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# When petroleum revenue transparency policy meets citizen engagement reality: Survey evidence from Indonesia[*]

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## Abstract

Transparency in natural resource revenue (NRR) management is crucial in theory to avoid misuse and corruption, but there is little evidence that information reaches citizens and engages them in revenue governance. We collect survey data from Bojonegoro in Indonesia, which has a strong transparency and accountability policy in petroleum revenue governance. We investigate who receives information and what shapes attitudes and behavior regarding NRR management. We find that respondents are poorly informed about NRR management, concerned about the environmental consequences of resource extraction, but have rarely made their voice heard. Their preferred way of being informed about the issue is through fellow citizens or the internet. Our empirical analysis shows that proximity to an extraction site and interest in environmental issues and politics influence attitudes; greater interest in politics and belief in individual citizens' ability to influence policy also increase the likelihood of self-declared past and future action for better NRR management. Finally, self-declared past – though not intended future – action is linked to receiving information on petroleum management. Engaging intrinsically motivated people in more active resource governance through clear information and pathways for action could eventually make the issue relevant to a wider share of the population.

Keywords: accountability, survey analysis, citizen engagement, petroleum revenues, Indonesia

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# 1. Introduction

Many countries are rich in natural resources yet plagued by poverty, corruption, and slow development.[1] Transparency and accountability initiatives – most notably the global Extractive Industries Transparency Initiative (EITI) – have emerged as a crucial ingredient for improving the management of the extractives sector, reduce corruption and revenue mismanagement, and promote broader socioeconomic development (Le Billon et al., 2021; Rosser and Kartika, 2020). The transparency process is often thought to work in an 'action-cycle' (Fung et al., 2007; Kosack & Fung, 2014) or a 'causal-chain' manner (Epremian et al., 2016; Heald, 2006), where there is a sequential process in which information is made available to the public, which in turn enables the public to make an informed assessment of the decisions made by the government, and is then followed by government's constructive response, completing the transparency and accountability cycle (Florini, 2007; Williams, 2011). The problem is that this cycle can fail at any point. Simply putting information into the public domain does not guarantee that a transparency process is transformative: the cross-country evidence on the effectiveness of the EITI is mixed (e.g., Rustad et al. 2017, Fenton Villar 2021), and first micro-level examinations of impacts of a strong national initiative such as the one in Ghana are also skeptical (see Lujala et al. 2020, Brunnschweiler et al. 2021, Ogbe 2022).

In this paper, we shed more light on citizens' knowledge, views and behavior regarding an ambitious subnational transparency and accountability initiative to govern the oil and gas sector and the use of its revenues. We focus on the petroleum-rich regency of Bojonegoro in Indonesia[2] and look at who knows what about petroleum revenue management, and what shapes the attitudes, citizen rights perceptions and behavior regarding petroleum extraction and revenue governance. Bojonegoro is an interesting case as it enacted a strong transparency and accountability policy for the petroleum sector in 2009, which was considered pioneering at the subnational level both in Indonesia and beyond. Qualitative work, however, suggests this has not led to widespread information about and citizen involvement in resource (revenue) management in the regency (Putri and Lujala 2023). We analyze data from a unique survey from 2022 of 201 respondents throughout Bojonegoro, which is to our knowledge the first survey throughout the regency that gauges the levels of information, attitudes and demand for accountability on resource governance in Bojonegoro.

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[1] See e.g. van der Ploeg and Poelhekke (2017) for a useful survey of the empirical natural resource curse literature.
[2] Indonesia is sub-divided into 38 provinces, below which are the regencies (*kabupaten*) and cities (*kota*) – distinguished mainly by their demographics and economic activities and collectively called "regencies" here for simplicity – followed by districts (*kecamatan*) and then villages (rural *desa* or urban warden, i.e., *kelurahan*).

Theory has some suggestions on the design of a successful transparency and accountability initiative. Fox (2007, 2015) suggests a 'strategic approach' to transparency that focuses equally on citizens' roles from below and government processes from above to facilitate both citizen action and government response. Citizens must not only receive useful information, but also be able to act on this information when needed and voice their concerns through different avenues that are feasible to them; and crucially, public decision-makers must be genuinely willing and able to respond to citizens' demands meaningfully. Looking at the extractives sector specifically, Putri and Lujala (2023) suggest three crucial dimensions when assessing a transparency initiative's ability to be transformative and achieve its goals. The first dimension is *information* so that people can assess whether the state is acting in their interest or predating upon them (Fung, 2013). Information's accessibility, saliency, and actionability for its users determine its ability to perform such a role (Lujala and Epremian, 2017). The second dimension is *action* taken by citizens to exercise their voice to influence public sector performance (Fox, 2015). It is important for citizens to have the willingness and ability to spend their time and energy to seek and obtain the desired information, scrutinize it, and demand changes in the status quo if necessary. The third dimension is *response*, which reflects decision-makers' institutional commitment and capacity to listen and respond to citizens' action (Fung, 2006; Goetz & Gaventa, 2001). State response varies depending on the extent of power distribution to citizens in decision-making processes: one-way consultation, institutionalized accountability to respond, and two-way dialogue and concertation. It is important to note that each of these dimensions is equally essential from the outset and must be developed, promoted, and assessed in tandem.

In this study, we concentrate mainly on analyzing the *information* and *action* dimensions of a subnational petroleum revenue transparency and accountability policy, touching only briefly on respondents' views on the *response* dimension, without looking in depth at what decisionmakers have done. The basic hypothesis is that Bojonegoro's policy of transparency and localized village-level information on petroleum revenues, along with channels for citizen feedback, has led to better-informed citizens who are more assertive about their rights and take more action for accountability if needed. Information and knowledge levels could affect satisfaction with the status quo either way, but we expect respondents with stronger citizen rights perceptions and lower levels of satisfaction with the status quo to take more action because they are more motivated to bring about change.

Our survey shows that the respondents in Bojonegoro are not well informed about the regency's extractives sector and how its revenues are managed. They are concerned especially about environmental impacts of extraction; yet they have not requested much information on the extractives sector management or undertaken any other action for more transparency or accountability in the sector, mainly because they have more pressing issues to occupy their time. However, they say they

would like to receive more (understandable and relevant) information, preferably from other citizens or via the internet, and that they would act on it if necessary. Our empirical analysis using ordinary least squares (OLS) analysis reveals that respondents who have a leadership position, are more interested in politics or in protecting the environment, and who live in urban areas are more likely to have received information on oil and gas extraction and natural resource revenue (NRR) management. We see that an interest in politics and the environment, and information on and knowledge of the oil and gas sector are also linked to respondents' satisfaction with management of the oil and gas sector and NRR management by Bojonegoro's politicians, as well as to perceived citizen rights and the ability to influence NRR management. For the latter outcome, we also found that satisfaction with local government was important. A greater interest in politics again comes up when explaining past and future behavior for better NRR management, as does a greater belief in an individual citizen's ability to influence what is going on. Finally, reception of information on oil and gas management is clearly linked to self-declared past – though not intended future – action.

Our survey responses were not incentivized and our main outcomes of interest may be affected by issues such as 'cheap talk', poor recall of past action, or enumerator effects.[3] Nevertheless, these findings offer interesting insights into the citizen engagement reality in an area that has seen strong NRR transparency and accountability policies. Brunnschweiler et al. (2023) suggest that information in a transparency initiative should be more localized to prove relevant for citizens. We find that even with a strong subnational initiative it can be difficult to create personal relevance and get citizens to actively participate in resource (revenue) governance unless there is physical proximity to an extraction site or a general interest in public affairs and environmental issues. From a policy point of view, engaging these (potentially) intrinsically motivated people in more active resource governance through clear information via citizens' preferred channels, with straightforward pathways for action, could be a way of eventually making the issue relevant to a wider share of the population, too, and improving the information and action dimensions of the transparency initiative.

Our article contributes to the growing literature that evaluates the effectiveness of transparency and accountability initiatives in the natural resource sector at the national and subnational level. We complement the limited qualitative study of Putri and Lujala (2023) in Bojonegoro regency with an analysis of survey data gathered from across the regency. Yanuardi et al. (2021) qualitatively study the EITI's impacts on governance quality in Indonesia to find that although civil society participation in the sector's governance has increased, there remain large gaps in transparency and accountability.

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[3] Di Maio and Fiala (2020) show that enumerator effects can be important for sensitive questions such as support for political parties, and that enumerator gender could play a role for responses. Our questionnaire did not include very sensitive issues, and by having enumerators of both genders and alternating the gender of the respondent, we minimize enumerator gender effects (see Section 3 for survey design details).

In two case studies in Mongolia, Boldbaatar et al. (2019) also find that the EITI's supposed transparency chain is incomplete and lacks citizen empowerment; and at the micro level in Ghana, Kasimba and Lujala (2019) show that similar issues of a lack of transparency can apply to local benefit-sharing funds, where there is weak representation and opportunities to voice opinions for local communities. Our paper is most closely related to Brunnschweiler et al. (2021), who use survey data to study the effectiveness of transparency and accountability measures put in place to govern petroleum revenues in Ghana. We take inspiration from that study for several of our survey questions and compare our results with theirs. Our focus on a subnational policy and the analysis of context-specific questions allows us to add to our understanding of what works when it comes to initiatives for better resource revenue governance, and what might need improvement when applying the policy elsewhere.

The rest of the article is organized as follows: Section 2 describes the contextual background and Section 3 the survey design and data; Section 4 presents the empirical analysis; and Section 5 concludes.

## 2. Petroleum revenue management in Indonesia

Our survey was carried out in Bojonegoro regency in East Java Province, on Indonesia's second largest island of Java (see Figure 1). Bojonegoro offers a particularly interesting study site because of the history of its subnational NRR governance. The regency is located approximately 110 km west of Surabaya, the province's capital and Indonesia's second-largest city, and was one of the poorest regencies in the province known for its tobacco and teak production until the discovery of substantial oil and gas reserves in the Cepu Block in 2001 (Widodo et al., 2013).[4] The Cepu Block, hosting over 700 million barrels of oil and 3.31 trillion cubic feet of gas reserves, consists of several oil and gas fields, the largest of which is the Banyuurip oil field with an estimated 450 million barrels of oil reserves. Other oil fields in the district include Sukowati, Jambangan Tiung Biru, and Wonocolo. Production in the Cepu Block began in 2005 and by 2018, Banyuurip alone contributed 200,000 barrels of oil per day, making up 25 percent of the national oil production (ExxonMobil, 2018). Despite Indonesia's ongoing substantial (industrial and small-scale) petroleum production, the country has been a net petroleum importer since 2016, the year in which it suspended its membership in the Organization of Petroleum Exporting Countries (OPEC) for the second time.

Indonesia has a decentralized system of government, and while the national-level government collects the revenues from oil and gas production (bonuses, taxes, and other sector revenues), it then

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[4] Petroleum production in Indonesia has a long history, with the first discovery made in 1883 in North Sumatra. Other major petroleum discoveries were later made in Kalimantan and Aceh (see Arndt 1983).

redistributes a large share of these revenues to subnational governments. Redistribution follows a national law regulating the fiscal balance between national and sub-national governments implemented in 2005 (Law No 33/2004 on Fiscal Balance between the Central and Regional Governments) and updated in 2022 (UU no 1/2022). The central government allocates 15.5 percent of oil and 30.5 percent of gas revenues to subnational governments; within this subnational share, provincial governments receive 20 percent, producing regencies receive 40 percent, and non-producing regencies within the province receive the remaining 40 percent.

The petroleum discovery in Bojonegoro came at a time of rising global awareness of the potential downsides from natural resource wealth and growing consensus that greater transparency and accountability in NRR would go a long way towards preventing corruption and mismanagement of revenues and supporting socio-economic development. In the first-ever democratic regency elections in 2008, Suyoto Ngartep Mustajab won the regency leadership (i.e. *bupati* or Regent Head) with a campaign focusing on combating corruption and conflict and making himself accountable to citizens, in stark contrast to previous district leaders in Bojonegoro and elsewhere in Indonesia.[5] Suyoto collaborated with a coalition of civil society organizations to design a detailed policy to redistribute the oil and gas revenues received through the central revenue-sharing mechanism (called DBH) to all villages in the regency, with areas closest to production sites being specially compensated for the negative side-effects from petroleum extraction.[6] The new mechanism, implemented in 2009, stipulated that 12.5 percent of the total NRR the regency received from the central government would be allocated as follows: 40 percent were distributed proportionately based on villages' physical proximity to the extraction site, with 5 percent to producing villages (i.e. the hosts of oil wells); 6 percent to Ring I villages (within 600 meters from the extraction site); 7.5 percent to Ring II villages (within 600-1200 meters from the site); and the remaining 81.5 percent shared equally amongst all other villages in the district. The remaining 60 percent (of the aforementioned 12.5 percent) were to be shared equally amongst all villages in the regency.[7] The DBH makes up a substantial share of regency budgets: in 2021 for example, Bojonegoro regency received US$ 147.2 million from oil and gas revenues, contributing 36.6 per cent of the regency's annual budget. The national government considered this formula to be an innovative subnational government policy aimed at better resource governance (EITI Indonesia, 2022).

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[5] For more on resource revenues and problems with corruption and mismanagement in Indonesia, see e.g., World Bank (2010), Prijosusilo (2012), Lewis (2017), Buehler (2020).

[6] See Winanti and Hanif (2020) and Putri and Lujala (2023) for more details on the background and a critical evaluation of the NRR governance scheme launched by Suyoto in Bojonegoro regency.

[7] City wards in Bojonegoro are exempt from this mechanism and cannot adopt the villages' status.

In addition to the redistribution formula, Suyoto's government also passed a series of other regulations during his time in office from 2008-2018 to increase transparency and accountability in budgeting, improve NRR management in the regency, and encourage citizen engagement in local budget and NRR management in the spirit of "open government".[8] For example, the regency government was required from 2012 to publish information about the petroleum sector – from NRR management to environmental impacts of extraction – on official websites and public radio broadcasts; village governments were tasked with publishing information on their budgets on publicly displayed banners; and weekly Friday Dialogues – broadcast live on radio and then published on YouTube – encouraged two-way communication between citizens and district government (Novenanto 2019; Abdullah and Karim 2021). After 2018, the incoming Regent maintained the distribution formula, but weakened the accompanying transparency and accountability framework, most notably canceling the Friday Dialogues.[9] After a new national law of January 2022 regulating the financial balance between national and sub-national levels provided legal support for district and provincial governments to set up subnational wealth funds, the current Regent also aims to re-design the plan for a perpetual oil and gas fund for education (i.e. a Sovereign Wealth Fund) from the transfer funds that was previously rejected by the provincial government.

