The main survey is arguably open to concerns of experimenter demand effects due to the contemporaneous implementation of treatment and outcome measurement (common in many experimental settings). All survey experiment respondents were followed up by telephone by local enumerators in February-March 2020, with 925 participants (40% of the sample) successfully interviewed for the brief follow-up survey. Attrition was thus high, with the most frequent reason for non-participation being that the telephone number had changed (13%) or had been switched off (23%), or that no one would answer (10%). A little under 5% refused to be interviewed once successfully contacted, and in 9% of cases the interview was deemed invalid or incomplete. All non-answering lines were called five times. The interviews were conducted in English, Twi or Ewe. DA and UC members were more likely to participate in the follow-up, which may partially explain why the follow-up sample had relatively fewer females and ordinary citizens, and higher average education and political interest levels than our main sample (see summary statistics in Table 1 in the Appendix).<sup>22</sup>

### 3.4. Empirical methodology

Given successful randomization into the control and two treatment groups, the responses to our outcome variables will only vary with the exposure to the video treatments. In our analysis, we first compare the control group with the two treatment groups collapsed (Eq. 1) and then compare the two treatment groups separately (Eq. 2) to see whether the role models had an additional impact on our outcome variables. We use ordinary least squares estimations with standard errors clustered at district level and report results both with and without covariates.<sup>23</sup>

$$(1) \quad y_i = \alpha + \beta_T T_i + \beta_X X_i + \mu_r + \varepsilon_i$$

where  $y_i$  is our outcome variable for the individual  $i$ ,  $\alpha$  is the constant term,  $T_i$  is a dummy variable taking the value of 1 if the individual  $i$  is in one of the two treatment groups,  $X_i$  is a vector of control variables,  $\mu_r$  is the region fixed effect, and  $\varepsilon_i$  is the individual error term.

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<sup>22</sup> Follow-up respondents were slightly less likely to be in the control group than in the main survey (difference significant at 10% level), but had the same likelihood of being in T1 or T2. There was also no significant difference between the main and the follow-up samples in the mean share of opinion leaders, urban dwellers or respondents from oil and gas or mining districts.

<sup>23</sup> In additional results available in the Appendix, we replicate the main OLS specifications using logit or ordered logit estimations.



To compare the two individual treatments with the control group we use the following specification:

$$(2) \quad y_i = \alpha + \beta_{T1}T1_i + \beta_{T2}T2_i + \beta_X X_i + \mu_r + \varepsilon_i$$

where  $T1_i$  is a dummy that takes the value of 1 if the individual was shown the treatment video 1 and  $T2_i$  a dummy for those who was shown the treatment video 2 (i.e., the video with the encouragement message). We use a Wald test to determine whether the two treatment effects are statistically different.

In the case that our treatments did not have perfect take-up, the estimated coefficients can be considered as intention-to-treat effects. To measure take-up, we asked respondents a control question for which the T1 and T2 videos provided an answer (i.e., how many regions had received oil funded projects, the correct answer being all). Our treatment take-up dummy equals one if the respondent answered this question correctly, and zero otherwise (i.e., for those who gave a wrong answer or did not answer the question).

## 4. Results

We show detailed summary statistics for all data used in the analysis in the main survey and follow-up survey, with the questions and coding, in Table 1 in the Appendix. We distinguish between the take-up control question (main sample only); our main outcomes including the block of “satisfaction” question, the “influence” question, and the block of “intention to act/actions taken” questions; and the series of control questions based on respondent data gathered during the underlying field experiment baseline survey. Our control variables include the age, gender, and education level of the respondent, his/her status as a common citizen, DA member, UC member, traditional authority (chief or queen mother) or opinion leader (e.g., a teacher, religious leader), self-declared living conditions of the household, and the respondent’s general interest in politics. Further, we code a dummy for respondents living in urban areas.

We test for balance between our treatment and control groups using our control variables, field experiment treatment status, and satisfaction with how oil and gas revenues are handled in Ghana. The results are reported in Table 2 in the Appendix, with no indication of systematic differences between the treatment arms.<sup>24</sup>

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<sup>24</sup> We also ran all our regressions with the addition of controls for the field experiment treatment arms. Our results remained substantially unchanged and the field experiment treatment dummies themselves were insignificant. We therefore do not show these results, but make them available upon request.

#### 4.1. Graphical analysis and descriptive results

**Take-up.** Our take-up check is based on a pure knowledge question designed to gauge the attention paid to the video. The respondent was asked a factual question that she should have been able to answer after watching one of two treatment videos, namely “How many of Ghana’s ten regions have received oil and gas revenues since 2011 to pay for development projects?”. The correct answer was all ten regions (coded as dummy variable=1), which we would expect treatment groups to choose more often than the control group. Overall, only 62% of the respondents answered the question correctly, but the rate of correct answers varied substantially between the control and treatment groups (see Figure 4): only 26% of the control group answered correctly, while 77% in T1 and 73% in T2 got this right.<sup>25</sup>

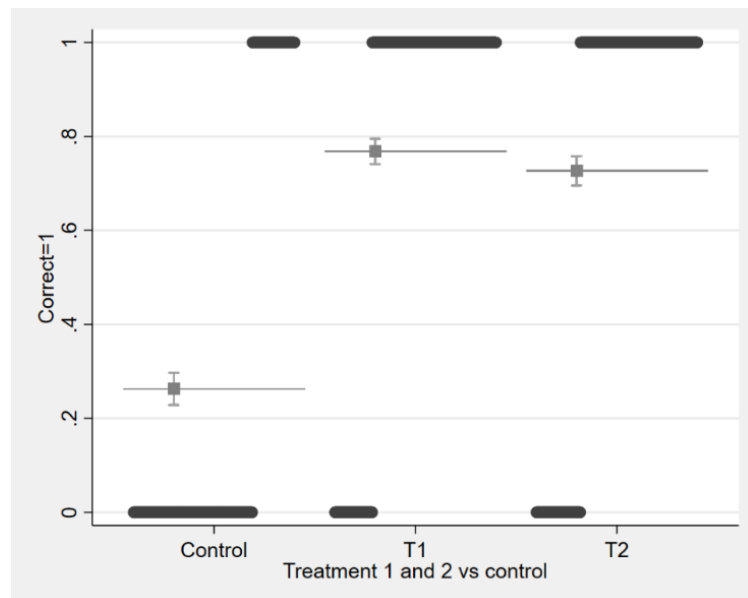


Figure 4. Treatment effects on take-up question. 1 indicates a correct answer, and 0 incorrect or no answer. The graph shows the effect of receiving each treatment video versus the placebo video (control). The squares denote the average response, with whiskers showing the 95% confidence intervals. The solid black marks indicate the frequency of answering correctly (1) or incorrectly (0).

**Outcome variables.** We have three blocks of questions to measure our main outcomes. In the first block, the respondents answered two questions that measure their self-reported **satisfaction** with the current handling of oil and gas revenues in general, and with the type of development projects that have been funded by the ABFA in the respondent’s home region. The first question was also asked in the first part of the survey: we can thus control for respondents’ baseline levels of satisfaction prior to seeing the videos in a mini-difference-in-

<sup>25</sup> OLS regression results that regress the take-up question on the different treatments and other covariates can be found in Appendix Table 3.

differences strategy. An overview of the responses given pre- and post-treatment in the main survey, and in the follow-up survey, is shown in Appendix Figure 1. For both satisfaction questions, we used a 5-point Likert scale from 0 (very dissatisfied) to 4 (very satisfied). Figure 5 Panel A shows that there is a clear tendency for treated respondents to report higher levels of satisfaction with the handling of resource revenues than respondents in the control group. Moreover, satisfaction levels among treated participants are positive (i.e. above 2), though there is no significant difference between the two treatment groups; respondents in the control group instead are on average dissatisfied with the handling of resource revenues. However, this positive treatment effect disappears in the follow-up survey two-and-a-half years later (Panel B). The picture looks very similar for respondents' satisfaction with the development projects funded by the ABFA in the respondent's region (see Figure 2 in the Appendix).

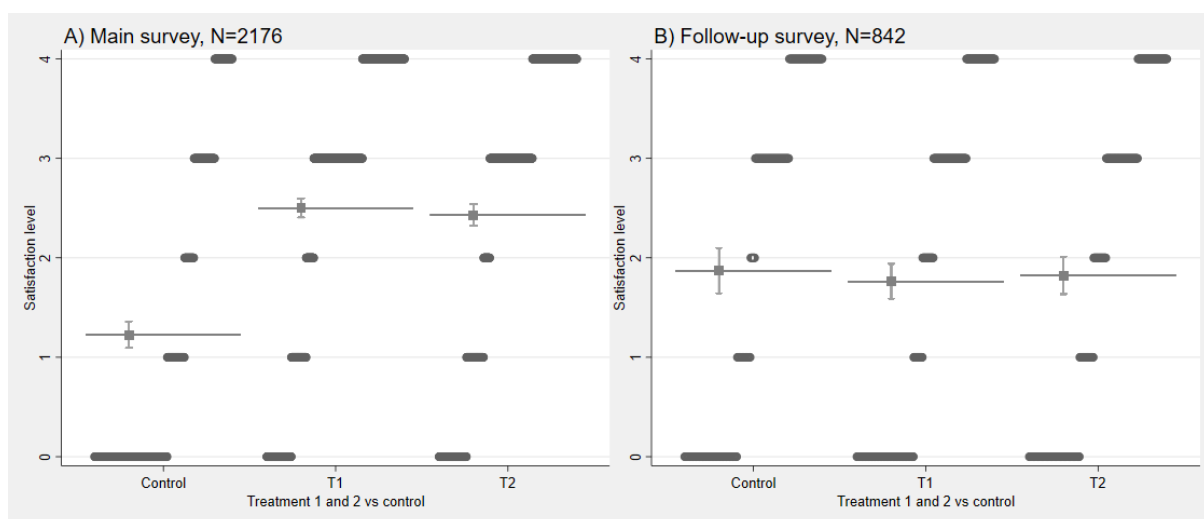


Figure 5. Treatment effects on level of satisfaction with current handling of oil and gas revenues (Likert scale 0-4). Graph A) shows the effect for the main survey, and graph B) for the follow-up phone survey. The squares denote the average response, with whiskers showing the 95% confidence intervals, and solid black marks indicating the frequency of responses.

Figure 3 in the Appendix shows the change in reported levels of satisfaction with the handling of oil and gas revenues from pre-treatment to post-treatment by treatment arm.<sup>26</sup> From similar levels of dissatisfaction among all respondents before the video treatments, there is a clear increase in satisfaction levels among the two treated groups, while respondents in the control group remain dissatisfied on average.

<sup>26</sup> A noteworthy change is that the response rate for the question went from 1864 respondents (pre treatment) to 2176 (post treatment), potentially indicating that some respondents felt more comfortable to answer the question after having received information on the issue. The nearly 400 respondents who did not reply to the question the first time were on average more satisfied with revenue handling (average score of 2.6) compared to those who had given an answer to the question before (average score of 2.1).