Bojonegoro's NRR governance framework was pioneering in Indonesia and offers a rare example of a wide-ranging subnational transparency and accountability initiative in the extractives sector. Many measures have been in place for over a decade and the NRR amounts involved have been substantial for regency and district governments. Nevertheless, citizens living in oil-producing villages are not fully informed about how much their village receives from the redistributed petroleum revenues and have limited influence on how the village government manages and spends this (Putri and Lujala 2023; Wardhani 2023). In part, this lack of citizen engagement in village revenue management is due to village governments' limited freedom in managing their annual budget. Indonesia's decentralization policy regulates village authorities' responsibilities and does allow for independent prioritization, yet the latter is curtailed at the same time by the requirement that village governments follow national laws and regulations for their budget allocations, which effectively reduces their ability to meet local citizens' needs (Novenanto 2010). This first larger-scale survey throughout the regency aims to shed more light on citizens' knowledge of and views about local NRR governance and what factors shape these.

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[8] Open government refers to a partnership between government and civil society to make governance more transparent, participatory, inclusive and accountable. Indonesia was a founding member of the Open Government Partnership (OGP) in 2011 and Bojonegoro district became part of the OGP's Subnational Government Pilot Program in 2016, see https://www.opengovpartnership.org/

[9] The district website that provides information about the petroleum sector and revenues continues to be available but is rarely updated and the information provided is less detailed than before.

## 3. The survey

### 3.1 Survey design

Our sample consists of 201 adult (18 years and over) survey respondents, of whom 92 (46%) are female. Our survey was informed by the team's qualitative fieldwork in the regency between November 2017 and April 2019, including interviews and discussions with local government officials, academics, NGO representatives, and community members to understand natural resource revenue management in the regency (Putri and Lujala 2023). The fieldwork for the survey was carried out in May-June 2022, right after the end of the Muslim holy month of Ramadan, in 35 villages and 4 city wardens (Bojonegoro City is the only city in the regency) spread out over 20 of the 28 districts (*kecamatan*).[10] We included all villages hosting oil wells (in total 4 villages in 4 different districts). We randomly selected one Ring I village from each district in which such villages are located (6 villages) and use village population as the weight if more than one Ring I village existed in one district. Similarly, we randomly selected one Ring II village from each district with such villages (7 villages). Weighted random selection was also used to select 4 wardens from 11 wardens of Bojonegoro City. Finally, using population as our weight, we randomly sampled 18 villages among the non-producing villages.[11] The areas visited during our pilot and main fieldwork are shown in Figure 1. Most of our sample was collected in rural areas of Bojonegoro; accordingly, around 72% of our respondents live in rural villages and hamlets throughout the regency.

The respondents were interviewed face-to-face by trained enumerators using handheld tablets into which the enumerators entered the answers. Indonesian was used in the interviews. The interviews were done in each village by four teams of five enumerators each led by a team leader. Villages in rural Indonesia are typically made up of several hamlets located close to each other. Within a village, the team leader used Google Maps to identify the location of each hamlet and its border, which in most cases can appear as concentrated housing areas.[12] The team leader then assigned one or two enumerators to cover each hamlet, depending on the number of hamlets and the housing density (for an illustration of one of the villages, see Figure 2). In total, interviews were conducted in 116 hamlets. Respecting the hamlet boundaries, the enumerators interviewed one adult member of a household, choosing every fourth house. In the case that no household member of the right gender (see below) was available, the enumerators were instructed to ask if one was reachable within 10 minutes' walk

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[10] We excluded the two *kecamatan* where the two villages are located that were visited during the pilot survey in February 2022.

[11] Before the start of the fieldwork, one of the original randomly selected non-producing villages was replaced by another one due to its remote location and excessive travel time to reach it.

[12] In the case of hamlets within a village that do not appear as a distinct group of houses or without a clear border, the team leader would collect information about the borders of each hamlet in a village from the village head or village official as part of a team leader's required visit to the head of every village to secure the permission for our survey.

and go there for the interview, or arrange an appointment for an interview later the same day if possible. If no household member of the right gender was reachable, the enumerator went to the next house on their line. To preserve anonymity, we did not record the interview locations.[13]

After determining whether the respondent was eligible (i.e., a household member, adult of the desired gender, and gave consent), the respondent was asked a block of initial questions on her background and household characteristics. These were followed by a second block of questions on the respondent's satisfaction with different institutions, and then the main block of questions on knowledge of and attitudes towards oil and gas extraction and NRR management. We describe the responses to these three blocks of questions in turn below and then in Section 4 explore econometrically what attributes determine respondents' attitudes about future local NRR management in Bojonegoro regency.

### 3.2 Households in Bojonegoro and their views on the oil and gas sector

We first outline the personal and household details of our respondents before describing their views on institutions and their knowledge of and attitudes towards oil and gas extraction and revenue management. Descriptive statistics with questions can be found in Appendix Table 1.

**Personal and household characteristics**. As mentioned above, most of our sample (72%) was collected in rural areas of Bojonegoro. By design, our survey sought to achieve gender balance, and 46% of our respondents are female. The average respondent age is around 42.6 years (varying between 18 and 83 years old). 93% of our respondents can read and write in Indonesian; this is marginally lower than the 2020 literacy rate given by the World Bank/ UNESCO of 96% for the country overall. We see quite some variation in the highest level of schooling achieved: nearly 59% of our respondents have completed middle or high school or vocational training; around 32% gave elementary school as their highest completed education, and another 9.5% had completed further education (Diploma 3 or a bachelor's degree).[14] 30% of our respondents gave farming or forestry as their main occupation, 23% were self-employed, 2% were civil servants, and 13% were other salaried workers in either the public or private sector.[15] We were also interested in knowing whether they had

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[13] The fieldwork included a separate survey experiment with one control and three treated groups and an incentivized outcome (i.e., a Dictator Game-style donation exercise); assignment to either the present survey or the separate survey experiment was randomized at the individual level using pre-printed lists distributed to each enumerator. To avoid unfair treatment of our survey subjects compared to our survey experiment subjects, all our respondents were paid 70'000 rupiah (around USD 4.7 at the time) as a compensation for their time at the end of the survey and invited to participate in a donation exercise similar to the one used in the survey experiment. We do not use results from the donation exercise in this survey as they are irrelevant; see Brunnschweiler et al. (2023) for details on the survey experiment.

[14] Only 14 (7%) respondents had completed no formal schooling at all, and this sub-group was older than the overall sample at 56.4 years old on average and included our oldest respondent (83 years old).

[15] Nearly 25% were not formally working at the time, i.e. they were either students (5 respondents), retirees (2), housewives (38), or unemployed (5). Of the salaried workers, 7 gave wage labour in the public sector as their main occupation, and 19 indicated a wage job in another sector.

any leadership positions in their community, as this could affect their knowledge and views of petroleum extraction and revenue management. Overall, a remarkable 30% of respondents had some form of leadership position in their community: 5.5% had a formal leader position in their village, ward or hamlet; 22% said they were a community group leader, administrator or officer; and 3% were religious leaders.

Looking at household wealth proxies, three quarters of our sample say their household owns a bicycle; 98% of households own a moped, i.e. a scooter or motorcycle; but only 14.4% own a larger motor vehicle, i.e. a car, van, tractor or motorboat. 93.5% of households own a TV, 83% own a fridge, and 94.5% of households have at least one smartphone.[16] Given this level of smartphone diffusion, it is not surprising that 91% of households have internet access. The large majority (85%) of our sample lives in a house owned by their household, and the same proportion of households also owns land (note that the two do not always coincide). The mean house has 3.8 rooms, with a standard deviation (s.d.) of 1.35. We can construct a dummy variable for "large dwelling" for houses with a room number more than 1 s.d. above the sample mean, which shows that a small proportion of the households in our sample (6%) lives in a large property.[17]

While these individual measures of household assets are interesting, we also want to get an overview of assets especially for our empirical analysis below. We therefore construct three asset indices ranging from 0 to 3: a telecommunication asset index based on the sum of ownership dummies for TV, smartphone, and internet; a transport asset index based on the sum of bicycle, moped, and motor vehicle ownership dummies; and an (immobile) property asset index given by the sum of house, land and large-dwelling ownership dummies. The average transport asset index is 1.87, the average telecommunication asset index is 2.79, and the average household property asset index is 1.76.

**Views on government and important local issues.** Views on natural resource production and revenue management could be affected by views on institutions and government performance in general, both at the local and national level. Our respondents showed on average moderate satisfaction and trust towards government and its performance, with means between 3.2 and 3.9 (on a Likert scale of 1 to 5); satisfaction levels increase when we move from national to regency to local (i.e., village or urban ward) government, while trust levels are lowest at village level and highest for regency-level

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[16] Most households own 1-2 smartphones, over a quarter own 3, 12.4% own 4 smartphones, and 6 respondents (3%) say their HH owns 5 and 1 (0.5%) 6 smartphones.

[17] We also constructed a dummy variable for high-quality electric power available to a household. Household electricity supply is sold in standard packages in Indonesia, ranging from 220VA (category 1A) up to 5500VA (25A), with costs increasing with package capacity. Category 10A (2200VA) is considered to be high and would be sufficient for example to power approximately 1 air conditioner, a fridge, TV and a half-dozen LED lights. Our dummy takes value one for all households with at least category 10A or 2200VA: only 5 households or 2.5% of our sample have such high-quality electricity supply.

government, with trust in national government in between. Most respondents (134 of 193) are confident that someone's demand for accountability to a leader in the regency would be supported by other members of the community, which is an indication that there may not be strong tendencies for free-riding when it comes to providing a common good such as demanding better public revenue use.

When we asked respondents to name the three most pressing challenges in the regency, we see that issues of everyday economic importance are foremost in people's minds, with natural resource management and the environment far down the list of worries.[18] This gives a foretaste of what our respondents have to say later in the survey on NRR management specifically.

**Oil and gas extraction and revenue management.** When we turn to oil and gas extraction and their revenue management in Bojonegoro, people's views become more doubtful. Confidence in regency and village leaders' ability to use revenues to the benefit of the regency or community, respectively, is cautiously positive at around 3.3 (on a scale of 1-5, where 3 is "neither agree nor disagree"). 68% of respondents do not believe that regency officials have the right to obtain a share of oil and gas revenues (beyond their regular income) as compensation for their services (mean agreement 2.4), yet 49% think that regency officials take an unduly large share of NRR (2.9 on a scale of 1-5), which is evidence of some discontent regarding public NRR management in Bojonegoro. Views on the *personal right* of citizens to influence how oil and gas production are managed are also subdued (mean 3.4 or 59% agreement), and the belief that a citizen *can* influence natural resource management in the regency is even weaker (3.1, with 45% agreeing).[19]

When we dig deeper into the 'information' dimension, 86% of respondents know that Bojonegoro produces oil and gas, and these respondents view pollution and other environmental challenges (60 respondents) and lack of information regarding extractive industries and their activities (34) as the two biggest challenges of large-scale production, followed by benefits going mainly to the elite and the well-connected (33) and migration to the regency (32).[20] The environmental impact of petroleum production is clearly an important issue in Bojonegoro. This is borne out by the views of the 67 respondents who say that a mining or oil company operates nearby: while employment opportunities

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[18] The important issues mentioned are increasing living costs (named by 102 respondents), deteriorating conditions for agriculture (93), unemployment and limited job opportunities (76), poverty and injustice (62), natural hazards (38), access to public facilities and services (29), pollution (26), corruption (14), in-migration and communicable and non-communicable diseases (12 each), oil and gas extraction (18, of which 6 artisanal and 12 large-scale), women's rights (3), violence and crime (3) and religious and ethnic conflicts (1). See Appendix Figure 1.

[19] These findings contrast those in Brunnschweiler et al. (2021) for Ghana, where respondents were much more confident of their own rights, with 95% and more respondents agreeing that they had the right to benefit from resource revenues, to demand more information and to demand better handling (mean agreement between 3.8-3.9 on a five-point Likert scale).

[20] 56% of those who know of oil and gas production think that large-scale extraction is the bigger challenge; 34% believe it is small-scale and artisanal production; 5.5% see the two as equal challenges; and 4% don't think either is a challenge. See Appendix Figures 2-4.

and infrastructure provision are seen as positive impacts (by 11 respondents each), 25 respondents mention pollution as the main negative impact.

We find that 87% of respondents think they have no or little knowledge about oil and gas or mining management in Bojonegoro. Only 60.2% of respondents know that Bojonegoro receives revenues from large-scale oil and gas extraction, and 60% of these think they are managed well (70% of the ones who don't know think revenues *would be* managed well if there were any).[21] 76% (152 of 201) had received no information in the previous 12 months on how oil and gas production are managed, with more than half of those who had received information (58%) saying that it had been easily understood and 65% saying it was relevant for them.[22] How to improve the 'information' dimension? Most respondents would prefer hearing information on the issue from fellow citizens or via the internet, and they mainly want to know how they can benefit from NRR and what their rights are, followed by the amounts of NRR the regency, districts and villages receive and how they spend them, and more about the extracted resources themselves and pollution and environmental protection issues.[23]

Looking at the 'action' dimension, only 19 (9%) respondents had requested information in the past year from anyone or any source about how oil and gas production are managed in the regency and 120 (62%) had not discussed the issue with anyone. 56% think they could contact elected or non-elected officials at the village level if they wanted to provide feedback or complain about large-scale extraction in the regency, but 179 (92%) had not engaged in any action directed at contributing to better use of revenues from large-scale extraction in their regency in the previous year.[24] Asked about the preferred way of providing feedback or complain about oil and gas production, 189 respondents say they would not do so in any case, mainly because they have better things to do (69), they do not have enough relevant information (66) or don't know what action to take (40), or don't think they could make a difference (65).[25] More encouragingly, 88% of respondents agree that they would definitely use information to demand better use of revenues from large-scale extraction if they received such information.

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[21] The main reasons given for good management are viewed as citizen demand for good management (51 respondents) and good regulations (26), followed by skillful and knowledgeable officials (23) and the fact that citizens receive information on NRR management (21). Main reasons for bad management instead are lack of citizen demand (16) and lack of information (16), district officials' lack of capacity (13) and corruption or other misuse of revenues (12).

[22] The most important source of information by far is fellow citizens such as family, friends and colleagues (70%), followed by people working in the oil and gas sector (33%). TV and radio were mentioned by only 5 respectively 1 respondent, in stark contrast to what Lujala et al. (2020) found for Ghana, where these are the two main sources of information. 30 of the 46 respondents who had received information said it did not include advice on how to get more information or complain in case of discontent.

[23] Graphical illustrations of preferred information sources and content can be found in Appendix Figures 5 and 6.

[24] 71 respondents had discussed the issue with friends, neighbors, colleagues or other fellow citizens; 16 with members of a peer group and 15 with family. Some had taken more concrete action, such as contacted an elected or non-elected official at village level (5) or directly contacted the company responsible for extraction (5). See Appendix Figures 7-9.

[25] Furthermore, 22 respondents said they feared providing feedback, 17 had never thought of it, and 10 feared they wouldn't be supported by others.