In the second block of questions, the respondents were asked to what degree they agree with the statement that they and other people can **influence** how revenues from oil and gas are handled in Ghana. Again, a 5-point Likert scale was used for the replies. Agreement with the statement was very high across the board, with 85% of the respondents either somewhat or completely agreeing in the main sample, and 83% agreeing in the follow-up sample. Figure 6 Panel A confirms that respondents across control and treatment groups on average believe in citizens' ability to influence the use of resource revenues. Nevertheless, small positive treatment effects can be spotted for both treatment groups in the main survey, with treatment 2 – with role-model statements – showing significantly higher agreement than the control group, while the difference between treatment 1 and the control appears insignificant.

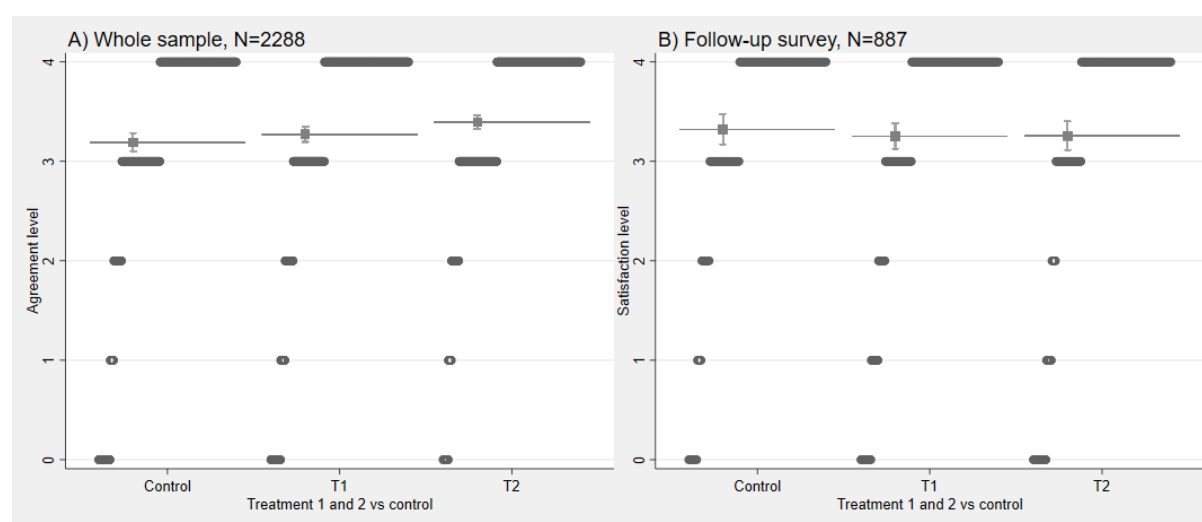


Figure 6. Treatment effects on level of agreement with statement on personal influence on how oil and gas revenue is handled (Likert scale). Graph A) shows the effect for the main survey, and graph B) for the follow-up phone survey. The squares denote the average response, with whiskers showing the 95% confidence intervals, and solid black marks indicating the frequency of responses.

Our last block of outcome variables examines respondents' **stated intention to take action** (or reported action taken in the follow-up survey) directed at contributing to better use of revenues from oil and gas in near future. The following potential actions were read in turn to the respondents, with the request to provide a yes-no answer to each:

1. Discuss the issue with family, friends or colleagues
2. Discuss the issue with traditional leaders
3. Contact a Unit Committee member
4. Contact a District Assembly member
5. Contact the Public Interest Accountability Committee (PIAC)
6. Call radio or write a letter to media

7. Participate in a community meeting to discuss the use of oil and gas revenues
8. Vote differently in elections

The intention-to-act rates are very high (as illustrated by the black bars in Figure 7), ranging from 79% who state that they think they will call a radio or write a letter to media, to 98% who say they intend to participate in a community meeting to discuss revenue management. Contacting PIAC (82%), voting differently in elections (84%), and discussing the issue with traditional leaders (89%) were the other actions that received somewhat lower rates while discussing with family, friends and colleagues (95%) or contacting UC member (96%) or DA member (97%) received nearly universal support. Figure 4 in the Appendix indicates (weak) treatment effects for the intention to discuss the issue with family, friends or colleagues; contact media or PIAC; and vote differently.<sup>27</sup>

When asked in the follow-up about whether the respondent had in the past 12 months engaged in these activities, the actual rates were substantially lower (see grey bars in Figure 7): 47% had discussed the issue with family, friends and colleagues; 33% had discussed it with their local DA; 32% discussed it with a UC; 26% with a traditional leader; 20% had participated in a community meeting to discuss revenue management; and 13% had contacted the media. 43% of those who had voted in the previous District Assembly or Unit Committee elections (held in December 2019) stated that how the oil and gas revenues had been handled in Ghana was somewhat or very important in their decision who to vote for.

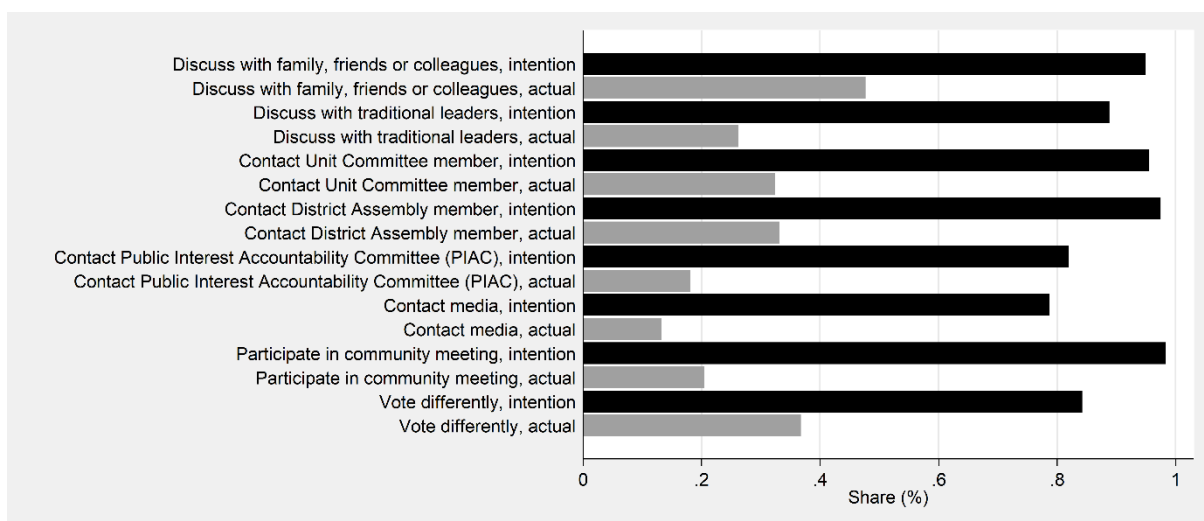


Figure 7. Stated intention to take action directed at contributing to better use of extractive revenues in the main sample (black bars) and the reported action in the follow-up sample (grey bars).

<sup>27</sup> The other four intention-to-act outcomes do not suggest significant treatment effects (not shown).

## 4.2. Estimation results

In order to better understand the treatment effects and the possible other variables affecting our outcomes, we now turn to our estimation results.<sup>28</sup>

**Satisfaction.** Our first block of outcomes looks at levels of satisfaction with current oil and gas revenue management. The OLS regression results in Table 1 show that the video treatments have a positive overall impact on the level of satisfaction with the current handling of oil and gas revenues.<sup>29</sup> Having seen either treatment video one (T1) or treatment video two (T2) increases the level of satisfaction by 1.20 points (without covariates) or 1.16 (with covariates), shown in columns 1 and 3, respectively. The individual treatments vary between 1.23 (T1) and 1.17 (T2) (without covariates) and 1.17 (T1) and 1.15 (T2) (with covariates), as seen in columns 2 and 4, respectively. Exploiting our mini-difference-in-differences design for this survey question, we can also show that the treatments have a significant positive impact on the change in satisfaction between pre- and post-treatment (columns 5-8), with similar coefficient magnitudes as before. Wald tests show that coefficients for T1 and T2 are not significantly different from each other, implying that our encouragement messages have no additional impact on satisfaction levels. This is not surprising given that the message of the two ‘role models’ was aimed primarily at encouraging greater citizen demand for accountability in revenue management.

The only covariates that show significant results are baseline satisfaction, education and residing in an urban area. A higher baseline satisfaction is positively linked to satisfaction post treatment, while both higher education levels and urban residence have a negative coefficient.

Watching a treatment video also increased the satisfaction with the development projects undertaken with petroleum revenues in the respondent’s region, with an average increase of around 0.8 points in satisfaction levels after having seen either treatment video (see Appendix Tables 5a-5b). Again, there is no significant difference between the two treatments.

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<sup>28</sup> We focus on the results from the main survey; graphical results of the follow-up survey discussed above indicate that there are no long-term effects of our interventions. OLS and logit estimation results for the follow-up survey can be found in Appendix 8a-9c.

<sup>29</sup> Appendix Table 4 shows results for ordered logit estimations, which are very similar to our main OLS results.

Table 1. Satisfaction with current handling of oil and gas revenues

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Satisfaction	Satisfaction	Satisfaction	Satisfaction	Change in satisfaction	Change in satisfaction	Change in satisfaction	Change in satisfaction
Watched a treatment video	1.202*** (16.36)		1.162*** (15.39)		1.156*** (13.46)		1.174*** (13.52)	
T1: watched information video w/out encouragement		1.232*** (15.80)		1.171*** (14.27)		1.158*** (12.07)		1.184*** (12.30)
T2: watched information video w/ encouragement		1.166*** (14.22)		1.152*** (13.26)		1.153*** (11.21)		1.161*** (11.21)
Baseline satisfaction with revenue use			0.292*** (11.40)	0.292*** (11.40)				
Age			0.00139 (0.469)	0.00142 (0.476)			-0.00279 (-0.833)	-0.00276 (-0.819)
Gender: 1 = Female			0.0104 (0.0992)	0.0110 (0.104)			0.0321 (0.267)	0.0327 (0.271)
Education			-0.0515*** (-3.493)	-0.0515*** (-3.488)			-0.0245 (-1.339)	-0.0245 (-1.338)
Common citizen			0.110 (1.195)	0.109 (1.186)			-0.0348 (-0.323)	-0.0353 (-0.328)
HH living conditions			-0.0397 (-1.195)	-0.0399 (-1.199)			-0.136*** (-3.586)	-0.136*** (-3.575)
Political interest			-0.0118 (-0.501)	-0.0117 (-0.497)			-0.00368 (-0.128)	-0.00360 (-0.125)
Mainly urban			-0.245*** (-3.820)	-0.245*** (-3.821)			-0.224*** (-2.778)	-0.224*** (-2.777)
Observations	2,176	2,176	1,780	1,780	1,784	1,784	1,780	1,780
R-squared	0.147	0.147	0.224	0.224	0.097	0.097	0.112	0.112
Wald test T1=T2 p-value		0.289		0.7994		0.9588		0.8155

Note: OLS estimations. Satisfaction is measured on Likert scale of 0-4. All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Ordered logistic regression results for the same specifications can be found in Appendix Table 4.

Table 2. Belief in ability to personally influence handling of oil and gas revenues

	(1)	(2)	(3)	(4)
Watched a treatment video	0.137** (2.134)		0.133** (2.099)	
T1: watched information video w/out encouragement		0.0777 (1.057)		0.0753 (1.052)
T2: watched information video w/ encouragement		0.208*** (3.154)		0.202*** (3.070)
Age			-0.00177 (-0.968)	-0.00189 (-1.029)
Gender: 1 = Female			-0.0375 (-0.527)	-0.0413 (-0.586)
Education			0.0347*** (3.990)	0.0348*** (4.017)
Common citizen			-0.175*** (-2.779)	-0.172*** (-2.745)
HH living conditions			0.00992 (0.432)	0.0115 (0.504)
Political interest			0.0456*** (2.778)	0.0451*** (2.752)
Mainly urban			-0.0288 (-0.533)	-0.0277 (-0.511)
Observations	2,288	2,288	2,282	2,282
R-squared	0.014	0.017	0.039	0.041
Wald test T1=T2 p-value		0.0269		0.0265

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Personal influence on revenue handling.** We next look at whether our treatments affected respondents' sense of being able to personally influence the handling of oil and gas revenues. Recall that our encouragement message in T2 is expected to have a particular impact on this outcome. Indeed, Table 2 shows that this is the case: watching either treatment video has a significant positive impact on respondents' belief in personal influence (columns 1 and 3), an effect which is being driven by treatment video 2. Columns 2 and 4 show that seeing treatment video 1 made no significant impact, while seeing the encouragement message in treatment video 2 increased agreement with the relevant statement by over 0.2 points. The Wald test shows that the coefficients for T1 and T2 are significantly different from each other.<sup>31</sup>

Our covariates suggest our category of "common citizens", i.e. those with no elected or traditional leadership or other opinion-leader role, feel less confident of their ability to influence revenue management. Education and self-declared political interest levels instead are positively related to the belief in personal influence in revenue management.

<sup>31</sup> The ordered logit results in Appendix Table 6 show similar results.



Table 3. Intention to act to demand more accountability in oil and gas revenue management

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A</b>	Discuss issue with friends, family, or colleagues				Call radio or write a letter to media			
Watched a treatment video	0.0303** (2.565)		0.0286** (2.494)		0.0519** (2.383)		0.0436** (2.102)	
T1: watched information video w/out encouragement		0.0388*** (3.057)		0.0375*** (3.024)		0.0362 (1.528)		0.0263 (1.172)
T2: watched information video w/ encouragement		0.0199 (1.470)		0.0179 (1.348)		0.0705*** (2.788)		0.0641*** (2.639)
Controls	no	no	yes	yes	no	no	yes	yes
Observations	2,323	2,323	2,318	2,318	2,172	2,172	2,167	2,167
R-squared	0.022	0.023	0.030	0.032	0.038	0.040	0.116	0.117
Wald test T1=T2 p-value		0.1026		0.0887		0.131		0.0818
<b>Panel B</b>	Vote differently in elections				Contact PIAC			
Watched a treatment video	0.0347* (1.713)		0.0351* (1.737)		0.0676*** (3.401)		0.0589*** (3.008)	
T1: watched information video w/out encouragement		0.0294 (1.289)		0.0298 (1.311)		0.0623*** (2.842)		0.0528** (2.508)
T2: watched information video w/ encouragement		0.0412* (1.835)		0.0415* (1.849)		0.0739*** (3.310)		0.0662*** (3.009)
Controls	no	no	yes	yes	no	no	yes	yes
Observations	2,209	2,209	2,204	2,204	2,106	2,106	2,101	2,101
R-squared	0.053	0.053	0.055	0.055	0.047	0.048	0.148	0.148
Wald test T1=T2 p-value		0.5604		0.5689		0.55		0.452

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Control variables include age, gender (dummy), education, common citizen (dummy), HH living conditions, political interest, mainly urban (dummy). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Intention to act.** Lastly, we explored whether the treatments would influence respondents' willingness to take different types of action linked to their 'voice' option. Half of our eight intended-action outcomes were significantly affected by our treatments; results for these are shown in Table 3. Respondents who watched either treatment video were around 3 percent more likely to say they would discuss revenue-management issues with friends, family or colleagues (Panel A, columns 1 and 3); 4-5 percent more likely to say they would contact a radio or other media outlet for the same reason (Panel A, columns 5 and 7); around 3.5 percent more likely to take resource revenue management policies into account when voting (Panel B, columns 9 and 11); and between 5.9-6.8 percent more likely to say they will contact PIAC (Panel B, columns 13 and 16).

Looking at individual treatment effects, the results seem to be driven by the information-only video (T1) for the first intended-action outcome (Panel A, columns 2 and 4), and by the information video with encouragement message (T2) for the media contact and voting outcomes (Panel A, columns 6, 8, and Panel B, columns 2 and 4, respectively). Only the intention to contact PIAC is affected by both treatments (Panel B, columns 6 and 8). However,

Wald tests (shown at the bottom of Panels A and B in Table 3) do not give strong indication of differences in treatment effects between T1 and T2 for any of these outcomes except the intention to discuss the issue with friends, family or colleagues. Recall however that the rate of stated intentions was very high across the board, as described earlier, making it challenging to detect differences in treatment effects. Of the control variables, only education, political interest, and age show significant links with (some of) the outcomes.

To gain a summary view of intended action, as well as mitigate issues with multiple outcomes, we aggregate the eight intended-action outcome variables using an index of z-scores. Following a procedure used by Kling et al. (2007) and Armand et al. (2020), we first normalized the individual outcomes by subtracting the mean of the control group and dividing by the standard deviation of the control group. We then averaged the eight outcome variables to create the index. Results are shown in Table 4. Watching either treatment video increases the intention to take any action by 7.5-8 points (columns 1 and 3), with no statistical difference between the individual treatments (columns 2 and 4). From the control variables we see that higher education, self-reported living conditions and political interest are significantly linked to more intention to act, while females, common citizens, and older respondents have less intention to act.<sup>32</sup>

#### ***4.3. Heterogeneity analysis***

One concern is that effects may be driven by a heightened sensitivity to issues surrounding both petroleum and other natural resource exploitation in those districts most affected by resource extraction. In the same vein, respondents from these districts might also be more familiar with our ‘role models’ and therefore react differently to our second treatment video. We therefore perform a heterogeneity analysis focusing on the six coastal districts closest to offshore oil and gas platforms, as well as on the officially designated mining districts, by adding an interaction term between our treatment dummies and a dummy for oil and mining districts. We find that there are indeed differential effects on our two satisfaction outcomes, but not on other outcomes – and only for our treatment video 2 with the encouragement message.

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<sup>32</sup> Ordered logit results for these outcomes, as well as OLS and ordered logit results for all other intention-to-act outcomes, can be found in Appendix Tables 7a-7c.

Table 4. Intention to act – index of eight intended action variables

	(1)	(2)	(3)	(4)
Watched a treatment video	0.0800** (2.214)		0.0748** (2.162)	
T1: watched information video w/out encouragement		0.0837** (2.265)		0.0782** (2.206)
T2: watched information video w/ encouragement		0.0756* (1.804)		0.0708* (1.752)
Age			-0.00241** (-2.235)	-0.00240** (-2.234)
Gender: 1 = Female			-0.0894** (-2.032)	-0.0892** (-2.023)
Education			0.0136** (2.540)	0.0136** (2.535)
Common citizen			-0.0961*** (-2.838)	-0.0963*** (-2.853)
HH living conditions			0.0305*** (2.622)	0.0305*** (2.620)
Political interest			0.0333*** (4.041)	0.0334*** (4.024)
Mainly urban			-0.0214 (-0.819)	-0.0215 (-0.820)
Observations	1,920	1,920	1,916	1,916
R-squared	0.021	0.021	0.070	0.070
Wald test T1=T2 p-value		0.7937		0.8090

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results are presented in Appendix Table 10. The encouragement treatment had stronger positive effects on respondents from oil and mining districts: they were even more satisfied with both overall revenue management and the development projects funded by ABFA than respondents in other districts. Treatment video 1 with only the information instead showed no significantly different effects in oil and mining districts.

We might also believe that treatment effects are stronger among respondents with an intrinsic motivation to take an interest in resource revenue management, i.e. among (elected and non-elected) duty bearers and people who are more politically interested. When we explore these possible heterogeneous effects, we generally find no significant differential effects on any of our outcomes.<sup>33</sup>

Finally, it is worth looking more closely at the link between intention to act and undertaking an action. We saw above that our treatments affected four of our eight intended-

<sup>33</sup> The two exceptions are that those who say they are politically more interested show lower treatment effects on intended actions when using the combined treatment, which is driven by T1 (T2 remains positive and significant and unaffected by political interest). The politically more interested respondents also show higher levels of satisfaction with the current handling of resource revenues when exposed to T2. Results are available upon request.

action outcomes in the main survey, but that results did not persist on average across the sample in the follow-up survey two years later. Appendix Figure 5 focuses on the treatment effects on self-reported actions undertaken in the previous 12 months for the subsample of respondents in our follow-up survey who had stated their intention to undertake the relevant action in the main survey. With other words, it directly answers the question whether good intentions are followed by actions. The sobering finding is that even among these subgroups of respondents, treatment effects on stated intentions did not result in actual behavioral change.

## 5. Conclusions

Many developing countries rely on the extractives sector as a source of government revenues; however, these revenues are often also mismanaged and can be the cause of corruption, weak institutions, and government ineffectiveness in what has been termed the “resource curse” (see e.g. van der Ploeg 2011). Transparency has been proposed as an antidote to many of these evils, though there is mixed evidence on its efficacy (e.g. Kasekende et al. 2016; Rustad et al. 2017). Some of the reasons why this may be the case is that even where information on resource revenues is publicly available, citizens may not receive or understand it, not be aware of their rights to demand accountability, or not feel motivated to make use of their rights.

We look at how citizens can be motivated to demand accountability in the management of public revenues, focusing on the case of petroleum revenue management in Ghana. Despite Ghana’s strong transparency framework in petroleum revenue management, Lujala et al. (2020) and Brunnschweiler et al. (2021) find that Ghanaians are dissatisfied with how natural resource revenues were managed in the country, had limited access to relevant information regarding the extractives sector, and had rarely engaged in voicing their concerns about the sector and how its revenues were used. We carry out a video survey experiment with over 2300 respondents to provide easily understandable and relevant information and use a politician and civil society leader for additional encouragement and motivation to act. We return over two years after our main survey to test whether our treatments had longer-term effects.

We find that providing information significantly increases knowledge about current revenue management and leaves treated respondents on average satisfied with the way revenues are handled and spent, while our control group are dissatisfied. We also find increased intention to demand more accountability through greater debate and contacting the revenue watchdog, PIAC. The encouragement message has an additional effect: it increases the sense that an individual can influence how petroleum revenues are used, and the intention to contact

media and to vote differently to ensure better accountability. Our outcomes are based on stated intentions only, which is a weakness in our approach. However, we return two years later for a follow-up survey, which unfortunately shows no persistent differences between the control and the treated groups, not even among respondents who had declared their intention to demand accountability in the main survey.