On the 'response' dimension, a slight majority of 54% of respondents believe that they would get information on the extractives sector "from those above" if they sought it, while 34% don't think so. When asked about the confidence in regency and village-level leaders' responsiveness to petroleum production issues raised by citizens, 55% of respondents (mean 3.3) were positive. And when queried on how local authorities could best convince them that oil and gas and mining were managed well in the regency, respondents' top three suggestions were infrastructure provision (70), the provision of understandable, relevant and accessible information (39), and increased employment opportunities from the sector (28).[26]

Overall, we can say that the respondents in Bojonegoro are not well informed about the regency's extractives sector and how its revenues are managed; they are concerned especially about environmental impacts of extraction; yet they have not requested much information on the extractives sector management or undertaken any other action for more transparency or accountability in the sector, mainly because they have more pressing issues to occupy their time. However, they would like to receive more (understandable and relevant) information and say they would act on it if necessary. There is always the caveat that survey responses may be 'cheap talk' or affected by poor recall of past action. Nevertheless, these findings offer some interesting insights into the citizen engagement reality in an area that has seen very strong subnational NRR transparency and accountability policies.

## 5. Empirical analysis

### 5.1 Methodology and variable description

We examine in turn which factors are linked with three sets of dependent variables that seek to capture the information and the action dimensions of Bojonegoro's transparency initiative. For information, we look at respondents' information reception and knowledge levels; for action, we look at the attitudes that might support or hinder behavior, as well as (self-stated) behaviors themselves. We use multiple measures for each outcome category for greater reliability of our results.

We show results from ordinary least squares (OLS) regressions for dependent variables *y* for respondent *i* in village *v* in district *d*. The basic model we fit is:

$$y_{ivd} = a + \alpha b_d + \beta_1 X_{ivd} + \beta_2 V_{vd} + \varepsilon_{ivd},$$

where *X* and *V* are vectors of the control variables at the individual level and village level, respectively; *b* is a dummy variable for district *d*; *a* is the constant and ε the error term.

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[26] Other top suggested ways for authorities to show good natural resource management were compensation for local communities (24), the opportunity for citizens to voice concerns and complaints (21), benefiting other sectors (17), and providing health and/or education services (15). See Appendix Figure 10.

We include information about the sampling design – the blocking and stratification – in our survey analysis. We use villages as our primary sampling unit, and the variance estimates are calculated using the five strata (city wardens, producing villages, Ring I, Ring II and all other villages) and the total stratum sizes. Standard errors are estimated using Taylor linearized variance estimation.[27] We described the data in detail in the previous section and will just briefly outline the variables here.

**Dependent variables.** For our dependent variables, we use three different proxies for the information dimension: information reception in the previous 12 months (0-1 dummy); awareness that Bojonegoro regency receives petroleum revenues (0-1 dummy), and the respondent's own view of their knowledge level of the management of oil and gas production in the regency (0-4). Attitudes – which are likely influenced by information and in turn influence individual action – are captured by four questions on the satisfaction with Bojonegoro's oil and gas sector and NRR management by (regency or village-level) politicians, and four questions on politicians' and respondents' rights regarding NRR, and on the ability to influence NRR management and politicians' likely responsiveness to citizen requests.

Our final set of dependent variables focuses on the action dimension: we have three questions on personal action for better resource management in the past year, ranging from a low-level discussion of the issue with friends, family, neighbors or colleagues, to the more onerous requests for more information and provision of feedback. Finally, we have a question on forward-looking behavior, i.e., agreement to the statement "If you received more information on how oil or gas production are handled in your regency, you would definitely use this information to demand better resource management from those above you."

**Explanatory variables**. Our basic individual-level variables include gender (with a dummy for female); the ability to read and write in Indonesian as a proxy of education; a variable measuring whether the respondent is in a rural, semi-urban or urban area; occupation (farmer, miner, salaried worker, civil servant, self-employed, with not working being the omitted category); leadership status; our telecommunications, transport and property assets indices; a dummy for having an oil and gas company nearby; and finally whether the respondent saw oil and gas as a challenge in the area and whether they voiced an interest in protecting the environment.[28]

We adopt a logical stepwise approach: in some specifications we allow dependent variables from earlier estimations to influence other outcomes, e.g. individual information reception and knowledge of resource revenue management can influence attitudes and behavior. In some estimations we also

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[27] Anonymized replication data and detailed replication instructions will be made available upon publication of the article. The "svy: reg" command in STATA 18 was used in the analysis.
[28] We include this given that the qualitative analysis of our data showed that environmental concerns, particularly linked to oil and gas extraction, were very common.

control for the general level of satisfaction with government at different levels (given the observation that satisfaction levels varied markedly) and views on corruption in the regency. We also test whether rights perceptions regarding oil and gas management influence our action variables.

## 5.2 Empirical results

Table 1 shows that female respondents are much less likely to state they know about NRR and the oil and gas sector in their regency, though they are no less likely to have received information; farmers, civil servants and self-employed respondents tend to declare a similar lack of knowledge of the local oil and gas sector. Urban respondents and those interested in politics are more likely to have received information about oil and gas production in the previous year and are more likely to declare better knowledge about the issue, likely reflecting the greater opportunities for information dissemination in the city. Those with a leadership function and those interested in protecting the environment are more likely to have received information, but they are neither more nor less likely to declare better knowledge.  No other variables – not even our proxies for education level or household wealth or the proximity to an extraction site – show a strong and robust link with information or knowledge levels.[29] What we find instead is that a lot of the variation in responses is captured by our *kecamatan* (district) dummies (not shown), implying that there are strong local differences in information diffusion and knowledge levels that are independent of urban status and proximity to producing companies, both of which we include as separate variables in all specifications.

These results are broadly in line with those found by Brunnschweiler et al. (2021) in Ghana, where gender, leadership status and political interest had similar links with information and knowledge, though education levels, ownership of a radio – the most important source of news and information in Ghana – and a respondent's proximity to an extraction site were also important there.

In Tables 2-3, we explore what may shape respondents' attitudes towards oil and gas exploitation and the use of the revenues in Bojonegoro regency. Table 2 looks at determinants of satisfaction with petroleum management, and Table 3 of rights perceptions regarding petroleum management. For each of our dependent variables, we first run a parsimonious baseline specification as in Table 1, and then in turn add controls for information and knowledge (i.e., the dependent variables of Table 1) and four

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[29] It is possible that some types of information technology have a stronger effect on information dissemination and knowledge creation than others. In additional estimations replacing the mobile asset index with separate dummy variables for TV and smartphone ownership and internet access in a household, we find that internet access increases the likelihood of knowing that Bojonegoro regency receives NRR from oil and gas by nearly 35% compared to respondents from households with none of these information technologies. However, there was no link to having received information or to self-stated knowledge levels, and TV and smartphone ownership showed no significant links with NRR information or knowledge.

measures of general government satisfaction from national to village level to explore additional links and robustness of our baseline results.

Columns 1-3 of Table 2 seek to explain levels of agreement to the statement that oil and gas production is managed well in the Bojonegoro regency. A large part of the variation in agreement levels is explained by the district dummies (not shown). Greater satisfaction with local (village and regency) government overall has a strong positive relation with natural resource management satisfaction, as shown in column 3, while satisfaction with the national government shows no significant link.[30] It is noteworthy that neither proximity to a production company nor concern about oil and gas production are linked to agreement levels. Columns 4-6 and 7-9 look at levels of confidence in Bojonegoro's regency-level and village-level politicians' use of oil and gas revenues, respectively, and columns 10-12 the levels of agreement that these politicians take an unduly large share of NRR. Women, farmers and the self-employed are less confident in regency-level politicians' use of these monies but are no more likely to think these politicians take too much for themselves or have less confidence in village-level leaders. Urban respondents are much more likely to have confidence in village (or ward) level politicians and less likely to believe politicians take too much; miners are also very confident in village-level leaders' use of NRR but think regency-level politicians take too much NRR. Salaried workers and – to a lesser degree – those with a producing company nearby are pessimistic about regency politicians' use of NRR and the share they keep to themselves. A greater interest in politics is linked to greater confidence in village-level politicians, but also a greater belief that regency politicians take too much NRR. There is some indication that awareness of NRR in the regency is linked to greater confidence in politicians' use of these revenues, and general (dis-) satisfaction with local government also extends to politicians' use (or abuse) of NRR in particular.

In Table 3 we see that miners are less likely to agree that regency politicians have a right to retain a share of NRR (columns 1-3), though they are not consistently more likely to think they themselves have the right to influence how oil and gas production is managed (columns 4-6). Those in a leadership position tend to agree more that politicians have a right to a share of NRR, though again there is no consistent relation with personal rights perceptions.[31] Those with more property assets are

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[30] In additional estimations shown in Appendix Table 2, we look at who is more likely to be (dis-) satisfied with NRR management in Bojonegoro, depending on whether the respondent knew the regency receives revenues from oil and gas – i.e., real satisfaction level among 121 respondents – or did not know about revenue reception – i.e., hypothetical satisfaction level among 70 respondents who either thought Bojonegoro does not receive any oil and gas revenues (29 respondents) or didn't know (51 respondents). Real satisfaction levels are significantly lower among civil servants, those with higher satisfaction with general government at village and regency level, and those who had not received information about NRR in the previous year. Hypothetical satisfaction levels lower among respondents more concerned about the environment and higher among those with higher satisfaction with the national government.

[31] In additional estimations, we disaggregate the leadership status dummies and find that it is mainly community group leaders, administrators or officers who think that politicians have the right to a share of NRR, and to a much lesser degree also formal village,

less likely to think politicians have the right to a share of NRR, perhaps because they fear that this will come at the cost of less wealth for themselves (though we note there is no link with concerns about general corruption in Bojonegoro in column 6). Those with more telecommunications assets are instead more likely to agree that they and people like them have the right and ability to influence petroleum management, where property assets show no consistent link. We also see that better self-declared knowledge about the extractives industry increases the belief in the personal right to influence petroleum management. We see no other consistent links between personal and household characteristics and rights perceptions.

Finally, in columns 7-9 of Table 3 we try to explain the *belief* in the respondent's personal *ability* to influence NRR management, as opposed to the perceived right to do so; and in columns 10-12 we look at the belief that regency and village leaders would actually consider oil and gas issues raised by citizens. We see that the links are different compared to rights perceptions: a greater interest in politics is related to more confidence in being able to influence petroleum management, as is greater satisfaction with local government. Urban respondents are remarkably pessimistic about leaders' responsiveness to citizens' demands, while civil servants instead view this in a very positive light, which might indicate some level of asymmetric information. Respondents with greater property wealth are also more optimistic about leaders' responsiveness. And throughout columns 4-12, we see that a greater concern for environmental issues is sometimes linked to greater confidence in citizens' rights and abilities to influence petroleum management.

Compared to the results for Ghana (see Brunnschweiler et al. 2021), we see that gender, the education and political interest levels, and ownership of information technology do not matter as much or at all when explaining satisfaction and rights perception regarding NRR management. The respondent's leadership status and satisfaction with government in general are more similar in their relation to satisfaction and rights perception.

In Table 4 we shed light on what is linked to our respondents' past behavior for better petroleum management, starting with the relatively low-effort discussion of the issue with friends, family or colleagues (columns 1-4), to the active request for more information on the issue (columns 5-8) and the provision of feedback on the local management of oil and gas production in various forms (columns 9-12). We again start with the baseline specification, and in turn add blocks of control variables from previous estimations. We see that different personal and household characteristics are linked to different forms of behavior. Looking at our core variables, we find that better education

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ward or hamlet leaders (only in specification 5). Religious leaders instead show a tendency to voice lower personal rights to influence what is done with NRR.

levels (i.e., the ability to read and write) significantly increase the likelihood of discussion of petroleum management by 25-39%, but not of requesting information, and seem to weakly decrease the likelihood of providing feedback. Urban respondents are instead more likely to say they requested information or provided feedback – perhaps because they have more opportunity to do so – but are no more likely to discuss the topic. Miners are much more likely to discuss oil and gas issues or provide feedback, but only when we control for information and knowledge levels (columns 2 and 10). Salaried workers are between 13-22% more likely to request information, and the more politically interested respondents a more likely to have discussed and requested more information on petroleum management. Respondents with more transport assets provide less feedback, while respondents who see oil and gas as a main challenge in Bojonegoro are consistently – between 24-31% – more likely to request information.

When we look at the additional variables, we see that having received information on oil and gas production in the previous year increases the likelihood of discussing the issue and requesting information on it, by 23% respectively 26%, while better self-declared knowledge of the issue is more weakly linked to more information request (column 6). This at least is a favorable result for the aims of a transparency and accountability initiative. Greater satisfaction with the government of Bojonegoro (weakly) increases the likelihood of discussing petroleum management and decreases that of requesting additional information. Finally, those who agree more strongly that they can influence the management of oil and gas production are more likely to have discussed the issue, while those who agree that politicians have the right to a share of NRR seem to discuss less and provide less feedback on petroleum management; these are the only behaviors linked to any of the self-declared satisfaction or rights perception variables that we examined in Tables 2-3.[32]

These results are very similar to those found by Brunnschweiler et al. (2021) for Ghana, though there, leadership status was strongly and consistently linked to the likelihood of having undertaken any action for better NRR management. Our smaller Indonesian sample shows no evidence of such a 'social hierarchy of behavior'.

Finally, in Table 5 we explore determinants of self-declared future behavior. We see that urban respondents are clearly more likely to agree that they will take action, again perhaps because of the relative ease of finding ways to demand accountability, while miners show a tendency to agree less. As in previous findings above, greater personal interest in politics is strongly and quite consistently linked to stronger intentions to demand accountability in future. There is some evidence that more

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[32] In additional estimations, we look at whether a series of questions aimed at capturing psychological traits and views on freedom of expression (e.g., trust in others, self-efficacy, etc.) are linked to personal behavior, but find no indication that this is the case.

property wealth and physical proximity to a production company count, too, but these links are not robust. There is also some inconsistent evidence that those with more telecommunications assets are less likely to demand better management, which is puzzling. Interestingly, information and knowledge of petroleum management (column 2), satisfaction with government (column 3) and even past behavior (column 5) do not explain future intentions. There is some weak indication in column 4 that the belief that citizens can influence oil and gas management is positively linked to the willingness to take action in the future. Our outcomes are not incentivized and can be viewed as 'cheap talk'; nevertheless, they suggest that a transparency and accountability initiative on extractives and NRR management is unlikely to increase citizen engagement if the avenues to do so are not straightforward, and if the issue is not made salient for those who are not intrinsically motivated to follow political news.

To summarize, we find that those who have a leadership position, are more interested in politics or in protecting the environment, and who live in urban areas are more likely to have received information on oil and gas extraction and NRR management. We see that an interest in politics and the environment, and information on and knowledge of the oil and gas sector are also linked to respondents' satisfaction with management of the oil and gas sector and NRR management by politicians, as well as to perceived citizen rights and the ability to influence extractive sector and NRR management. For the latter outcome, we also found that satisfaction with local government was important. A greater interest in politics again comes up when explaining past and future behavior for better resource management, as does a greater belief in an individual citizen's ability to influence what is going on. Finally, reception of information on oil and gas management is clearly linked to past – though not intended future – action.