The experiment suggests that providing relevant information can affect attitudes and intended behavior and that role models can give valuable encouragement for behavioral change. However, the determination of how long effects last, and whether repeated interventions would be able to overcome the weak link between intended action immediately after the intervention and actual personal action two years later, are left to future research. We believe this would be worthwhile, as our relatively low-cost intervention could prove a useful tool for encouraging citizens to make use of their right to demand accountability in public revenue management.

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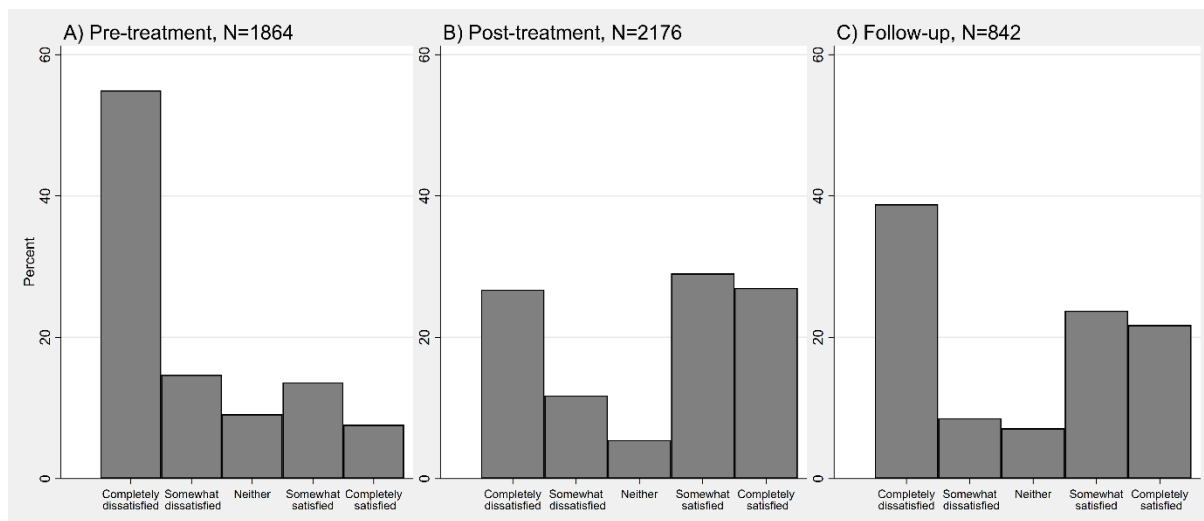
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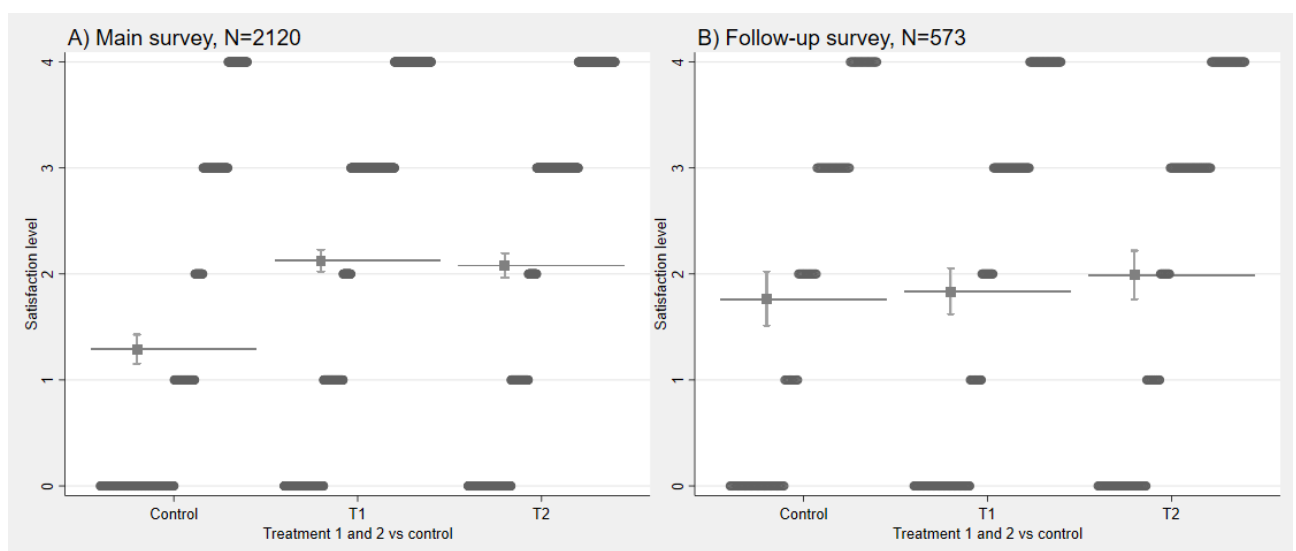


## Appendix A: Additional figures and tables

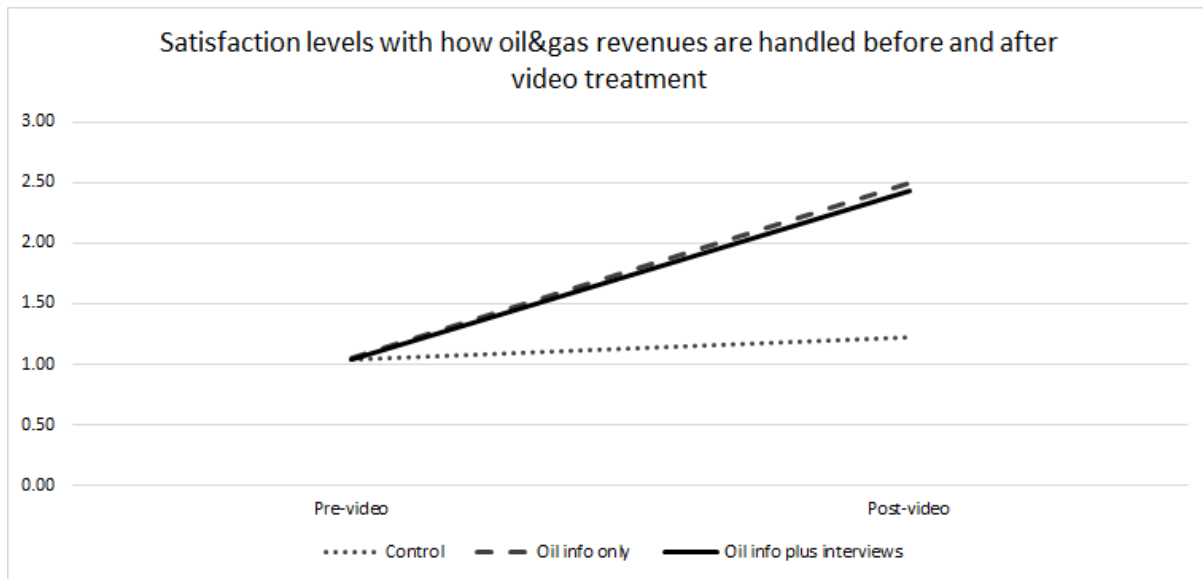
### Figures



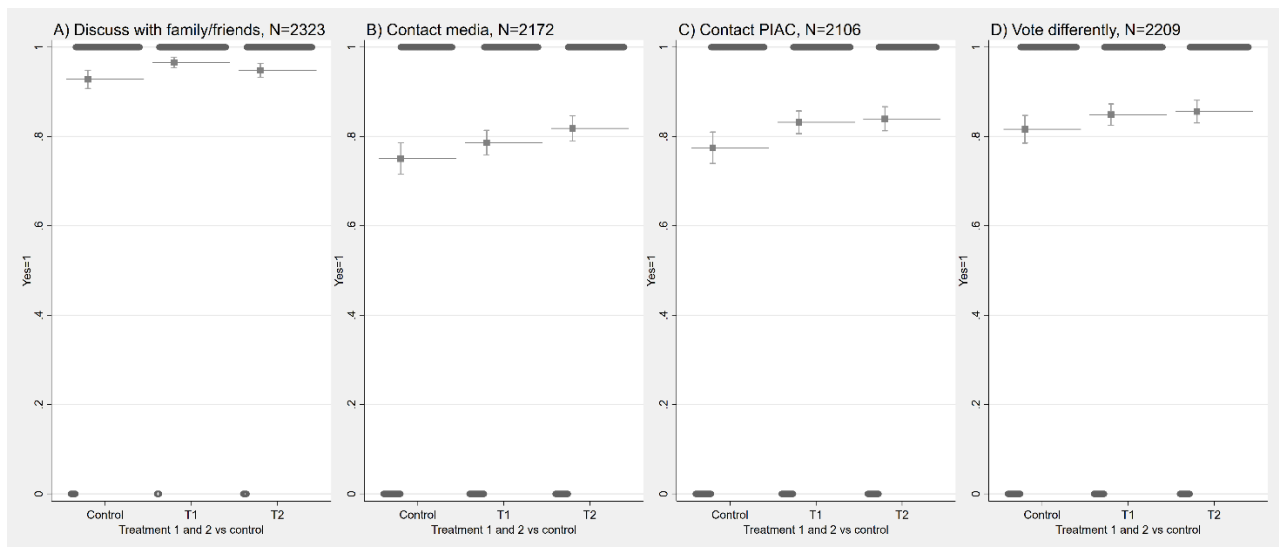
**Appendix Figure 1:** Satisfaction with revenue management prior (A) and after (B) watching one of the videos, and in the follow-up survey (C)



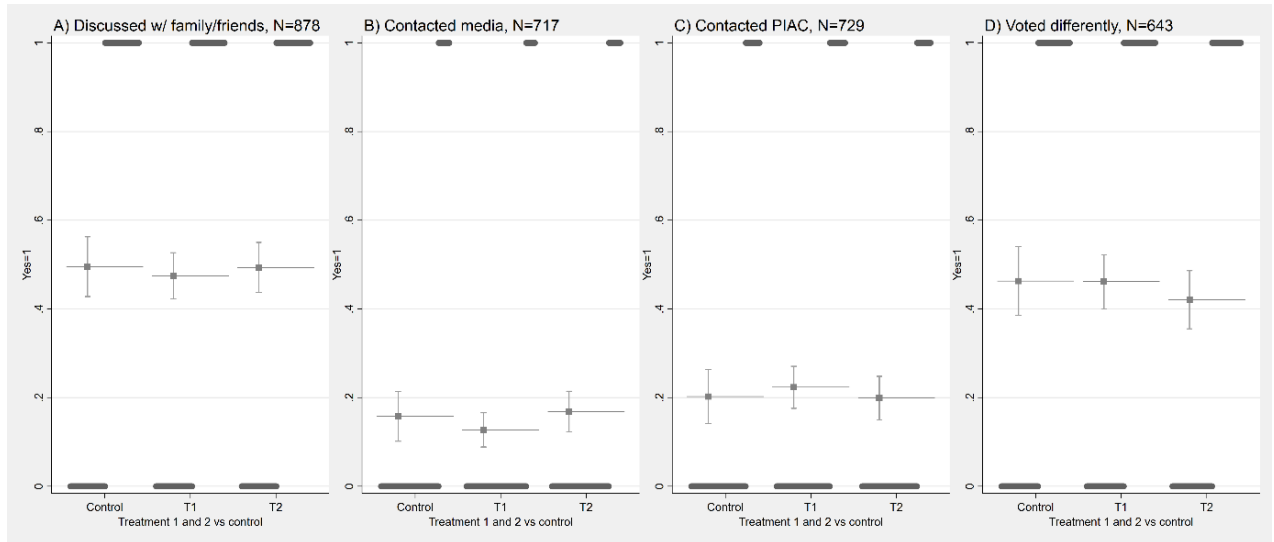
**Appendix Figure 2:** Treatment effects on level of satisfaction with development projects funded by ABFA in respondent's region (Likert scale 0-4). Graph A) shows the effect for the main survey, and graph B) for the follow-up phone survey. The squares denote the average response, with whiskers showing the 95% confidence intervals, and solid black marks indicating the frequency of responses.