## 6. Conclusions

Transparency in natural resource revenue (NRR) management is seen in the theory as a crucial strategy to avoid misuse and corruption and poor development. However, there is little empirical evidence that providing information and even opening opportunities for public feedback and participation serve to engage citizens in better revenue governance and ensure success of a transparency initiative (see e.g., Brunnschweiler et al. 2021; Yanuardi et al. 2021). We analyze survey data from the regency of Bojonegoro in Indonesia, which has had a strong subnational transparency and accountability policy in petroleum revenue governance that has been seen as pioneering in Indonesia and beyond. We find that respondents are generally poorly informed about extractive sector and NRR management yet concerned about environmental consequences of resource extraction. At

the same time, they have rarely made their voice heard. Proximity to an extraction site and an interest in environmental issues and politics influence attitudes towards extractive sector and NRR management; a greater interest in politics and a greater belief in an individual citizen's ability to influence what is going on also increase the likelihood of self-declared past and future action for better management. Finally, reception of information on petroleum management is linked to self-declared past – though not intended future – action.

Based on their work on the national-level petroleum transparency framework in Ghana, Brunnschweiler et al. (2023) suggested that localizing information and providing personal encouragement to demand accountability in NRR management could help strengthen the important citizen engagement link in a transparency initiative. Bojonegoro's transparency initiative provided localized information and avenues to demand accountability, mainly via the radio, internet, and village-level news banners. Yet information reception, the belief in citizen's rights and behavior for better petroleum sector and NRR governance were still weak, perhaps in part because respondents' preferred ways of being informed – via other citizens or the internet – only partially overlap with what the government has been doing. Our in-depth analysis of survey responses in Bojonegoro suggests that engaging (potentially) intrinsically motivated people in more active resource governance through clear information with straightforward pathways for action could be a way of eventually making the issue relevant to a wider share of the population, too. This approach is supported by the findings of Brunnschweiler et al. (2024), who use a survey experiment to argue that clear and simple information can move those who see the extractive sector as a local challenge to form stronger views on citizen rights and take more action. However, more research is needed to determine whether this could indeed be a way of involving a wider share of the population in the management of public NRR and closing that citizen-engagement gap in the transparency cycle.

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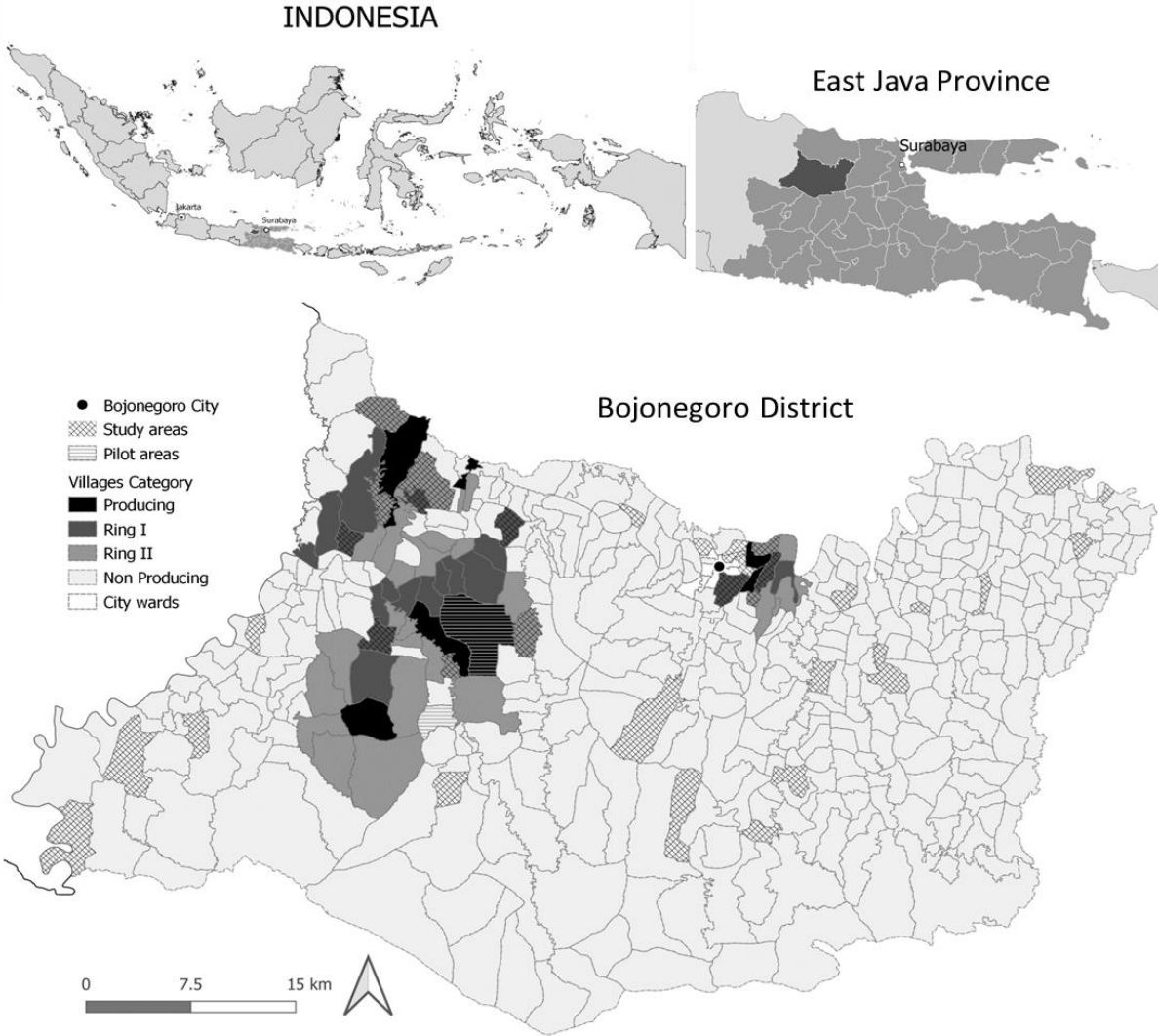
# Figures and tables



*Figure 1. Study areas in Bojonegoro regency, East Java Province, Indonesia*
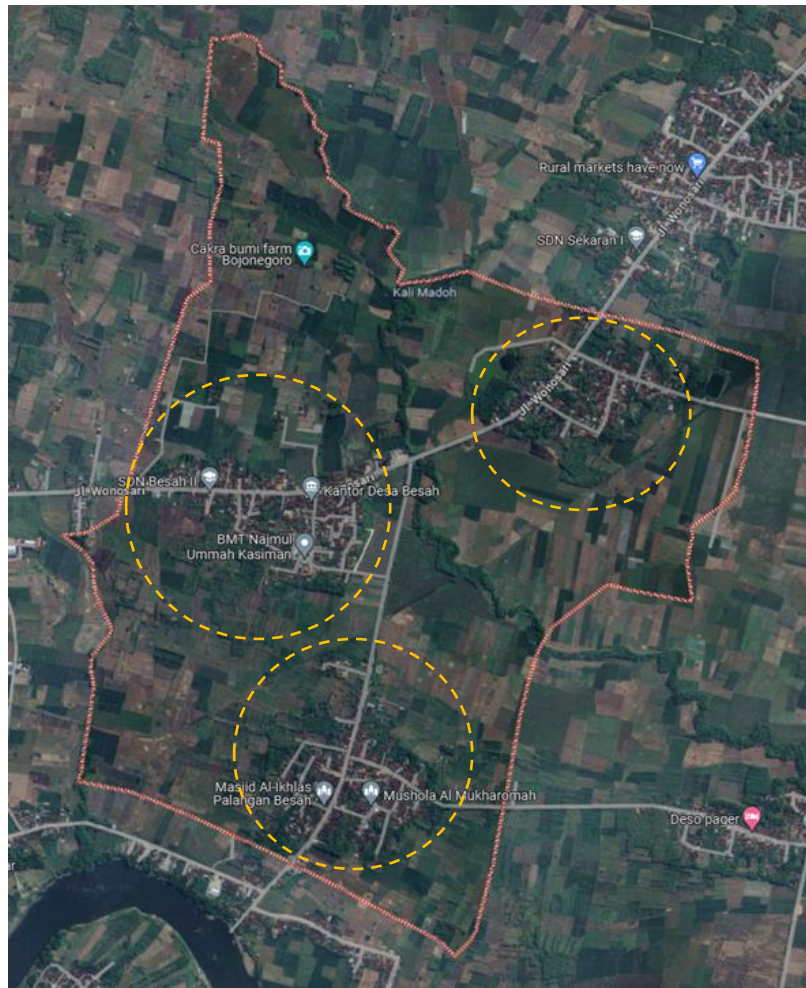
*Figure 2. Location of three hamlets (circled in yellow) in an sample village (outlined in red) and road lines through the hamlets. Source: Google Maps*

*Table 1. NRR information and knowledge*

| VARIABLES | (1) Received information about oil & gas production | (2) Thinks regency receives NRR | (3) Knowledge about oil & gas industry management |
|---|---|---|---|
| Gender (female=1) | -0.00559 | -0.200*** | -0.247** |
|  | (0.0431) | (0.0424) | (0.105) |
| Read & write | 0.0208 | 0.296* | 0.332 |
|  | (0.109) | (0.168) | (0.213) |
| Urban | 0.314*** | 0.323* | 0.674 |
|  | (0.107) | (0.166) | (0.413) |
| Farmer | -0.00453 | -0.0936 | -0.306** |
|  | (0.0791) | (0.111) | (0.144) |
| Mining | 0.0257 | 0.0695 | -0.364 |
|  | (0.143) | (0.0928) | (0.218) |
| Wage labor | 0.0225 | 0.0546 | 0.115 |
|  | (0.102) | (0.121) | (0.147) |
| Civil servant | 0.331 | -0.229 | -0.936* |
|  | (0.308) | (0.233) | (0.553) |
| Self employed | -0.0866 | 0.0886 | -0.273** |
|  | (0.0697) | (0.0908) | (0.111) |
| Interest in politics | 0.0547** | 0.0364* | 0.160*** |
|  | (0.0246) | (0.0190) | (0.0463) |
| Leader (any) | 0.185*** | -0.00556 | 0.165 |
|  | (0.0652) | (0.0545) | (0.111) |
| Telecommunications assets | 0.0191 | 0.0992 | 0.0683 |
|  | (0.0397) | (0.0733) | (0.0804) |
| Transport assets | 0.0209 | 0.0525 | 0.0394 |
|  | (0.0484) | (0.0443) | (0.0716) |
| Property assets | -0.0206 | 0.0367 | 0.0824 |
|  | (0.0398) | (0.0526) | (0.0690) |
| Oil & gas company nearby | 0.0963 | 0.0822 | -0.197 |
|  | (0.0659) | (0.0609) | (0.142) |
| Oil & gas seen as challenge in area | 0.0343 | -0.0169 | 0.114 |
|  | (0.119) | (0.0479) | (0.164) |
| Interest in protecting environment | 0.0620*** | 0.0556 | -0.0255 |
|  | (0.0189) | (0.0358) | (0.0586) |
| Observations | 191 | 147 | 185 |
| R-squared | 0.297 | 0.360 | 0.350 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses.
All specifications include district dummies.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

*Table 2. Satisfaction with petroleum management*

| VARIABLES | (1) Regency oil & gas production managed well | (2) Regency oil & gas production managed well | (3) Regency oil & gas production managed well | (4) Confidence in regency politicians' use of NRR | (5) Confidence in regency politicians' use of NRR | (6) Confidence in regency politicians' use of NRR | (7) Confidence in village politicians' use of NRR | (8) Confidence in village politicians' use of NRR | (9) Confidence in village politicians' use of NRR | (10) Regency politicians take undue share of NRR | (11) Regency politicians take undue share of NRR | (12) Regency politicians take undue share of NRR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender (female=1) | -0.107 | -0.104 | -0.265** | -0.369*** | -0.0305 | -0.400*** | 0.144 | 0.212 | 0.0343 | 0.0942 | 0.0912 | 0.105 |
| | (0.0983) | (0.101) | (0.115) | (0.0987) | (0.115) | (0.104) | (0.178) | (0.177) | (0.183) | (0.159) | (0.203) | (0.157) |
| Read & write | 0.122 | 0.174 | 0.0865 | -0.366 | -0.903*** | -0.328 | -0.164 | -0.285 | -0.0979 | -0.0891 | 0.0726 | 0.0231 |
| | (0.292) | (0.331) | (0.334) | (0.230) | (0.295) | (0.266) | (0.255) | (0.398) | (0.333) | (0.309) | (0.510) | (0.276) |
| Urban | 0.181 | 0.0905 | 0.370** | -0.502 | -0.955** | -0.331 | 0.589*** | 0.369 | 0.777*** | -0.979*** | -1.255*** | -1.087*** |
| | (0.146) | (0.253) | (0.177) | (0.329) | (0.419) | (0.368) | (0.200) | (0.291) | (0.233) | (0.238) | (0.242) | (0.261) |
| Farmer | 0.0981 | -0.0479 | 0.0448 | -0.502** | -0.613** | -0.527*** | 0.220 | 0.165 | 0.0948 | -0.199 | -0.221 | -0.171 |
| | (0.187) | (0.271) | (0.187) | (0.189) | (0.251) | (0.173) | (0.232) | (0.336) | (0.206) | (0.261) | (0.294) | (0.222) |
| Mining | 0.259 | 0.0373 | 0.157 | 0.280 | -0.431 | 0.376 | 1.220*** | 1.003*** | 0.971*** | 0.928** | 1.006*** | 1.030** |
| | (0.643) | (0.711) | (0.686) | (0.344) | (0.344) | (0.289) | (0.280) | (0.304) | (0.267) | (0.360) | (0.275) | (0.432) |
| Wage labour | -0.115 | -0.110 | -0.0170 | -0.556** | -0.470* | -0.444** | 0.0723 | 0.196 | -0.0299 | 0.563** | 0.572* | 0.379 |
| | (0.233) | (0.268) | (0.216) | (0.234) | (0.257) | (0.190) | (0.289) | (0.356) | (0.290) | (0.259) | (0.315) | (0.232) |
| Civil servant | 0.173 | -0.181 | 0.102 | -0.148 | -0.210 | -0.292 | 0.700 | 0.826*** | 0.677 | -0.0575 | 0.341 | -0.113 |
| | (0.256) | (0.324) | (0.230) | (0.463) | (0.298) | (0.386) | (0.603) | (0.274) | (0.485) | (0.725) | (0.374) | (0.519) |
| Self employed | 0.0415 | 1.48e-06 | 0.145 | -0.476** | -0.504** | -0.460** | 0.244 | 0.508** | 0.210 | 0.251 | 0.317 | 0.145 |
| | (0.187) | (0.195) | (0.197) | (0.188) | (0.232) | (0.191) | (0.204) | (0.221) | (0.173) | (0.203) | (0.234) | (0.187) |
| Interest in politics | -0.0687 | -0.0118 | 0.00444 | 0.0791 | 0.0698 | 0.112* | 0.0896* | 0.125** | 0.143** | 0.151** | 0.0593 | 0.0860 |
| | (0.0553) | (0.0656) | (0.0481) | (0.0571) | (0.0736) | (0.0588) | (0.0523) | (0.0472) | (0.0555) | (0.0622) | (0.0799) | (0.0562) |
| Leader (any) | 0.0955 | 0.0433 | 0.108 | 0.145 | 0.106 | 0.248* | -0.166 | -0.212 | -0.163 | -0.173 | -0.140 | -0.175 |
| | (0.114) | (0.142) | (0.116) | (0.149) | (0.109) | (0.139) | (0.162) | (0.151) | (0.153) | (0.142) | (0.166) | (0.134) |
| Telecommunications assets | -0.0237 | 0.147 | 0.0406 | 0.0602 | 0.0879 | 0.116 | 0.129 | 0.203 | 0.162 | 0.131 | 0.0349 | 0.0374 |
| | (0.148) | (0.0975) | (0.138) | (0.120) | (0.132) | (0.112) | (0.124) | (0.133) | (0.124) | (0.118) | (0.175) | (0.101) |
| Transport assets | 0.0335 | 0.0839 | 0.0640 | -0.158 | -0.240* | -0.121 | -0.0276 | -0.0124 | 0.0597 | -0.126 | -0.158 | -0.184 |
| | (0.0869) | (0.103) | (0.0881) | (0.112) | (0.125) | (0.102) | (0.113) | (0.130) | (0.121) | (0.118) | (0.140) | (0.122) |
| Property assets | -0.156* | -0.241** | -0.136 | 0.166* | 0.0782 | 0.0743 | -0.0311 | -0.123 | 0.0238 | 0.0655 | 0.164 | 0.0548 |
| | (0.0853) | (0.106) | (0.0906) | (0.0921) | (0.0965) | (0.0802) | (0.112) | (0.149) | (0.113) | (0.113) | (0.111) | (0.0950) |
| Oil & gas company nearby | 0.138 | 0.107 | 0.171 | -0.167 | -0.313** | -0.00651 | -0.201 | -0.248 | -0.0610 | 0.411** | 0.357* | 0.283 |
| | (0.138) | (0.132) | (0.139) | (0.140) | (0.136) | (0.135) | (0.149) | (0.200) | (0.160) | (0.184) | (0.187) | (0.194) |
| Oil & gas seen as challenge in area | -0.0698 | 0.0732 | -0.225 | -0.101 | -0.239 | -0.229 | 0.114 | 0.122 | -0.0132 | 0.302 | 0.277 | 0.452** |
| | (0.163) | (0.189) | (0.179) | (0.232) | (0.213) | (0.228) | (0.158) | (0.181) | (0.142) | (0.216) | (0.241) | (0.185) |
| Interest in protecting environment | -0.00670 | 0.0243 | -0.0244 | -0.0156 | -0.0319 | -0.0277 | 0.0382 | 0.116* | 0.0474 | -0.0541 | -0.119 | -0.0338 |
| | (0.0552) | (0.0628) | (0.0418) | (0.0595) | (0.0661) | (0.0559) | (0.0611) | (0.0613) | (0.0621) | (0.0796) | (0.0883) | (0.0750) |
| Received oil & gas information | | -0.125 | | | -0.136 | | | -0.0433 | | | 0.245 | |
| | | (0.154) | | | (0.176) | | | (0.179) | | | (0.161) | |
| Thinks regency receives NRR | | 0.0572 | | | 0.399** | | | -0.270 | | | 0.302 | |
| | | (0.185) | | | (0.162) | | | (0.203) | | | (0.198) | |
| Knowledge about oil & gas industry | | -0.157* | | | 0.0419 | | | 0.198* | | | 0.0266 | |
| | | (0.0825) | | | (0.107) | | | (0.101) | | | (0.0987) | |
| Satisfaction w/ village government | | | 0.299*** | | | 0.256*** | | | 0.263*** | | | -0.0915 |
| | | | (0.0828) | | | (0.0867) | | | (0.0877) | | | (0.0959) |
| Satisfaction w/ regency government | | | 0.272*** | | | 0.129 | | | 0.214* | | | -0.436*** |
| | | | (0.0991) | | | (0.156) | | | (0.115) | | | (0.153) |
| Satisfaction w/ national government | | | 0.0231 | | | 0.0937 | | | 0.0283 | | | -0.0783 |
| | | | (0.0688) | | | (0.102) | | | (0.0886) | | | (0.114) |
| Corruption seen as large challenge | | | -0.325 | | | 0.0872 | | | -0.505* | | | 0.242 |
| | | | (0.233) | | | (0.176) | | | (0.279) | | | (0.348) |
| Observations | 158 | 123 | 152 | 174 | 134 | 168 | 182 | 138 | 173 | 174 | 134 | 168 |
| R-squared | 0.165 | 0.285 | 0.365 | 0.236 | 0.333 | 0.332 | 0.187 | 0.241 | 0.290 | 0.236 | 0.300 | 0.343 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses. All specifications include district dummies.
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Table 3. Rights and ability perceptions*

| VARIABLES | (1) Regency politicians have right to share of NRR | (2) Regency politicians have right to share of NRR | (3) Regency politicians have right to share of NRR | (4) Personal right to influence | (5) Personal right to influence | (6) Personal right to influence | (7) Personal ability to influence | (8) Personal ability to influence | (9) Personal ability to influence | (10) Regency and village leaders would consider oil & gas issues | (11) Regency and village leaders would consider oil & gas issues | (12) Regency and village leaders would consider oil & gas issues |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender (female=1) | -0.0195 | 0.119 | 0.0978 | -0.170 | 0.0415 | -0.156 | -0.135 | 0.0662 | -0.185 | 0.0630 | 0.0696 | -0.0914 |
|  | (0.132) | (0.167) | (0.133) | (0.191) | (0.222) | (0.208) | (0.181) | (0.224) | (0.188) | (0.182) | (0.196) | (0.193) |
| Read & write | -0.236 | -0.267 | -0.397 | 0.0246 | -0.328 | -0.0674 | -0.143 | -0.364 | -0.291 | -0.265 | 0.488** | -0.284 |
|  | (0.360) | (0.362) | (0.457) | (0.226) | (0.385) | (0.254) | (0.264) | (0.375) | (0.317) | (0.322) | (0.225) | (0.314) |
| Urban | -0.233 | -0.533** | -0.208 | -0.170 | -0.166 | -0.0863 | -0.0946 | -0.176 | 0.0619 | -0.447* | -0.721*** | -0.373* |
|  | (0.200) | (0.221) | (0.207) | (0.155) | (0.235) | (0.182) | (0.252) | (0.354) | (0.255) | (0.234) | (0.158) | (0.218) |
| Farmer | 0.0703 | -0.0384 | 0.0919 | -0.255 | -0.0481 | -0.201 | -0.0736 | 0.116 | -0.0511 | -0.130 | -0.371 | -0.378* |
|  | (0.184) | (0.230) | (0.187) | (0.187) | (0.227) | (0.176) | (0.237) | (0.303) | (0.233) | (0.211) | (0.235) | (0.210) |
| Mining | -1.225** | -1.239*** | -1.168** | 0.704 | 1.013*** | 0.779 | 0.0654 | 0.296 | 0.0813 | -0.00537 | 0.289 | -0.290 |
|  | (0.463) | (0.279) | (0.469) | (0.525) | (0.351) | (0.508) | (0.662) | (0.540) | (0.635) | (0.428) | (0.816) | (0.495) |
| Wage labour | -0.0254 | 0.0209 | 0.140 | -0.0144 | 0.222 | 0.0699 | 0.142 | 0.391 | 0.184 | 0.0917 | -0.0552 | -0.0430 |
|  | (0.229) | (0.251) | (0.234) | (0.251) | (0.241) | (0.281) | (0.221) | (0.237) | (0.232) | (0.224) | (0.279) | (0.236) |
| Civil servant | 0.298 | 0.359 | 0.340 | -0.650 | -0.457 | -0.617 | -0.0691 | 0.574 | -0.0943 | 0.711** | 0.492* | 0.508** |
|  | (0.250) | (0.283) | (0.269) | (0.532) | (0.574) | (0.482) | (0.526) | (0.499) | (0.433) | (0.316) | (0.280) | (0.213) |
| Self employed | -0.000321 | -0.161 | 0.0366 | -0.289 | -0.112 | -0.302 | 0.0299 | 0.294 | -0.0281 | -0.0456 | 0.0225 | -0.110 |
|  | (0.180) | (0.230) | (0.166) | (0.193) | (0.201) | (0.190) | (0.213) | (0.227) | (0.212) | (0.174) | (0.192) | (0.165) |
| Interest in politics | 0.0772 | 0.0174 | 0.0867 | 0.0695 | 0.0568 | 0.0746 | 0.134** | 0.0971 | 0.164*** | 0.0624 | 0.113 | 0.118** |
|  | (0.0548) | (0.0522) | (0.0614) | (0.0519) | (0.0493) | (0.0488) | (0.0537) | (0.0685) | (0.0516) | (0.0534) | (0.0676) | (0.0543) |
| Leader (any) | 0.278* | 0.396** | 0.245 | -0.259* | -0.405* | -0.227* | -0.0403 | -0.228 | 0.00845 | 0.127 | 0.119 | 0.118 |
|  | (0.147) | (0.153) | (0.148) | (0.130) | (0.210) | (0.130) | (0.145) | (0.197) | (0.135) | (0.155) | (0.184) | (0.148) |
| Telecommunications assets | 0.0957 | 0.142 | 0.114 | 0.218* | 0.306* | 0.307** | 0.141 | 0.240* | 0.240* | 0.0110 | -0.0799 | 0.0439 |
|  | (0.109) | (0.114) | (0.113) | (0.123) | (0.178) | (0.133) | (0.130) | (0.140) | (0.130) | (0.140) | (0.102) | (0.132) |
| Transport assets | -0.0586 | 0.0919 | 0.000795 | 0.0526 | 0.152 | -0.0326 | -0.0547 | -0.0356 | -0.123 | -0.0787 | -0.218** | -0.0409 |
|  | (0.102) | (0.108) | (0.105) | (0.116) | (0.151) | (0.128) | (0.118) | (0.159) | (0.119) | (0.101) | (0.0992) | (0.119) |
| Property assets | -0.259** | -0.518*** | -0.291** | 0.204** | 0.0692 | 0.153 | 0.0707 | 0.0215 | 0.0393 | 0.304*** | 0.323*** | 0.398*** |
|  | (0.109) | (0.129) | (0.117) | (0.0996) | (0.108) | (0.101) | (0.119) | (0.125) | (0.127) | (0.0913) | (0.112) | (0.110) |
| Oil & gas company nearby | 0.0532 | 0.0833 | 0.136 | -0.00414 | 0.0113 | 0.0416 | 0.0868 | 0.176 | 0.143 | -0.220 | -0.326* | -0.127 |
|  | (0.133) | (0.161) | (0.127) | (0.142) | (0.129) | (0.164) | (0.172) | (0.160) | (0.174) | (0.141) | (0.170) | (0.134) |
| Oil & gas seen as challenge in area | 0.0880 | 0.325* | 0.0231 | 0.209 | 0.107 | 0.156 | 0.267 | 0.240 | 0.192 | -0.0652 | -0.176 | -0.183 |
|  | (0.197) | (0.188) | (0.207) | (0.179) | (0.160) | (0.192) | (0.232) | (0.228) | (0.240) | (0.232) | (0.222) | (0.229) |
| Interest in protecting environment | 0.0540 | 0.0974 | 0.0488 | 0.0649 | 0.131** | 0.0769 | 0.131* | 0.111 | 0.107 | 0.0932 | 0.167*** | 0.0794 |
|  | (0.0722) | (0.0772) | (0.0736) | (0.0644) | (0.0572) | (0.0665) | (0.0670) | (0.0742) | (0.0677) | (0.0593) | (0.0560) | (0.0589) |
| Received oil & gas information |  | 0.108 |  |  | -0.201 |  |  | -0.00557 |  |  | -0.197 |  |
|  |  | (0.162) |  |  | (0.189) |  |  | (0.184) |  |  | (0.158) |  |
| Thinks regency receives NRR |  | -0.162 |  |  | 0.118 |  |  | 0.131 |  |  | -0.190 |  |
|  |  | (0.180) |  |  | (0.177) |  |  | (0.197) |  |  | (0.135) |  |
| Knowledge about oil & gas industry |  | 0.0812 |  |  | 0.202** |  |  | 0.151 |  |  | 0.0189 |  |
|  |  | (0.0864) |  |  | (0.0746) |  |  | (0.121) |  |  | (0.102) |  |
| Satisfaction w/ village government |  |  | -0.124 |  |  | 0.0905 |  |  | 0.219*** |  |  | 0.156* |
|  |  |  | (0.0847) |  |  | (0.100) |  |  | (0.0620) |  |  | (0.0841) |
| Satisfaction w/ regency government |  |  | 0.0948 |  |  | -0.0192 |  |  | 0.0690 |  |  | 0.253** |
|  |  |  | (0.110) |  |  | (0.140) |  |  | (0.134) |  |  | (0.111) |
| Satisfaction w/ national government |  |  | 0.189** |  |  | 0.0557 |  |  | 0.0639 |  |  | 0.0767 |
|  |  |  | (0.0889) |  |  | (0.0974) |  |  | (0.0896) |  |  | (0.106) |
| Corruption seen as large challenge |  |  | 0.0396 |  |  | 0.381 |  |  | 0.358 |  |  | -0.460 |
|  |  |  | (0.248) |  |  | (0.234) |  |  | (0.263) |  |  | (0.301) |
| Observations | 181 | 138 | 171 | 185 | 138 | 175 | 182 | 139 | 173 | 170 | 131 | 163 |
| R-squared | 0.252 | 0.398 | 0.297 | 0.252 | 0.343 | 0.277 | 0.208 | 0.239 | 0.262 | 0.165 | 0.329 | 0.274 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses. All specifications include district dummies.