**Appendix Figure 3:** Changes in mean level of satisfaction with current handling of oil and gas revenues between pre-video and post-video. The dotted line shows mean satisfaction level of control group who viewed the placebo video; the dashed and solid lines show mean satisfaction levels of groups treated with information videos with and without encouragement message, respectively.



**Appendix Figure 4:** Treatment effects on intention (A) to discuss issue of petroleum revenue management with family, friends or colleagues, (B) to contact the media, and (C) to contact PIAC, (D) to vote differently in next election. Results refer to the main survey. The squares denote the average response, with whiskers showing the 95% confidence intervals, and solid black marks indicating the frequency of responses.



**Appendix Figure 5:** Treatment effects on self-reported actions in the past 12 months: (A) discussed issue of petroleum revenue management with family, friends or colleagues, (B) contacted media, and (C) contacted PIAC, (D) voted differently in last election. Results are given for subsample of respondents in our follow-up survey who had stated their intention to undertake the relevant action in the main survey. The squares denote the average response, with whiskers showing the 95% confidence intervals, and solid black marks indicating the frequency of responses.

## Tables

**Appendix Table 1:** Summary statistics with full survey questions

Variable	Full sample					Follow-up sample					Question (incl. variable coding)
	Obs	Mean	Std.Dev	Min	Max	Obs	Mean	Std.Dev	Min	Max	
Take-up control	2,363	0.62	0.49	0	1						How many of Ghana's ten regions do you think have received oil & gas revenues since 2011 to help pay for development projects? (0 Incorrect or I do not know, 1 Correct)
Satisfaction w/ oil and gas revenue handling (prior to treatment)	1864	1.04	1.37	0	4						Ghana earns substantial revenues from oil and gas. In general, how satisfied are you with how these revenues are handled? (0 Completely dissatisfied, 1 Somewhat dissatisfied, 2 Neither satisfied nor dissatisfied, 3 Somewhat satisfied, 4 Completely satisfied)
Satisfaction w/ oil and gas revenue handling (post treatment)	2176	2.18	1.59	0	4	842	1.81	1.65	0	4	Ghana earns substantial revenues from oil and gas. In general, how satisfied are you with how these revenues are handled? (0 Completely dissatisfied, 1 Somewhat dissatisfied, 2 Neither satisfied nor dissatisfied, 3 Somewhat satisfied, 4 Completely satisfied)
Satisfaction w/ ABFA	2120	1.92	1.61	0	4	573	1.87	1.62	0	4	How satisfied are you with the kind of development projects that have been funded in your region with oil and gas revenues? (0 Completely dissatisfied, 1 Somewhat dissatisfied, 2 Neither satisfied nor dissatisfied, 3 Somewhat satisfied, 4 Completely satisfied)
Influence	2288	3.29	1.12	0	4	887	3.27	1.22	0	4	To what extent do you agree with these statement: You and other people can influence how revenues from oil and gas are handled in Ghana. (0 Completely disagree, 1 Somewhat disagree, 2 Neither agree nor disagree, 3 Somewhat agree, 4 Completely agree)
<b>Intention to act (SE) / Action taken (F):</b>											<b>Survey experiment (SE):</b> In the near future, do you think you will engage in any of the following actions directed at contributing to better use of revenues from oil and gas? (0 No, 1 Yes) <b>Follow-up (F):</b> In the past twelve months, have you engaged in any of the following actions directed at contributing to better use of revenues from oil and gas? (0 No, 1 Yes)
Discuss home and work	2323	0.95	0.22	0	1	923	0.48	0.50	0	1	(1) Discuss the issue with family, friends or colleagues
Discuss with traditional leaders	2297	0.89	0.32	0	1	920	0.26	0.44	0	1	(2) Discuss the issue with traditional leaders
Contact UC member	2310	0.96	0.21	0	1	921	0.32	0.47	0	1	(3) Contact a Unit Committee member
Contact DA member	2313	0.97	0.16	0	1	921	0.33	0.47	0	1	(4) Contact a District Assembly member
Contact PIAC	2106	0.82	0.39	0	1	917	0.18	0.39	0	1	(5) Contact Public Interest Accountability Committee (PIAC)
Contact media	2172	0.79	0.41	0	1	920	0.13	0.34	0	1	(6) Call radio or write a letter to media
Participate in community meeting	2335	0.98	0.13	0	1	915	0.20	0.40	0	1	(7) Participate in a community meeting to discuss the use of oil and gas revenues
Vote(d) differently	2209	0.84	0.36	0	1	796	0.43	0.50	0	1	(8) Vote differently in next election (survey exp.) / Considered revenue handling when voting (follow-up)
INDEX (of all 8 variables)	1920	0.08	0.56	-3.82	0.35	782	-0.01	0.62	-0.68	1.60	Index of all 8 outcome variables (All variables were standardized by subtracting the mean of the control group and dividing by the standard deviation of the control group. The index is the mean of the standardized variables.)
<b>Control variables</b>											
Age	2,363	47	15	18	110	925	46	14	18	99	Age in years
Gender (female=1)	2,363	0.18	0.39	0	1	925	0.14	0.35	0	1	Dummy: 1 if respondent is female

Education	2,359	4.61	2.60	0	8	922	5.02	2.50	0	8	What is your highest level of education? (0 None, 1 Incomplete primary school, 2 Completed primary school, 3 Incomplete junior high school, 4 Complete junior, 5 Incomplete secondary/technical school, 6 Completed secondary/technical school, 7 Incomplete tertiary, 8 Completed tertiary)
Common citizen	2,363	0.29	0.45	0	1	925	0.25	0.43	0	1	Dummy: 1 if respondent does not have any leader position
DA member	2,363	0.17	0.38	0	1	925	0.20	0.40	0	1	Dummy: 1 if respondent is District Assembly member
UC member	2,363	0.19	0.40	0	1	925	0.23	0.42	0	1	Dummy: 1 if respondent is Unit Committee member
Traditional authority	2,363	0.11	0.32	0	1	925	0.09	0.28	0	1	Dummy: 1 if respondent is traditional leader
Opinion leader	2,363	0.23	0.42	0	1	925	0.23	0.42	0	1	Dummy: 1 if respondent is opinion leader (teacher, religious leader, youth leader etc.)
Self-declared living conditions	2,362	1.95	1.15	0	4	924	2.02	1.14	0	4	In general, how would you describe your household's present living conditions? (0 Very bad, 1 Fairly bad, 2 Neither good or bad, 3 Fairly good, 4 Very good)
Discuss politics	2,362	2.50	1.60	0	5	925	2.67	1.63	0	5	How often do you discuss political matters and public affairs with friends, family or colleagues? (0 Never, 1 Rarely, 2 Sometimes, 3 Often, 4 Very often, 5 All the time)
Urban (urban=1)	2,363	0.45	0.50	0	1	925	0.45	0.50	0	1	Dummy: 1 if the district is considered as urban area

Note: Control variables are from a baseline conducted for a field experiment in June-August 2016. The dependent variables are from the main survey experiment and its telephone follow-up.

**Appendix Table 2: Balance tests**

	Means			p-value			
	Control	T1	T2	all	Control vs T1	Control vs T2	T1 vs T2
<b>Panel A: Full sample</b>							
Age	46.3	46.0	47.3	0.18	0.74	0.20	0.07
Gender (female=1)	0.19	0.18	0.18	0.68	0.38	0.65	0.66
Education	4.48	4.71	4.60	0.22	<b>0.08</b>	0.38	0.37
Common citizen	0.29	0.30	0.28	0.53	0.61	0.61	0.26
DA member	0.17	0.16	0.19	0.45	0.67	0.46	0.21
UC member	0.21	0.18	0.19	0.45	0.21	0.45	0.61
Traditional authority	0.10	0.12	0.12	0.40	0.26	0.22	0.86
Opinion leader	0.23	0.23	0.22	0.86	0.85	0.75	0.59
Self-declared living conditions	1.87	2.02	1.94	<b>0.03</b>	<b>0.01</b>	0.25	0.12
Discuss politics	2.44	2.51	2.54	0.53	0.42	0.27	0.71
Urban (urban=1)	0.41	0.48	0.46	<b>0.04</b>	<b>0.01</b>	<b>0.07</b>	0.51
Field experiment treatment	1.55	1.45	1.45	0.15	<b>0.07</b>	0.10	0.95
Pre-video satisfaction with how oil and gas revenues are handled in Ghana	1.03	1.05	1.04	0.98	0.85	0.92	0.93
N	636	944	783	2,363			
<b>Panel B: Follow-up sample</b>							
Age	46.1	44.7	46.6	0.16	0.22	0.68	0.07
Gender (female=1)	0.14	0.13	0.15	0.59	0.69	0.60	0.31
Education	4.83	5.18	4.96	0.22	0.10	0.57	0.25
Common citizen	0.25	0.23	0.26	0.68	0.62	0.78	0.39
DA member	0.21	0.19	0.21	0.78	0.53	0.91	0.57
UC member	0.23	0.24	0.23	0.98	0.95	0.92	0.86
Traditional authority	0.06	0.09	0.10	0.33	0.25	0.16	0.73
Opinion leader	0.24	0.25	0.20	0.31	0.75	0.32	0.14
Self-declared living conditions	1.99	2.10	1.95	0.21	0.26	0.71	0.09
Discuss politics	2.62	2.63	2.76	0.50	0.94	0.32	0.30
Urban (urban=1)	0.48	0.47	0.45	0.72	0.84	0.45	0.52
Field experiment treatment	1.58	1.49	1.47	0.47	0.31	0.25	0.84
Pre-video satisfaction with how oil and gas revenues are handled in Ghana	0.92	1.04	1.01	0.62	0.34	0.48	0.81
N	231	377	317	925			

Note: Panel A shows values for main survey, Panel B for the follow-up survey. The first three columns show mean values across three treatment arms (Control, T1, T2). Column 4 shows p-values for F-test of differences across all three groups; columns 5-7 show p-values of pairwise t-tests. H0 is that there is no difference between means. Significant differences are indicated by bold p-values.