*** p<0.01, ** p<0.05, * p<0.1

*Table 4. Individual behavior*

| VARIABLES | (1) Discussed oil & gas management | (2) Discussed oil & gas management | (3) Discussed oil & gas management | (4) Discussed oil & gas management | (5) Requested information | (6) Requested information | (7) Requested information | (8) Requested information | (9) Provided feedback | (10) Provided feedback | (11) Provided feedback | (12) Provided feedback |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender (female=1) | -0.121** | 0.00434 | -0.113* | -0.00891 | -0.00916 | 0.0175 | -0.00149 | 0.0538 | -0.0369 | -0.0363 | -0.0425 | -0.0319 |
|  | (0.0583) | (0.0900) | (0.0609) | (0.0796) | (0.0414) | (0.0501) | (0.0415) | (0.0417) | (0.0270) | (0.0376) | (0.0255) | (0.0327) |
| Read & write | 0.257** | 0.383** | 0.336** | 0.142 | 0.0393 | 0.0186 | -0.0120 | 0.0628 | -0.114 | -0.0173 | -0.191** | -0.397 |
|  | (0.102) | (0.144) | (0.136) | (0.194) | (0.0494) | (0.103) | (0.0544) | (0.109) | (0.0832) | (0.109) | (0.0924) | (0.241) |
| Urban | 0.267 | 0.173 | 0.306 | 0.115 | 0.333*** | 0.216*** | 0.317*** | 0.320*** | 0.145*** | 0.0904* | 0.127*** | 0.0938** |
|  | (0.263) | (0.242) | (0.291) | (0.280) | (0.112) | (0.0709) | (0.0939) | (0.109) | (0.0345) | (0.0449) | (0.0315) | (0.0353) |
| Farmer | -0.141 | -0.113 | -0.127 | -0.0166 | 0.00972 | 0.0109 | 0.0181 | 0.0320 | -0.0321 | -0.0653 | -0.0242 | -0.0641 |
|  | (0.0982) | (0.116) | (0.104) | (0.111) | (0.0425) | (0.0659) | (0.0494) | (0.0583) | (0.0437) | (0.0585) | (0.0424) | (0.0644) |
| Mining | -0.000372 | 0.357*** | -0.00603 | -0.184 | 0.275 | 0.293 | 0.310* | 0.163* | 0.317* | 0.924*** | 0.321* | 0.0432 |
|  | (0.155) | (0.109) | (0.163) | (0.225) | (0.165) | (0.250) | (0.172) | (0.0938) | (0.178) | (0.0443) | (0.179) | (0.0811) |
| Wage labour | 0.122 | 0.166 | 0.187* | 0.248* | 0.131* | 0.146* | 0.124* | 0.216** | 0.00317 | -0.0165 | 0.0180 | 0.0527 |
|  | (0.0964) | (0.120) | (0.109) | (0.140) | (0.0661) | (0.0817) | (0.0718) | (0.0910) | (0.0487) | (0.0530) | (0.0484) | (0.0425) |
| Civil servant | -0.165 | -0.0236 | -0.177 | -0.0298 | 0.0155 | 0.142 | 0.0255 | 0.0356 | -0.0256 | 0.0168 | -0.0138 | -0.00682 |
|  | (0.204) | (0.231) | (0.156) | (0.172) | (0.0653) | (0.102) | (0.0879) | (0.0496) | (0.0548) | (0.0688) | (0.0490) | (0.0653) |
| Self employed | -0.0957 | -0.0429 | -0.0657 | -0.0264 | -0.0372 | -0.0290 | -0.0449 | -0.0631 | 0.0211 | 0.0325 | 0.0375 | -0.00199 |
|  | (0.0758) | (0.103) | (0.0792) | (0.0959) | (0.0481) | (0.0590) | (0.0520) | (0.0579) | (0.0480) | (0.0657) | (0.0467) | (0.0619) |
| Interest in politics | 0.121*** | 0.124*** | 0.122*** | 0.119*** | 0.0408** | 0.0276 | 0.0382** | 0.0259 | 0.0198 | 0.0255 | 0.0289** | 0.0148 |
|  | (0.0207) | (0.0221) | (0.0216) | (0.0246) | (0.0172) | (0.0193) | (0.0182) | (0.0182) | (0.0136) | (0.0171) | (0.0131) | (0.0118) |
| Leader (any) | -0.00347 | -0.109 | 0.0119 | 0.0656 | 0.0493 | -0.0145 | 0.0542 | 0.0616 | 0.0212 | -0.00326 | 0.0198 | 0.0214 |
|  | (0.0591) | (0.0828) | (0.0594) | (0.0737) | (0.0374) | (0.0507) | (0.0393) | (0.0475) | (0.0330) | (0.0286) | (0.0340) | (0.0331) |
| Telecommunications assets | -0.0156 | -0.0534 | -0.0202 | 0.0286 | -0.0284 | -0.0687 | -0.0198 | -0.0111 | -0.000907 | -0.0362 | 0.00796 | -0.00566 |
|  | (0.0594) | (0.0720) | (0.0641) | (0.0880) | (0.0225) | (0.0429) | (0.0275) | (0.0379) | (0.0178) | (0.0281) | (0.0221) | (0.0217) |
| Transport assets | -0.0344 | -0.0701 | -0.00793 | -0.0398 | -0.00688 | -0.0216 | -0.0343 | -0.000962 | -0.0487** | -0.0688** | -0.0592** | -0.0770** |
|  | (0.0454) | (0.0547) | (0.0460) | (0.0664) | (0.0276) | (0.0411) | (0.0275) | (0.0407) | (0.0234) | (0.0304) | (0.0281) | (0.0301) |
| Property assets | -0.0192 | -0.0384 | -0.0344 | -0.0982* | 0.0313 | 0.0517 | 0.0219 | 0.0219 | -0.00725 | -0.0336 | -0.0110 | -0.0619* |
|  | (0.0589) | (0.0672) | (0.0638) | (0.0570) | (0.0226) | (0.0311) | (0.0269) | (0.0352) | (0.0285) | (0.0375) | (0.0314) | (0.0341) |
| Oil & gas company nearby | 0.103 | 0.0698 | 0.156** | 0.0818 | 0.0162 | -0.0306 | -0.0142 | -0.0169 | 0.0742* | 0.107** | 0.0553 | 0.0860 |
|  | (0.0680) | (0.0746) | (0.0706) | (0.0860) | (0.0510) | (0.0672) | (0.0590) | (0.0592) | (0.0420) | (0.0413) | (0.0369) | (0.0547) |
| Oil & gas seen as challenge in area | -0.00347 | -0.0661 | -0.0207 | 0.0594 | 0.239*** | 0.269*** | 0.249*** | 0.310*** | 0.106 | 0.0274 | 0.105 | 0.159 |
|  | (0.0960) | (0.0953) | (0.0955) | (0.120) | (0.0782) | (0.0705) | (0.0748) | (0.0952) | (0.0960) | (0.0836) | (0.0913) | (0.107) |
| Interest in protecting environment | -0.0183 | -0.0532* | -0.00653 | -0.0345 | 0.0319** | 0.0108 | 0.0323** | 0.0228 | 0.00846 | -0.00773 | 0.00788 | 0.00359 |
|  | (0.0269) | (0.0296) | (0.0249) | (0.0360) | (0.0148) | (0.0177) | (0.0145) | (0.0211) | (0.00832) | (0.00727) | (0.00875) | (0.0118) |
| Received oil & gas information |  | 0.229*** |  |  |  | 0.262*** |  |  |  | 0.0417 |  |  |
|  |  | (0.0677) |  |  |  | (0.0643) |  |  |  | (0.0535) |  |  |
| Thinks regency receives NRR |  | 0.0178 |  |  |  | 0.0821 |  |  |  | 0.0702* |  |  |
|  |  | (0.0968) |  |  |  | (0.0558) |  |  |  | (0.0352) |  |  |
| Knowledge about oil & gas industry |  | 0.0546 |  |  |  | 0.0445** |  |  |  | -0.0122 |  |  |
|  |  | (0.0440) |  |  |  | (0.0196) |  |  |  | (0.0147) |  |  |
| Satisfaction w/ village government |  |  | 0.0132 |  |  |  | -0.00852 |  |  |  | -0.00607 |  |
|  |  |  | (0.0410) |  |  |  | (0.0279) |  |  |  | (0.0240) |  |
| Satisfaction w/ district government |  |  | 0.146** |  |  |  | -0.0913** |  |  |  | -0.00366 |  |
|  |  |  | (0.0649) |  |  |  | (0.0347) |  |  |  | (0.0309) |  |
| Satisfaction w/ national government |  |  | -0.0491 |  |  |  | 0.0367* |  |  |  | 0.0305 |  |
|  |  |  | (0.0560) |  |  |  | (0.0212) |  |  |  | (0.0214) |  |
| Corruption seen as large challenge |  |  | -0.00922 |  |  |  | 0.0573 |  |  |  | -0.0563 |  |
|  |  |  | (0.100) |  |  |  | (0.0757) |  |  |  | (0.0386) |  |
| Oil & gas managed well in district |  |  |  | -0.0227 |  |  |  | -0.0411 |  |  |  | -0.00649 |
|  |  |  |  | (0.0498) |  |  |  | (0.0261) |  |  |  | (0.0220) |
| Politicians have right to NRR share |  |  |  | -0.0537* |  |  |  | 0.0180 |  |  |  | -0.0604*** |
|  |  |  |  | (0.0283) |  |  |  | (0.0216) |  |  |  | (0.0194) |
| Personal right to influence |  |  |  | 0.0485 |  |  |  | -0.0113 |  |  |  | -0.0295 |
|  |  |  |  | (0.0536) |  |  |  | (0.0249) |  |  |  | (0.0254) |
| Personal ability to influence |  |  |  | 0.0573 |  |  |  | 0.0393 |  |  |  | 0.0193 |
|  |  |  |  | (0.0533) |  |  |  | (0.0291) |  |  |  | (0.0213) |
| Observations | 188 | 140 | 177 | 136 | 192 | 143 | 181 | 139 | 184 | 136 | 173 | 132 |
| R-squared | 0.333 | 0.435 | 0.362 | 0.402 | 0.344 | 0.483 | 0.378 | 0.444 | 0.199 | 0.391 | 0.234 | 0.324 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses. All specifications include subdistrict dummies.

*** p<0.01, ** p<0.05, * p<0.1

*Table 5. Self-declared future behavior with better information*

| VARIABLES | (1) Demanding better resource management | (2) Demanding better resource management | (3) Demanding better resource management | (4) Demanding better resource management | (5) Demanding better resource management |
|---|---|---|---|---|---|
| Gender (female=1) | -6.36e-05 | 0.164 | -0.0786 | 0.276** | -0.0360 |
|  | (0.0644) | (0.136) | (0.0640) | (0.109) | (0.0699) |
| Read & write | 0.138 | 0.120 | 0.0210 | 0.255 | 0.368 |
|  | (0.252) | (0.167) | (0.224) | (0.183) | (0.252) |
| Urban | 0.896*** | 0.799*** | 0.879*** | 0.873*** | 0.880*** |
|  | (0.128) | (0.193) | (0.129) | (0.127) | (0.198) |
| Farmer | 0.0522 | 0.234 | 0.00720 | 0.0315 | 0.0872 |
|  | (0.153) | (0.166) | (0.157) | (0.189) | (0.159) |
| Mining | -0.329 | -0.686*** | -0.343 | -0.0467 | -0.279 |
|  | (0.195) | (0.162) | (0.207) | (0.284) | (0.195) |
| Wage labor | -0.0864 | -0.0171 | -0.0722 | -0.121 | -0.0870 |
|  | (0.185) | (0.188) | (0.184) | (0.195) | (0.184) |
| Civil servant | -0.276 | -0.488 | -0.320 | -0.514 | -0.257 |
|  | (0.418) | (0.305) | (0.418) | (0.403) | (0.422) |
| Self employed | 0.0328 | 0.150 | 0.00853 | -0.138 | 0.0206 |
|  | (0.132) | (0.150) | (0.132) | (0.154) | (0.138) |
| Interest in politics | 0.113*** | 0.0391 | 0.117*** | 0.0649 | 0.130*** |
|  | (0.0368) | (0.0420) | (0.0399) | (0.0394) | (0.0318) |
| Leader (any) | 0.0410 | -0.142 | 0.0431 | 0.234* | -0.00379 |
|  | (0.0951) | (0.119) | (0.100) | (0.122) | (0.105) |
| Telecommunications assets | -0.162** | -0.0949 | -0.121* | -0.175 | -0.170** |
|  | (0.0625) | (0.104) | (0.0664) | (0.136) | (0.0644) |
| Transport assets | -0.104 | -0.0858 | -0.140* | -0.0904 | -0.110 |
|  | (0.0773) | (0.101) | (0.0766) | (0.0894) | (0.0804) |
| Property assets | 0.160* | 0.131 | 0.178* | 0.112 | 0.192** |
|  | (0.0894) | (0.111) | (0.0912) | (0.124) | (0.0935) |
| Oil & gas company nearby | 0.173 | 0.127 | 0.216 | 0.226 | 0.244** |
|  | (0.119) | (0.150) | (0.129) | (0.151) | (0.116) |
| Oil & gas seen as challenge in area | 0.222 | 0.234 | 0.170 | 0.114 | 0.242 |
|  | (0.160) | (0.158) | (0.145) | (0.142) | (0.178) |
| Interest in protecting environment | 0.00660 | 0.0570 | -0.0104 | 0.0364 | -0.0685 |
|  | (0.0564) | (0.0629) | (0.0588) | (0.0697) | (0.0500) |
| Received oil & gas information |  | 0.0125 |  |  |  |
|  |  | (0.141) |  |  |  |
| Thinks regency receives NRR |  | -0.0302 |  |  |  |
|  |  | (0.143) |  |  |  |
| Knowledge about oil & gas industry |  | 0.0577 |  |  |  |
|  |  | (0.100) |  |  |  |
| Satisfaction w/ village government |  |  | 0.0314 |  |  |
|  |  |  | (0.0539) |  |  |
| Satisfaction w/ regency government |  |  | 0.0752 |  |  |
|  |  |  | (0.0815) |  |  |
| Satisfaction w/ national government |  |  | 0.0912 |  |  |
|  |  |  | (0.0728) |  |  |
| Corruption seen as large challenge |  |  | 0.0509 |  |  |
|  |  |  | (0.169) |  |  |
| Oil & gas managed well in district |  |  |  | 0.0139 |  |
|  |  |  |  | (0.0998) |  |
| Politicians have right to NRR share |  |  |  | 0.0209 |  |
|  |  |  |  | (0.0495) |  |
| Personal right to influence |  |  |  | 0.0698 |  |
|  |  |  |  | (0.0913) |  |
| Personal ability to influence |  |  |  | 0.0745 |  |
|  |  |  |  | (0.0475) |  |
| Leaders would consider NRR issues |  |  |  | -0.000544 |  |
|  |  |  |  | (0.0761) |  |
| Discussed NRR management |  |  |  |  | -0.121 |
|  |  |  |  |  | (0.108) |
| Requested information |  |  |  |  | 0.0217 |
|  |  |  |  |  | (0.165) |
| Provided feedback |  |  |  |  | -0.192 |
|  |  |  |  |  | (0.137) |
| Observations | 187 | 137 | 178 | 129 | 174 |
| R-squared | 0.198 | 0.304 | 0.236 | 0.333 | 0.236 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses.
All specifications include district dummies.
*** p<0.01, ** p<0.05, * p<0.1