**Appendix Table 3: Take-up question**

	(1)	(2)	(3)	(4)
Watched a treatment video	0.484*** (23.60)		0.477*** (23.74)	
T1: watched information video w/out encouragement		0.503*** (21.46)		0.494*** (21.74)
T2: watched information video w/ encouragement		0.462*** (20.59)		0.458*** (20.78)
Age			-0.00103 (-1.615)	-0.000999 (-1.568)
Gender: 1 = Female			-0.0358 (-1.262)	-0.0347 (-1.225)
Education			0.0227*** (5.466)	0.0227*** (5.473)
Common citizen			0.00214 (0.0849)	0.00116 (0.0462)
HH living conditions			0.0232** (2.587)	0.0228** (2.545)
Political interest			0.0109* (1.792)	0.0110* (1.814)
Mainly urban			-0.0461** (-2.403)	-0.0462** (-2.402)
Observations	2,363	2,363	2,357	2,357
R-squared	0.215	0.216	0.245	0.245
Wald test T1=T2		0.050		0.069

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 4:** Satisfaction with current handling of oil and gas revenues**Ordered logit**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Satisfaction	Satisfaction	Satisfaction	Satisfaction	Change in satisfaction	Change in satisfaction	Change in satisfaction	Change in satisfaction
Watched a treatment video	1.483*** (14.97)		1.514*** (13.95)		1.278*** (13.12)		1.302*** (13.03)	
T1: watched information video w/out encouragement		1.500*** (14.54)		1.503*** (13.30)		1.288*** (12.01)		1.321*** (12.02)
T2: watched information video w/ encouragement		1.462*** (13.39)		1.528*** (12.34)		1.266*** (11.12)		1.279*** (11.08)
Baseline satisfaction with revenue use			0.399*** (10.25)	0.399*** (10.24)				
Age			0.000911 (0.234)	0.000861 (0.218)			-0.00218 (-0.642)	-0.00210 (-0.614)
Gender: 1 = Female			-0.0147 (-0.112)	-0.0150 (-0.114)			0.0343 (0.272)	0.0349 (0.276)
Education			-0.0592*** (-3.038)	-0.0593*** (-3.041)			-0.0273 (-1.445)	-0.0271 (-1.435)
Common citizen			0.127 (1.018)	0.128 (1.019)			-0.0103 (-0.0897)	-0.0109 (-0.0945)
HH living conditions			-0.0298 (-0.641)	-0.0294 (-0.628)			-0.143*** (-3.429)	-0.143*** (-3.424)
Political interest			-0.0310 (-0.958)	-0.0311 (-0.959)			-0.00837 (-0.280)	-0.00835 (-0.279)
Mainly urban			-0.343*** (-4.025)	-0.343*** (-4.025)			-0.215*** (-2.639)	-0.215*** (-2.638)
Observations	2,176	2,176	1,780	1,780	1,784	1,784	1,780	1,780
Wald test T1=T2		0.6099		0.7922		0.8313		0.6864

Note: All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Appendix Table 5a:** Satisfaction with development projects (ABFA)**OLS**

	(1)	(2)	(3)	(4)
Watched a treatment video	0.771*** (9.417)		0.792*** (9.988)	
T1: watched information video w/out encouragement		0.791*** (9.045)		0.816*** (9.686)
T2: watched information video w/ encouragement		0.746*** (8.370)		0.763*** (8.671)
Age			-0.00337 (-1.241)	-0.00332 (-1.220)
Gender: 1 = Female			0.210** (2.181)	0.212** (2.187)
Education			-0.0544*** (-3.542)	-0.0546*** (-3.553)
Common citizen			0.125 (1.416)	0.123 (1.398)
HH living conditions			0.0271 (0.907)	0.0265 (0.883)
Political interest			-0.00452 (-0.200)	-0.00436 (-0.193)
Mainly urban			-0.119* (-1.870)	-0.119* (-1.876)
Observations	2,120	2,120	2,115	2,115
R-squared	0.097	0.097	0.116	0.116
Wald test T1=T2		0.4999		0.4242

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 5b:** Satisfaction with development projects (ABFA)**Ordered logit**

	(1)	(2)	(3)	(4)
Watched a treatment video	0.918*** (9.269)		0.953*** (9.851)	
T1: watched information video w/out encouragement		0.938*** (8.931)		0.978*** (9.611)
T2: watched information video w/ encouragement		0.892*** (8.317)		0.924*** (8.606)
Age			-0.00416 (-1.264)	-0.00412 (-1.248)
Gender: 1 = Female			0.224* (1.937)	0.225* (1.941)
Education			-0.0626*** (-3.403)	-0.0627*** (-3.410)
Common citizen			0.137 (1.313)	0.136 (1.300)
HH living conditions			0.0451 (1.203)	0.0446 (1.185)
Political interest			-0.0189 (-0.665)	-0.0186 (-0.654)
Mainly urban			-0.147* (-1.932)	-0.148* (-1.944)
Observations	2,120	2,120	2,115	2,115
Wald test T1=T2		0.5424		0.4853

Note: All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.

**Appendix Table 6:** Belief in ability to personally influence handling of oil and gas revenues**Ordered logit**

	(1)	(2)	(3)	(4)
Watched a treatment video	0.227** (2.216)		0.212** (2.031)	
T1: watched information video w/out encouragement		0.179 (1.469)		0.158 (1.273)
T2: watched information video w/ encouragement		0.284** (2.561)		0.275** (2.453)
Age			-0.00535* (-1.687)	-0.00542* (-1.703)
Gender: 1 = Female			-0.122 (-1.057)	-0.125 (-1.087)
Education			0.0677*** (4.168)	0.0680*** (4.183)
Common citizen			-0.246** (-2.201)	-0.245** (-2.197)
HH living conditions			0.0336 (0.799)	0.0354 (0.842)
Political interest			0.110*** (3.442)	0.109*** (3.428)
Mainly urban			-0.00770 (-0.0870)	-0.00673 (-0.0758)
Observations	2,288	2,288	2,282	2,282
Wald test T1=T2		0.3467		0.2995

Note: All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table 7a:** Willingness to take action to demand more accountability in oil and gas revenue management

**Ordered logit**

<b>Panel A</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Discuss with family, friends or colleagues				Call radio or write letter to media			
Watched a treatment video	0.585*** (2.943)		0.544*** (2.766)		0.311** (2.445)		0.270** (2.031)	
T1: watched information video w/out encouragement		0.817*** (3.202)		0.786*** (3.096)		0.212 (1.533)		0.154 (1.089)
T2: watched information video w/ encouragement		0.352 (1.503)		0.300 (1.298)		0.435*** (2.779)		0.412** (2.500)
Controls	no	no	yes	yes	no	no	yes	yes
Observations	2,323	2,323	2,318	2,318	2,172	2,172	2,167	2,167
Wald test T1=T2		0.1032		0.0875		0.1296		0.0871
<b>Panel B</b>	Vote differently in elections				Contact PIAC			
Watched a treatment video	0.266* (1.771)		0.268* (1.785)		0.457*** (3.602)		0.437*** (3.061)	
T1: watched information video w/out encouragement		0.222 (1.294)		0.225 (1.313)		0.418*** (2.902)		0.387** (2.471)
T2: watched information video w/ encouragement		0.319* (1.852)		0.320* (1.844)		0.505*** (3.371)		0.498*** (2.990)
Controls	no	no	yes	yes	no	no	yes	yes
Observations	2,209	2,209	2,204	2,204	2,106	2,106	2,101	2,101
Wald test T1=T2		0.5645		0.5764		0.5557		0.4587

Note: All specifications include region dummies and constant term (not shown). Control variables include age, gender (dummy), education, common citizen (dummy), HH living conditions, political interest, mainly urban (dummy). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table 7b:** Willingness to take action to demand more accountability in oil and gas revenue management – additional variables

**OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Discuss the issue with traditional leaders			Contact an elected representative (UC or DA)				Participate in community meeting				
Watched a treatment video	0.0151 (0.896)		0.0142 (0.855)		0.0112 (1.180)		0.0122 (1.292)		-0.00370 (-0.696)		-0.00413 (-0.776)	
T1: watched information video w/out encouragement		0.0132 (0.703)		0.0133 (0.731)		0.0100 (0.945)		0.0116 (1.113)		-0.00687 (-1.163)		-0.00759 (-1.265)
T2: watched information video w/ encouragement		0.0173 (0.961)		0.0153 (0.834)		0.0127 (1.143)		0.0129 (1.182)		0.000116 (0.0176)		1.38e-05 (0.00211)
Age			0.000117 (0.225)	0.000116 (0.222)			-0.000858** (-2.218)	-0.000859** (-2.231)			-0.000396* (-1.936)	-0.000402* (-1.961)
Gender: 1 = Female			-0.0880*** (-3.756)	-0.0880*** (-3.772)			-0.0470*** (-3.124)	-0.0471*** (-3.122)			0.00315 (0.484)	0.00292 (0.442)
Education			-0.00183 (-0.641)	-0.00183 (-0.641)			0.00111 (0.675)	0.00111 (0.675)			0.000148 (0.138)	0.000151 (0.140)
Common citizen			-0.0878*** (-4.272)	-0.0878*** (-4.280)			-0.0254** (-2.135)	-0.0254** (-2.138)			-0.00160 (-0.252)	-0.00141 (-0.222)
HH living conditions			0.00772 (1.310)	0.00774 (1.315)			0.000845 (0.227)	0.000858 (0.232)			0.00313 (1.010)	0.00322 (1.036)
Political interest			0.0103** (2.518)	0.0103** (2.514)			0.00659*** (2.737)	0.00659*** (2.734)			0.00517** (2.594)	0.00515** (2.597)
Mainly urban			-0.0325** (-2.562)	-0.0325** (-2.560)			-0.0223** (-2.367)	-0.0223** (-2.364)			-0.00741 (-1.364)	-0.00741 (-1.360)
Observations	2,297	2,297	2,292	2,292	2,363	2,363	2,357	2,357	2,335	2,335	2,329	2,329
R-squared	0.026	0.026	0.075	0.075	0.014	0.014	0.042	0.042	0.009	0.010	0.018	0.019
Wald test T1=T2		0.7876		0.8965		0.8		0.898		0.2889		0.2547

Note: OLS estimates. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 7c:** Willingness to take action to demand more accountability in oil and gas revenue management – additional variables