# Appendix 1 – Additional tables

*Appendix Table 1. Descriptive statistics with questions and coding*

| Variable | Obs. | Mean | Std. Dev. | Min | Max | Question (incl. variable coding) |
|---|---|---|---|---|---|---|
| **Personal characteristics (yes=1)** | | | | | | |
| Rural | 201 | 0.716 | 0.452 | 0 | 1 | Dummy: 1 if located in a rural area (not Kelurahan) |
| Gender (female=1) | 201 | 0.458 | 0.499 | 0 | 1 | Dummy: 1 if respondent is female |
| Age (in years) | 200 | 42.555 | 12.173 | 18 | 83 | How old are you? |
| Household head | 201 | 0.502 | 0.501 | 0 | 1 | Dummy: 1 if respondent is the household head |
| Read and write in Indonesian | 201 | 0.930 | 0.255 | 0 | 1 | Dummy: 1 if respondent can read and write in Indonesian |
| **Maximum completed education (yes=1)** | | | | | | |
| Elementary schooling | 201 | 0.318 | 0.467 | 0 | 1 | Dummy: 1 if the highest level of education is primary school |
| Middle/high/vocational schooling | 201 | 0.587 | 0.494 | 0 | 1 | Dummy: 1 if the highest level of education is middle, high or vocational schooling |
| Diploma 3 or bachelor's degree | 201 | 0.095 | 0.293 | 0 | 1 | Dummy: 1 if the highest level of education is diploma 3 or bachelor's degree |
| **Main occupation (yes=1)** | | | | | | |
| Farming or forestry | 201 | 0.303 | 0.461 | 0 | 1 | Dummy: 1 if the respondent works in farming or forestry |
| Artisanal and small-scale mining | 201 | 0.030 | 0.171 | 0 | 1 | Dummy: 1 if the respondent works in artisanal and small-scale mining |
| Wage labour in public or private sector | 201 | 0.129 | 0.336 | 0 | 1 | Dummy: 1 if the respondent has a salaried position in public or private sector |
| Civil servant | 201 | 0.02 | 0.140 | 0 | 1 | Dummy: 1 if the respondent is a civil servant |
| Self-employed | 201 | 0.229 | 0.421 | 0 | 1 | Dummy: 1 if the respondent is self-employed |
| Currently not working | 201 | 0.249 | 0.433 | 0 | 1 | Dummy: 1 if the respondent is currently not working for pay (housewife, student, retired, unemployed) |
| Other occupation | 201 | 0.040 | 0.196 | 0 | 1 | Dummy: 1 if the respondent has another occupation |
| **Leadership position in community (yes=1)** | | | | | | |
| Formal leader position in village, ward or hamlet | 201 | 0.055 | 0.228 | 0 | 1 | Dummy: 1 if the respondent holds a formal leadership role in village, ward or hamlet |
| Community group leader, administrator or officer | 201 | 0.219 | 0.415 | 0 | 1 | Dummy: 1 if the respondent holds a community group leader, administrator of officer position |
| Religious leader | 201 | 0.030 | 0.171 | 0 | 1 | Dummy: 1 if the respondent holds a religious leader position |
| Any leadership position | 201 | 0.299 | 0.459 | 0 | 1 | Dummy: 1 if the respondent holds any community leadership role |
| **Household characteristics (yes=1)** | | | | | | |
| Bicycle | 201 | 0.746 | 0.436 | 0 | 1 | Dummy: 1 if household owns a bicycle |
| Moped (scooter or motorcycle) | 201 | 0.980 | 0.140 | 0 | 1 | Dummy: 1 if household owns a moped, scooter or motorcycle |
| Motor vehicle (car, tractor, van or motorboat) | 201 | 0.144 | 0.352 | 0 | 1 | Dummy: 1 if household owns a motor vehicle (car, tractor, van or motor boat) |
| TV | 201 | 0.935 | 0.247 | 0 | 1 | Dummy: 1 if household owns a TV |
| Fridge | 201 | 0.831 | 0.376 | 0 | 1 | Dummy: 1 if household owns a fridge |
| Smartphone | 201 | 0.945 | 0.228 | 0 | 1 | Dummy: 1 if household owns at least one smartphone |
| Internet access | 201 | 0.910 | 0.286 | 0 | 1 | Dummy: 1 if household has access to internet (through any means) |
| House ownership | 201 | 0.851 | 0.357 | 0 | 1 | Dummy: 1 if household owns the house they live in |
| Land ownership | 201 | 0.851 | 0.357 | 0 | 1 | Dummy: 1 if household owns land |
| Large dwelling | 201 | 0.060 | 0.238 | 0 | 1 | Dummy: 1 if household owns dwelling with more than 1 standard deviation above sample mean room number |

| | | | | | | |
|---|---|---|---|---|---|---|
| High quality electricity connection | 201 | 0.025 | 0.156 | 0 | 1 | Dummy: 1 if household has high quality electricity of 2200VA or more |
| *Household asset indices* | | | | | | |
| Telecommunication assets | 201 | 2.791 | 0.580 | 0 | 3 | Sum of internet, smartphone and TV dummies |
| Transport assets | 201 | 1.871 | 0.619 | 0 | 3 | Sum of bicycle, moped and motor vehicle dummies |
| Property assets | 201 | 1.761 | 0.577 | 0 | 3 | Sum of house ownership, land ownership and large dwelling dummies |
| *Views on government and local issues* | | | | | | |
| Trust in village/urban ward government | 200 | 3.175 | 0.974 | 1 | 5 | How much trust do you have in the village/ward government? (1 great deal of distrust, 2 some distrust, 3 neither trust nor distrust, 4 some trust, 5 great deal of trust) |
| Trust in regency government | 198 | 3.475 | 0.859 | 1 | 5 | How much trust do you have in the regency government? (1 great deal of distrust, 2 some distrust, 3 neither trust nor distrust, 4 some trust, 5 great deal of trust) |
| Trust in national government | 199 | 3.402 | 0.969 | 1 | 5 | How much trust do you have in the national government? (1 great deal of distrust, 2 some distrust, 3 neither trust nor distrust, 4 some trust, 5 great deal of trust) |
| Satisfaction with village/urban ward government | 199 | 3.859 | 0.817 | 1 | 5 | To what extent do you agree with the following statement? Your village/ward government is doing a good job in fulfilling their responsibilities. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Satisfaction with regency government | 197 | 3.822 | 0.673 | 2 | 5 | To what extent do you agree with the following statement? Your regency government is doing a good job in fulfilling their responsibilities. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Satisfaction with national government | 192 | 3.724 | 0.813 | 1 | 5 | To what extent do you agree with the following statement? Your national government is doing a good job in fulfilling their responsibilities. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Government as employee | 199 | 4.070 | 0.632 | 2 | 5 | To what extent do you agree with the following statement? Government is there to serve the people; the people should tell the government what needs to be done. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Government as parent | 201 | 4.224 | 0.552 | 2 | 5 | To what extent do you agree with the following statement? Government is like a parent; it should decide what is good for the people. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Demands for accountability by one person would be supported by others | 193 | 3.653 | 0.828 | 2 | 5 | To what extent do you agree with the following statement? You are confident that if someone in your area asks accountability from a leader, other community members would support the person. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Interest in politics | 201 | 2.184 | 1.225 | 1 | 5 | How often do you discuss political matters and public affairs with friends, family or colleagues? (1 never, 2 rarely, 3 sometimes, 4 often, 5 very often) |
| Corruption seen as a large challenge | 201 | 0.070 | 0.255 | 0 | 1 | Dummy: 1 if corruption seen as a large challenge in the regency |
| *Oil and gas extraction and revenue management* | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Oil & gas company nearby | 194 | 0.345 | 0.477 | 0 | 1 | Dummy: 1 if an oil company operates in or nearby the respondent's area |
| Oil & gas production seen as challenge in area | 201 | 0.090 | 0.286 | 0 | 1 | Dummy: 1 if oil & gas production seen as a challenge in the area |
| Interested in protecting the environment | 201 | 4.303 | 1.006 | 1 | 5 | How interested are you in protecting the environment from pollution and degradation? (1 not at all interested, 2 not very interested, 3 neither interested nor uninterested, 4 somewhat interested, 5 very interested) |
| *Knowledge (Dependent variables in Table 1 plus two sub-sample questions)* | | | | | | |
| Thinks regency receives NRR | 150 | 0.807 | 0.396 | 0 | 1 | To your knowledge, does your regency government receive revenues from oil and gas extraction? (yes=1) |
| Knowledge about oil & gas production management | 191 | 1.560 | 0.805 | 1 | 4 | How would you characterize your knowledge about how oil or gas production or mining are managed in your regency? (1 no knowledge, 2 a little knowledge, 3 some knowledge, 4 good knowledge) |
| Received information about oil & gas production | 198 | 0.232 | 0.423 | 0 | 1 | In the past year, have you received or heard any information about oil or gas production (from anybody or any source)? (yes=1) |
| Information relevant | 46 | 3.522 | 1.027 | 2 | 5 | To what extent do you agree with this statement: The information you received on oil or gas production was RELEVANT for you. (1 not at all interested, 2 not very interested, 3 neither interested nor uninterested, 4 somewhat interested, 5 very interested) |
| Information understandable | 44 | 3.340 | .9387 | 1 | 5 | To what extent do you agree with this statement: The information you received on oil or gas production was easy to UNDERSTAND. (1 not at all interested, 2 not very interested, 3 neither interested nor uninterested, 4 somewhat interested, 5 very interested) |
| *Satisfaction with petroleum management (Dependent variables in Table 2)* | | | | | | |
| Regency oil & gas production managed well | 160 | 3.575 | 0.765 | 2 | 5 | To what extent do you agree with this statement: In general, revenues from oil and gas extraction are managed well in this regency. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Confidence in regency politicians' use of NRR | 179 | 3.263 | 0.914 | 1 | 5 | To what extent do you agree with this statement: You are confident that regency politicians and officials in Indonesia would utilize revenues from oil, gas and mining they might receive in a way that benefits their regency. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Confidence in village politicians' use of NRR | 187 | 3.289 | 0.996 | 1 | 5 | To what extent do you agree with this statement: You are confident that village officials in Indonesia would utilize revenues from oil and gas they might receive in a way that benefits their community. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Regency officials take undue share of NRR | 180 | 2.883 | 1.115 | 1 | 5 | To what extent do you agree with this statement: You believe that regency politicians and officials in Indonesia receive an unduly large share of oil and gas revenues coming to their area for their personal use. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| *Rights and ability perceptions (Dependent variables in Table 3)* | | | | | | |
| Regency officials have the right to NRR share | 188 | 2.372 | 0.913 | 1 | 5 | To what extent do you agree with this statement: You believe that district politicians and officials have a right, in addition to their salary, to obtain a part of public revenues for their personal use as compensation for their service. (1 disagree very |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Personal right to influence management of oil & gas production | 190 | 3.342 | 0.989 | 1 | 5 | To what extent do you agree with this statement: You and people like you HAVE THE RIGHT to influence how politicians and officials in your regency manage oil or gas production. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Personal ability to influence management of oil & gas production | 187 | 3.070 | 1.032 | 1 | 5 | To what extent do you agree with this statement: You and people like you CAN influence how politicians and officials in your regency manage oil or gas production. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Regency and village leaders would consider oil & gas issues | 175 | 3.349 | 0.921 | 1 | 5 | To what extent do you agree with this statement: In your regency, leaders and officials at the district and village levels would seriously consider issues related to oil or gas production raised by you and people like you. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| *Individual behavior (Dependent variables in Tables 4 & 5)* | | | | | | |
| Discussed management of oil & gas production | 195 | 0.385 | 0.488 | 0 | 1 | In the past year, with whom of the following have you discussed how oil or gas production are managed in your regency? (Dummy: 1 if respondent discussed with at least one person) |
| Requested information about management of oil & gas production | 199 | 0.095 | 0.295 | 0 | 1 | In the past year, have you requested from anybody or from any source information about how oil or gas production are managed in your district? (Dummy 1: if respondent requested information) |
| Provided feedback on management of oil & gas production | 191 | 0.063 | 0.243 | 0 | 1 | In the past year, have you engaged in any of the following actions directed at contributing to better management of oil or gas production in your district? (Dummy 1: if respondent provided feedback in any form) |
| Demanding better resource management if better information provided | 193 | 3.922 | 0.749 | 2 | 5 | To what extent do you agree with the following statement: If you received more information on how oil or gas production are handled in your district, you would definitely use this information to demand better resource management from those above you. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| *Satisfaction with local NRR management in subsamples (Dependent variables in Appendix Table 2)* | | | | | | |
| Regency NRR management satisfaction if revenue reception known | 110 | 3.6 | .950 | 1 | 5 | To what extent do you agree with this statement: In general, revenues from oil and gas extraction are managed well in this regency. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |
| Regency NRR management satisfaction if revenue reception unknown | 70 | 3.757 | 0.624 | 2 | 5 | To what extent do you agree with this statement: If your district government received revenues from oil and gas, your regency government would manage the revenues well. (1 disagree very strongly, 2 disagree, 3 neither agree nor disagree, 4 agree, 5 agree very strongly) |