**Ordered logit**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Discuss the issue with traditional leaders				Contact an elected representative (UC or DA)				Participate in community meeting			
Watched a treatment video	0.151 (0.909)		0.141 (0.803)		0.267 (1.240)		0.259 (1.176)		-0.235 (-0.659)		-0.290 (-0.809)	
T1: watched information video w/out encouragement		0.131 (0.701)		0.127 (0.660)		0.236 (0.960)		0.221 (0.893)		-0.400 (-1.116)		-0.491 (-1.326)
T2: watched information video w/ encouragement		0.175 (0.963)		0.157 (0.795)		0.306 (1.134)		0.302 (1.115)		0.00798 (0.0170)		-0.00654 (-0.0140)
Age			0.000237 (0.0422)	0.000217 (0.0386)			-0.0212** (-2.556)	-0.0213*** (-2.589)			-0.0217** (-2.168)	-0.0222** (-2.253)
Gender: 1 = Female			-0.693*** (-4.040)	-0.693*** (-4.064)			-0.818*** (-3.299)	-0.819*** (-3.307)			0.144 (0.359)	0.122 (0.295)
Education			-0.0190 (-0.585)	-0.0189 (-0.581)			0.0440 (0.967)	0.0445 (0.972)			0.0109 (0.176)	0.0140 (0.225)
Common citizen			-0.868*** (-4.695)	-0.868*** (-4.704)			-0.666** (-2.547)	-0.665** (-2.553)			-0.0567 (-0.148)	-0.0439 (-0.116)
HH living conditions			0.0783 (1.214)	0.0787 (1.222)			0.00642 (0.0645)	0.00801 (0.0812)			0.198 (1.149)	0.204 (1.168)
Political interest			0.114** (2.476)	0.114** (2.472)			0.226*** (2.831)	0.226*** (2.832)			0.358** (2.555)	0.359*** (2.578)
Mainly urban			-0.331** (-2.460)	-0.332** (-2.461)			-0.558** (-2.446)	-0.560** (-2.473)			-0.506 (-1.631)	-0.524* (-1.688)
Observations	2,297	2,297	2,292	2,292	2,363	2,363	2,357	2,357	2,335	2,335	2,329	2,329
Wald test T1=T2		0.7871		0.8933		0.8038		0.76.72		0.2947		0.2298

Note: All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 8a: FOLLOW-UP Satisfaction and Influence**

**OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP	
	Satisfaction with revenue handling		Satisfaction with revenue handling		Satisfaction with ABFA projects		Satisfaction with ABFA projects		Personal influence		Personal influence	
Watched a treatment video	-0.0288		0.109		0.175		0.183		-0.0630		-0.0626	
	(-0.209)		(0.783)		(1.223)		(1.261)		(-0.737)		(-0.736)	
T1: watched information video		-0.0410		0.122		0.133		0.122		-0.0537		-0.0585
w/out encouragement		(-0.275)		(0.802)		(0.870)		(0.783)		(-0.522)		(-0.572)
T2: watched information video		-0.0145		0.0938		0.224		0.255		-0.0740		-0.0674
w/ encouragement		(-0.0943)		(0.580)		(1.278)		(1.450)		(-0.754)		(-0.688)
Age			0.179***	0.179***								
			(3.883)	(3.867)								
Gender: 1 = Female			0.00404	0.00412			-0.00151	-0.00196			-0.00572*	-0.00570*
			(0.785)	(0.803)			(-0.270)	(-0.351)			(-1.683)	(-1.688)
Education			0.134	0.137			0.329	0.321			-0.0526	-0.0521
			(0.767)	(0.785)			(1.526)	(1.487)			(-0.403)	(-0.400)
Common citizen			-0.0453	-0.0454			-0.0187	-0.0186			0.00364	0.00363
			(-1.395)	(-1.395)			(-0.653)	(-0.651)			(0.208)	(0.207)
HH living conditions			-0.0150	-0.0149			-0.0545	-0.0566			-0.114	-0.114
			(-0.107)	(-0.106)			(-0.335)	(-0.350)			(-1.069)	(-1.060)
Political interest			0.0970	0.0961			0.218***	0.222***			0.0521	0.0520
			(1.612)	(1.577)			(3.983)	(4.065)			(1.359)	(1.357)
Mainly urban			0.0436	0.0440			-0.00195	-0.00312			-0.00231	-0.00213
			(0.922)	(0.932)			(-0.0422)	(-0.0680)			(-0.0904)	(-0.0828)
Observations	842	842	684	684	573	573	570	570	887	887	883	883
R-squared	0.053	0.054	0.078	0.078	0.052	0.052	0.077	0.078	0.017	0.017	0.027	0.027

Note: All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix Table 8b: FOLLOW-UP Satisfaction and Influence**

**Ordered logit**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP		FOLLOW-UP	
	Satisfaction with revenue handling		Satisfaction with revenue handling		Satisfaction with ABFA projects		Satisfaction with ABFA projects		Personal influence		Personal influence	
Watched a treatment video	-0.0430		0.113		0.228		0.240		0.000937		-0.0127	
	(-0.268)		(0.677)		(1.388)		(1.413)		(0.00643)		(-0.0877)	
T1: watched information video		-0.0701		0.124		0.163		0.146		-0.0227		-0.0568
w/out encouragement		(-0.405)		(0.687)		(0.934)		(0.805)		(-0.131)		(-0.326)
T2: watched information video		-0.0118		0.101		0.303		0.348*		0.0297		0.0397
w/ encouragement		(-0.0664)		(0.525)		(1.510)		(1.695)		(0.185)		(0.248)
Age			0.224***	0.223***								
			(4.117)	(4.111)								
Gender: 1 = Female			0.00361	0.00367			-0.00181	-0.00249			-0.0103*	-0.0105*
			(0.605)	(0.619)			(-0.280)	(-0.387)			(-1.869)	(-1.923)
Education			0.131	0.132			0.335	0.317			-0.239	-0.246
			(0.667)	(0.678)			(1.400)	(1.326)			(-1.087)	(-1.131)
Common citizen			-0.0639	-0.0639			-0.0154	-0.0158			0.00948	0.00960
			(-1.644)	(-1.644)			(-0.463)	(-0.475)			(0.364)	(0.370)
HH living conditions			-0.0502	-0.0504			-0.0441	-0.0482			-0.211	-0.215
			(-0.308)	(-0.309)			(-0.240)	(-0.265)			(-1.222)	(-1.237)
Political interest			0.104	0.103			0.248***	0.255***			0.110*	0.112*
			(1.510)	(1.482)			(3.978)	(4.085)			(1.708)	(1.743)
Mainly urban			0.0564	0.0568			-0.00738	-0.00895			0.0103	0.00807
			(0.977)	(0.985)			(-0.140)	(-0.171)			(0.227)	(0.176)
Observations	842	842	684	684	573	573	570	570	887	887	883	883

Note: All specifications include region dummies and constant term (not shown). Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Appendix Table 9a: FOLLOW-UP Action variables 1-4 (OLS only)**

**OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	FOLLOW-UP Discussed with family, friends, colleagues				FOLLOW-UP Contacted traditional leader				FOLLOW-UP Contacted unit committee member				FOLLOW-UP Contacted assembly member			
Watched a treatment video	-0.0129 (-0.349)		-0.0203 (-0.566)		-0.00827 (-0.233)		-0.0145 (-0.423)		-0.0762** (-2.175)		-0.0858** (-2.554)		-0.0228 (-0.590)		-0.0294 (-0.772)	
T1: watched information video w/out encouragement		-0.0118 (-0.279)		-0.0178 (-0.428)		-0.0198 (-0.526)		-0.0215 (-0.592)		-0.0759* (-1.852)		-0.0848** (-2.163)		-0.0203 (-0.465)		-0.0272 (-0.630)
T2: watched information video w/ encouragement		-0.0142 (-0.367)		-0.0233 (-0.614)		0.00531 (0.132)		-0.00625 (-0.159)		-0.0766** (-2.194)		-0.0871** (-2.601)		-0.0257 (-0.644)		-0.0320 (-0.810)
Age			-0.00296** (-2.314)	-0.00295** (-2.293)			0.00124 (1.136)	0.00120 (1.109)				-0.00286** (-2.258)	-0.00285** (-2.243)		-0.000595 (-0.436)	-0.000584 (-0.428)
Gender: 1 = Female			-0.109** (-2.216)	-0.109** (-2.209)			-0.0349 (-0.864)	-0.0357 (-0.874)				-0.0227 (-0.514)	-0.0226 (-0.507)		1.26e-05 (0.000272)	0.000262 (0.00561)
Education			-0.00341 (-0.487)	-0.00342 (-0.487)			0.00447 (0.714)	0.00447 (0.715)				0.00694 (1.273)	0.00694 (1.272)		0.00817 (1.482)	0.00817 (1.480)
Common citizen			-0.0489 (-1.167)	-0.0487 (-1.159)			-0.125*** (-3.484)	-0.126*** (-3.498)				-0.196*** (-5.226)	-0.196*** (-5.219)		-0.171*** (-4.340)	-0.171*** (-4.335)
HH living conditions			-0.00929 (-0.625)	-0.00940 (-0.630)			-0.0135 (-1.146)	-0.0132 (-1.116)				-0.0209 (-1.467)	-0.0210 (-1.470)		-0.00292 (-0.194)	-0.00301 (-0.201)
Political interest			0.0440*** (4.559)	0.0441*** (4.572)			0.0132 (1.354)	0.0129 (1.325)				0.0261*** (2.654)	0.0261*** (2.662)		0.0145 (1.392)	0.0146 (1.395)
Mainly urban			-0.0367 (-0.976)	-0.0367 (-0.976)			-0.115*** (-3.504)	-0.115*** (-3.501)				-0.0735* (-1.863)	-0.0735* (-1.863)		-0.0629* (-1.674)	-0.0630* (-1.671)
Observations	923	923	919	919	920	920	916	916	921	921	917	917	921	921	917	917
R-squared	0.015	0.015	0.056	0.056	0.021	0.022	0.065	0.065	0.018	0.018	0.079	0.079	0.022	0.022	0.059	0.059

Note: OLS estimates. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 9b: FOLLOW-UP Action variables 5-8 (OLS only)**

**OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	FOLLOW-UP Contacted media				FOLLOW-UP Contacted PIAC				FOLLOW-UP Participated in community meeting				FOLLOW-UP Voted differently			
Watched a treatment video	-0.0262 (-0.864)		-0.0288 (-0.940)		0.0119 (0.414)		0.00581 (0.205)		-0.0586* (-1.778)		-0.0609* (-1.824)		-0.0285 (-0.737)		-0.0271 (-0.689)	
T1: watched information video w/out encouragement	-0.0372 (-1.144)		-0.0400 (-1.218)		0.0167 (0.543)		0.00731 (0.242)		-0.0827** (-2.336)		-0.0853** (-2.386)		-0.0229 (-0.490)		-0.0227 (-0.475)	
T2: watched information video w/ encouragement	-0.0132 (-0.410)		-0.0154 (-0.476)		0.00628 (0.187)		0.00404 (0.123)		-0.0304 (-0.808)		-0.0323 (-0.852)		-0.0353 (-0.844)		-0.0325 (-0.767)	
Age		-0.000304 (-0.349)	-0.000359 (-0.409)			-0.00109 (-1.114)	-0.00108 (-1.113)				-0.000924 (-0.942)	-0.00105 (-1.081)			-0.00221 (-1.584)	-0.00218 (-1.537)
Gender: 1 = Female		-0.0331 (-1.052)	-0.0344 (-1.093)			-0.0409 (-1.034)	-0.0407 (-1.031)				-0.0232 (-0.542)	-0.0259 (-0.603)			0.0423 (0.737)	0.0425 (0.739)
Education		0.000304 (0.0613)	0.000328 (0.0661)			0.00765 (1.192)	0.00765 (1.191)				-0.00319 (-0.503)	-0.00311 (-0.492)			-0.0232*** (-3.001)	-0.0231*** (-2.975)
Common citizen		0.000836 (0.0293)	0.000210 (0.00738)			-0.0831*** (-2.863)	-0.0830*** (-2.862)				-0.100*** (-3.038)	-0.101*** (-3.049)			-0.0574 (-1.297)	-0.0573 (-1.292)
HH living conditions		0.0182* (1.745)	0.0187* (1.785)			0.0256** (2.283)	0.0255** (2.256)				0.00538 (0.429)	0.00636 (0.515)			0.00472 (0.273)	0.00450 (0.258)
Political interest		0.0146* (1.782)	0.0142* (1.747)			0.0305*** (3.722)	0.0305*** (3.743)				0.000974 (0.107)	0.000210 (0.0233)			0.00601 (0.496)	0.00614 (0.505)
Mainly urban		0.0196 (0.879)	0.0198 (0.892)			-0.0600** (-2.343)	-0.0601** (-2.339)				-0.0422 (-1.301)	-0.0414 (-1.286)			-0.00797 (-0.226)	-0.00813 (-0.230)
Observations	920	920	916	916	917	917	913	913	915	915	911	911	796	796	792	792
R-squared	0.017	0.018	0.030	0.031	0.023	0.024	0.078	0.078	0.020	0.023	0.036	0.039	0.041	0.041	0.054	0.054

Note: OLS estimates. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 9c: FOLLOW-UP Action index including all 8 action variables****OLS**

	(1)	(2)	(3)	(4)
Watched a treatment video	-0.0619 (-1.174)		-0.0729 (-1.422)	
T1: watched information video w/out encouragement		-0.0632 (-1.042)		-0.0698 (-1.190)
T2: watched information video w/ encouragement		-0.0604 (-1.116)		-0.0766 (-1.447)
Age			-0.00192 (-0.979)	-0.00190 (-0.963)
Gender: 1 = Female			-0.0362 (-0.550)	-0.0360 (-0.546)
Education			0.00661 (0.674)	0.00665 (0.678)
Common citizen			-0.221*** (-4.133)	-0.221*** (-4.131)
HH living conditions			0.00699 (0.325)	0.00684 (0.318)
Political interest			0.0382** (2.510)	0.0383** (2.520)
Mainly urban			-0.0974* (-1.849)	-0.0975* (-1.848)
Observations	782	782	778	778
R-squared	0.031	0.031	0.082	0.082

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 10:** Heterogeneous effects in oil and mining districts: Satisfaction with current handling of oil and gas revenues and funded development projects in respondent's region (ABFA)

**OLS**

	(1) Satisfaction with revenue management	(2) Satisfaction with revenue management	(3) Satisfaction with ABFA projects	(4) Satisfaction with ABFA projects
Watched a treatment video	1.172*** (13.36)		0.742*** (8.090)	
T1: watched information video w/out role models		1.239*** (13.30)		0.795*** (8.328)
T2: watched information video w/ role models		1.094*** (11.26)		0.680*** (6.546)
Oil or mining district: Yes = 1	-0.0829 (-0.579)	-0.0807 (-0.566)	-0.0463 (-0.230)	-0.0432 (-0.214)
<i><b>HE: Interaction terms</b></i>				
Any treatment x Oil or mining district	0.212 (1.359)		0.227 (1.208)	
T1 x Oil or mining district		0.0705 (0.420)		0.0950 (0.444)
T2 x Oil or mining district		0.379** (2.145)		0.383** (2.013)
Age	-0.000193 (-0.0718)	-0.000274 (-0.102)	-0.00347 (-1.284)	-0.00356 (-1.318)
Gender: 1 = Female	0.0294 (0.316)	0.0329 (0.353)	0.209** (2.161)	0.211** (2.178)
Education	-0.0658*** (-4.848)	-0.0653*** (-4.825)	-0.0549*** (-3.565)	-0.0544*** (-3.534)
Common citizen	0.112 (1.329)	0.105 (1.246)	0.127 (1.435)	0.121 (1.376)
HH living conditions	-0.00415 (-0.129)	-0.00342 (-0.107)	0.0286 (0.957)	0.0295 (0.983)
Political interest	-0.0189 (-0.872)	-0.0186 (-0.862)	-0.00500 (-0.222)	-0.00487 (-0.216)
Mainly urban	-0.211*** (-3.562)	-0.217*** (-3.687)	-0.117* (-1.832)	-0.123* (-1.917)
Observations	2,171	2,171	2,115	2,115
R-squared	0.171	0.172	0.117	0.118

Note: OLS estimations. All specifications include region dummies and constant term (not shown). Standard errors clustered at district level. Robust t-statistics in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix B: Video transcripts

### **Placebo video [with supporting slideshow]**

Ghana is located on the West Coast of Africa. The country is divided into ten administrative regions and 216 districts. Accra is the capital city and is located in the Greater Accra Region.

Ghana's population is currently estimated at 28.6 million.

Approximately 51 percent of the Ghanaian population is female, while 49 percent is male.

There are nine main ethnic groups in Ghana, with Akans being in the majority and accounting for approximately 48 percent of the total population. Other ethnic groups are the Moles, Ewes, Guans, and the Grusis.

English is the official language. However, there are over 80 different dialects spoken in Ghana, with Akan spoken by over 40 percent of the population.

Christianity – 71.2 percent – and Islam – 17.6 percent – are the two most dominant religions in the country.

Interesting tourist destinations include the Kakum National Park, the Mole National Park, Cape Coast and Osu Castles, and the Nzulezu Stilt Village.

Thanks for watching.

### **Treatment videos**

#### **Part 1 [with supporting slideshow]: T1 and T2**

Ghana has been producing oil and gas in commercial quantities since November 2010 from the Jubilee and TEN Fields located in its offshore sedimentary basin.

Approximately 195 million barrels of oil have been produced between 2010 and 2016. These have been shared between Ghana and oil production partners including Tullow, Kosmos, and Anadarko.

Ghana has received 8.49 billion Ghana cedis from the sale of its share of the crude oil so far, as well as profits from taxes and surface rentals paid by international oil companies.

Ghana's share of oil money received has been distributed to four main areas. 44% allocated to the Annual Budget Funding Amount to support the annual budget; 30% given to Ghana National Petroleum Corporation (GNPC) to pay for its participation in oil production and exploration, 18% in the Ghana Stabilisation Fund, and 8% for the Ghana Heritage Fund.

The Petroleum Revenue Management Act (PRMA), 2011 (Act 815) requires that the ABFA should not be spent on more than four priority areas at every point in time. Between 2011 and 2016, roads and other infrastructure, agriculture modernisation, repayment of loans and expenditure on oil and gas and capacity building were the priority areas.

Out of 3.31 billion cedis that have been allocated to the ABFA, 48% has been spent on roads and other Infrastructure, 26% has been used to repay oil-related loans; 11% to build human and institutional capacity in different sectors of the economy; 11% to modernise agriculture, 8% put in the Ghana Infrastructure Investment Fund; and the Public Interest and Accountability Committee (PIAC) received 0.03%.

The ABFA has been used to support projects in all the 10 regions. The Western Region has received the largest share of the ABFA, totalling 254.02 Ghana cedis million, while the Upper West Region has received the least amount of 34.62 million Ghana cedis between 2011 and 2016.

The Upper West Region has received 34.62 million Ghana cedis from the ABFA supporting projects in 5 different sectors. These include energy and road and highway sectors.

The Upper East Region has so far received 60.71 million Ghana cedis, which have supported projects in 6 sectors of the economy including agriculture, energy and roads and highways.

Total of 36.18 million Ghana cedis of the ABFA went to the Northern Region supporting projects mainly in roads and highways sector as well as energy sector.

The Brong-Ahafo Region has received 64.16 million Ghana cedis of ABFA money; 93% of which has gone to the roads and highway sector, with the remainder going to the education, water and agricultural sectors.

163.51 million Ghana cedis from the ABFA went to the Ashanti Region, covering the roads and highways sector, market infrastructure and projects in educational sector.

The Eastern Region received 162.69 million Ghana cedis from the ABFA, and was used to fund projects in the roads and highways sector as well as the agriculture and educational sectors.

The Volta Region received 171.58 million Ghana cedis of ABFA funds, and was used to support projects in roads and highways sector, building water infrastructure, and supporting projects in the agriculture and educational sectors.

A total of 254.10 million Ghana cedis of the ABFA went to the Western Region, which were used for water sector development, roads and highways, agriculture, railway and energy sector projects.

The Central Region received 66.79 million Ghana cedis of the ABFA, of which 40% was spent on prison infrastructure, 34% on roads and highways, 11% to the Central Regional Development Commission (CEDECOM), and 5% each going to the agriculture and water sectors.

Last but not least, the Greater Accra Region received 226.39 million Ghana cedis of the ABFA, which were spent on roads and highways, agriculture and water, and railway infrastructure.

## **Part 2 [encouragement message]: only T2**

**Introduction Slide:** So, why is it important for citizens to know how oil and gas revenues are being utilised? Let's listen to what key stakeholders have to say.

### **Hon. George Mireku Duker, MP for Tarkwa-Nsuaem Constituency**

Transparency is very key in ensuring that we properly use our oil resources in our communities and in this country, and that for that matter, as a legislator, I need to ensure that proper records are kept. And that's why we're having a Public Interest and Accountability Committee, which is supposed to give about twice in each year a report that they collect in respect to the utilisation of the oil resources. Of course, we just received, as Members of Parliament – we just received a report of 2016, and I just had a copy in my pigeonhole. I'm still going through it. I need to get back to my constituency; brief them as to how our oil money is being used. And, it's important that our people get to know how these resources are utilised by our leaders, and we will ensure that they will do so.

### **Emmanuel Kuyole, Executive Director, Centre for Extractives and Development, Africa**

So, it's very important for citizens to have right, adequate and timely, and of course, verifiable information on the use of oil revenues because that is what governments are meant to do: they are meant to collect the revenues, and spend the revenues to improve the life of people, by constructing roads, schools, hospitals, and things like that. But you, the citizens, you live in the communities: you use the roads; your children go to the schools; and you go to the clinics and the hospitals! So you need to have this information to make sure that these projects are there! And if they are not there, or if they are not in the quality that they are supposed to be, you can hold government to account! That is what our democracy is about.

## **Part 3 [with one supporting slide]: T1 and T2**

If you want more information on oil and gas revenues and how they are being spent in Ghana, you may contact any of the following:

1. Your Member of Parliament
2. Public Interest and Accountability Committee on 0302 242006 or via their website [www.piacghana.org](http://www.piacghana.org)
3. Kumasi Institute of Technology and Environment (KITE) on 0302 256800 or 0302 256801

Thanks for watching.