*Appendix Table 2. Satisfaction with local NRR management in subsamples*

| VARIABLES | (1) Regency NRR management satisfaction if revenue reception known | (2) Regency NRR management satisfaction if revenue reception known | (3) Regency NRR management satisfaction if revenue reception known | (4) Regency NRR management satisfaction if revenue reception not known | (5) Regency NRR management satisfaction if revenue reception not known | (6) Regency NRR management satisfaction if revenue reception not known |
|---|---|---|---|---|---|---|
| Gender (female=1) | 0.216 | 0.240 | 0.00315 | -0.00345 | 1.133** | -0.0218 |
|  | (0.175) | (0.168) | (0.152) | (0.318) | (0.415) | (0.329) |
| Read & write | 0.293 | 0.500 | -0.415 | 0.446 | 0.463 | 0.327 |
|  | (0.570) | (0.680) | (0.733) | (0.701) | (0.378) | (0.459) |
| Urban | -0.428 | -0.202 | -0.0929 | -0.365 | -0.942 | -0.382** |
|  | (0.275) | (0.271) | (0.235) | (0.335) | (0.609) | (0.178) |
| Farmer | 0.175 | 0.345 | 0.114 | -0.230 | 0.582 | -0.468 |
|  | (0.347) | (0.335) | (0.235) | (0.245) | (0.444) | (0.295) |
| Mining | 0.564 | 0.767** | 0.396 | 0.270 |  | 0.590 |
|  | (0.402) | (0.348) | (0.342) | (0.445) |  | (0.563) |
| Wage labour | -0.296 | -0.198 | -0.165 | -0.214 | 2.386*** | -0.0530 |
|  | (0.321) | (0.301) | (0.238) | (0.278) | (0.594) | (0.383) |
| Civil servant | -0.894*** | -0.555 | -0.555* | -0.551 | 3.776*** | -0.795 |
|  | (0.303) | (0.344) | (0.290) | (0.674) | (0.920) | (0.859) |
| Self employed | 0.0459 | 0.00682 | 0.0311 | -0.328 | 0.593 | -0.759** |
|  | (0.224) | (0.197) | (0.183) | (0.327) | (0.669) | (0.366) |
| Interest in politics | -0.0734 | -0.0326 | 0.00695 | 0.0236 | 0.429** | -0.00399 |
|  | (0.0697) | (0.0745) | (0.0645) | (0.0537) | (0.164) | (0.0691) |
| Leader (any) | -0.100 | 0.0916 | 0.0364 | 0.253* | -0.739 | 0.0481 |
|  | (0.154) | (0.150) | (0.129) | (0.125) | (0.494) | (0.134) |
| Telecommunications assets | 0.128 | 0.149 | 0.0955 | -0.0436 | 0.321 | 0.0293 |
|  | (0.183) | (0.190) | (0.146) | (0.124) | (0.247) | (0.114) |
| Transport assets | 0.165 | 0.159 | 0.405*** | 0.00126 | 0.642** | -0.336* |
|  | (0.157) | (0.156) | (0.107) | (0.169) | (0.225) | (0.193) |
| Property assets | -0.232* | -0.314** | -0.201 | 0.0468 | 0.459 | -0.00282 |
|  | (0.134) | (0.153) | (0.155) | (0.113) | (0.310) | (0.109) |
| Oil & gas company nearby | -0.0756 | -0.0244 | 0.0351 | -0.0628 | -0.754 | -0.243 |
|  | (0.184) | (0.166) | (0.165) | (0.324) | (0.520) | (0.253) |
| Oil & gas seen as challenge in area | 0.0941 | 0.124 | 0.00893 | -1.025 | 0.217 | -1.194** |
|  | (0.252) | (0.243) | (0.184) | (0.661) | (0.745) | (0.571) |
| Interest in protecting environment | 0.0977 | 0.150 | 0.0965 | -0.161* | 0.277* | -0.139* |
|  | (0.120) | (0.122) | (0.0768) | (0.0877) | (0.131) | (0.0804) |
| Satisfaction w/ village government |  |  | 0.239** |  |  | 0.0402 |
|  |  |  | (0.0975) |  |  | (0.187) |
| Satisfaction w/ regency government |  |  | 0.468*** |  |  | -0.472 |
|  |  |  | (0.130) |  |  | (0.290) |
| Satisfaction w/ national government |  |  | 0.000470 |  |  | 0.452*** |
|  |  |  | (0.100) |  |  | (0.154) |
| Corruption seen as large challenge |  |  | -0.497 |  |  | 0.290 |
|  |  |  | (0.308) |  |  | (0.335) |
| Received oil & gas information |  | -0.581*** |  |  | 0.355 |  |
|  |  | (0.177) |  |  | (0.381) |  |
| Knowledge about oil & gas industry |  | -0.0385 |  |  | -1.900*** |  |
|  |  | (0.0910) |  |  | (0.393) |  |
| District controls | yes | yes | yes | yes | no | yes |
| Observations | 108 | 107 | 105 | 67 | 23 | 63 |
| R-squared | 0.300 | 0.350 | 0.499 | 0.351 | 0.744 | 0.525 |

Note: Table shows coefficients for OLS regressions with strata-adjusted standard errors in parentheses.
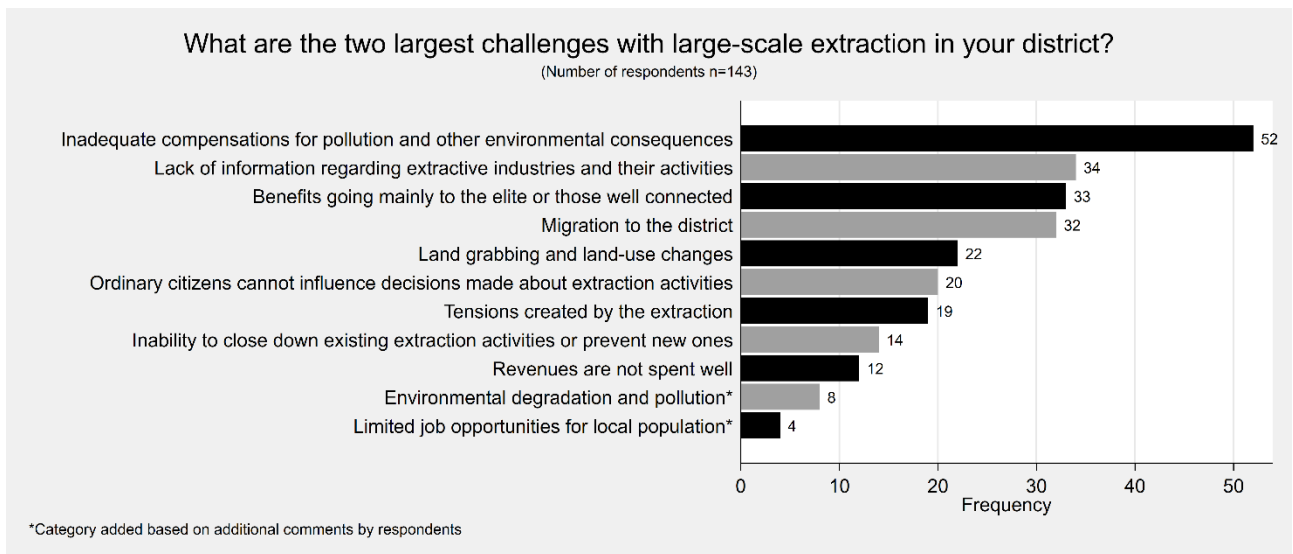
Columns 4-6 do not adjust s.e. to stratification by production status due to small sample sizes.

*** p<0.01, ** p<0.05, * p<0.1

# Appendix 2 – Additional figures
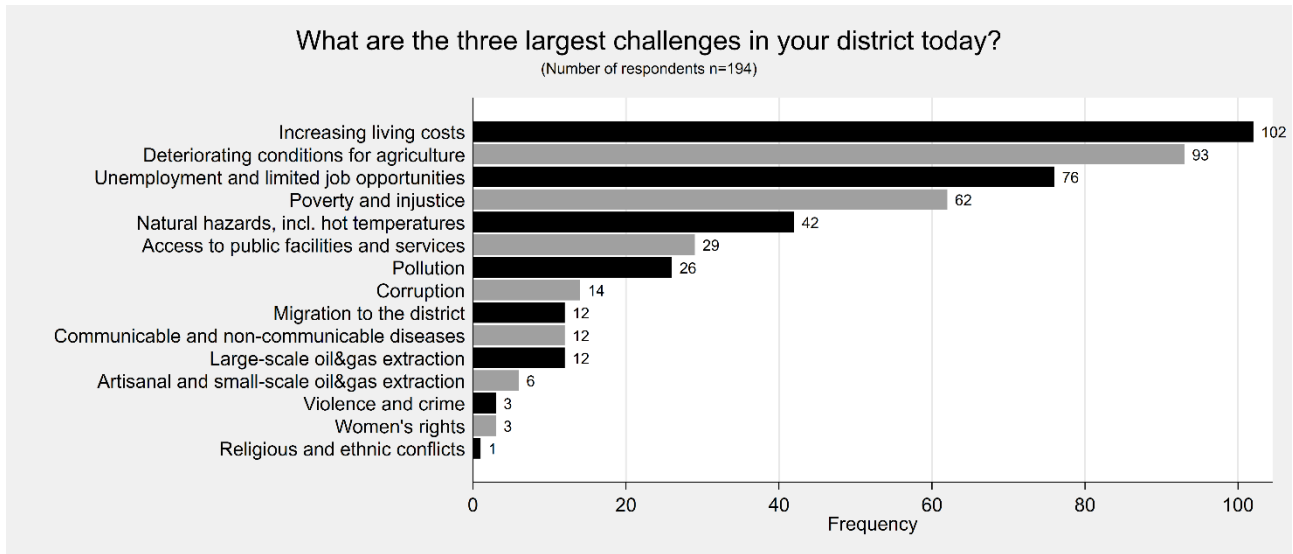


*Appendix Figure 1: Largest challenges in the district. Respondents could choose up to three challenges from the list. The figure presents the total count per challenge.*



*Appendix Figure 2: Largest challenges with large-scale extraction in the district. Respondents could choose up to two challenges from the list. The figure presents the total count per challenge.*
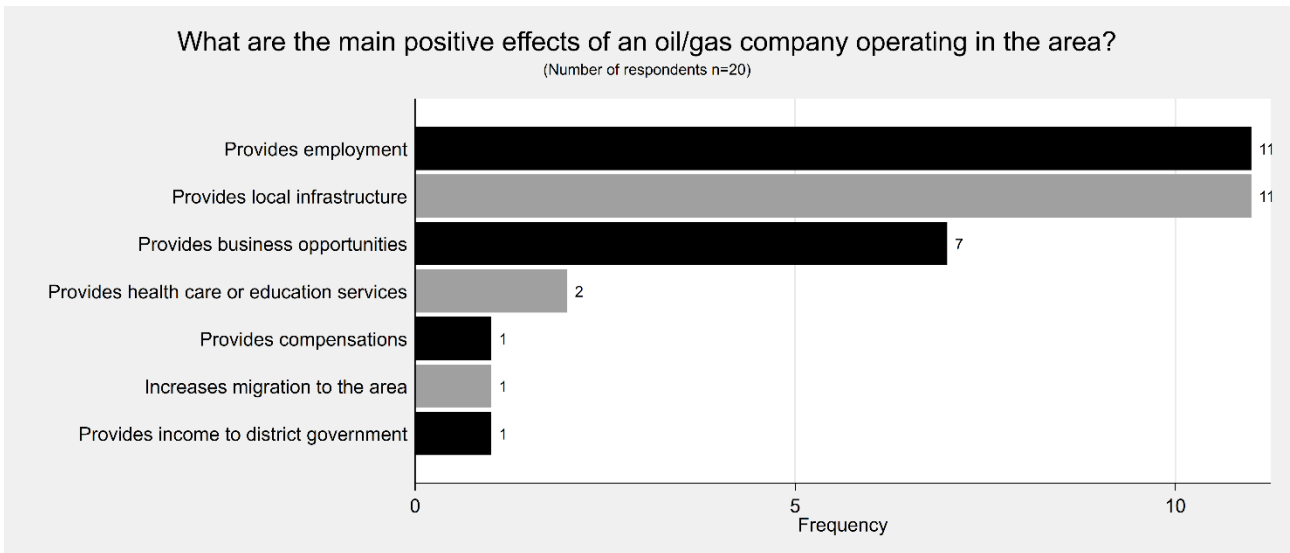
*Appendix Figure 3: Main positive effects of an oil & gas company operating in the area. Small number of respondents due to preceding filter question. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*
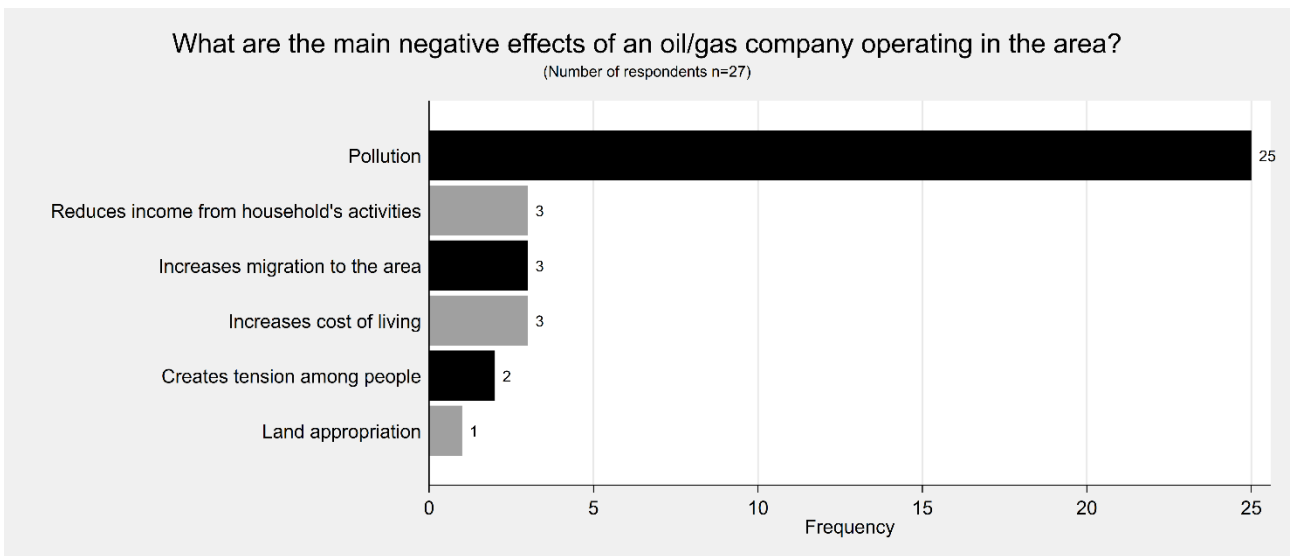


*Appendix Figure 4: Main negative effects of an oil & gas company operating in the area. Small number of respondents due to preceding filter question. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*
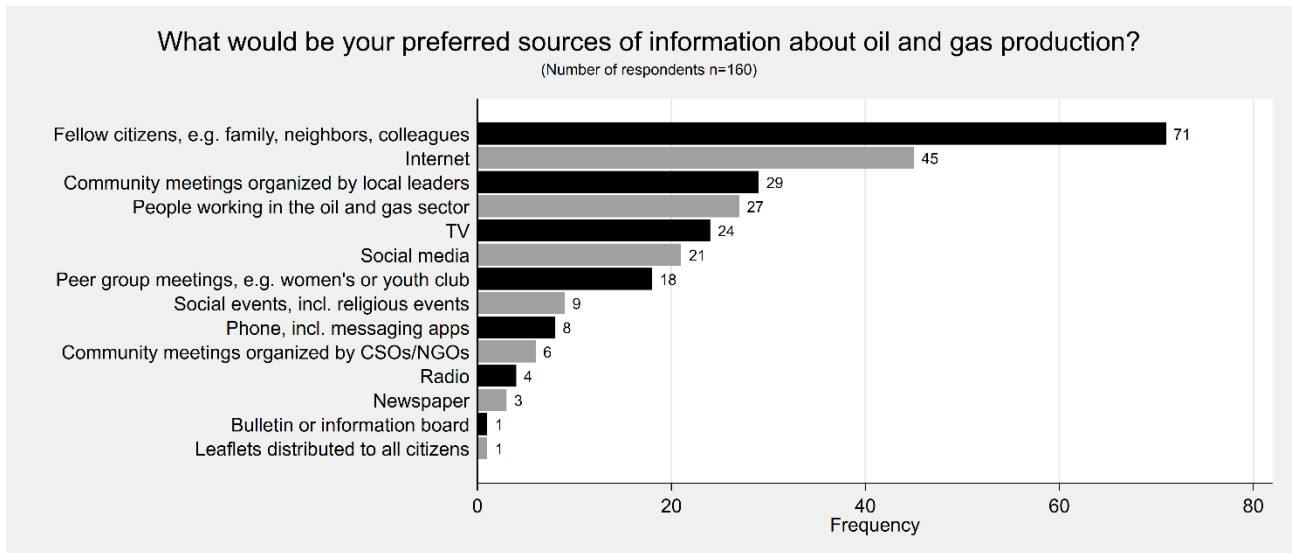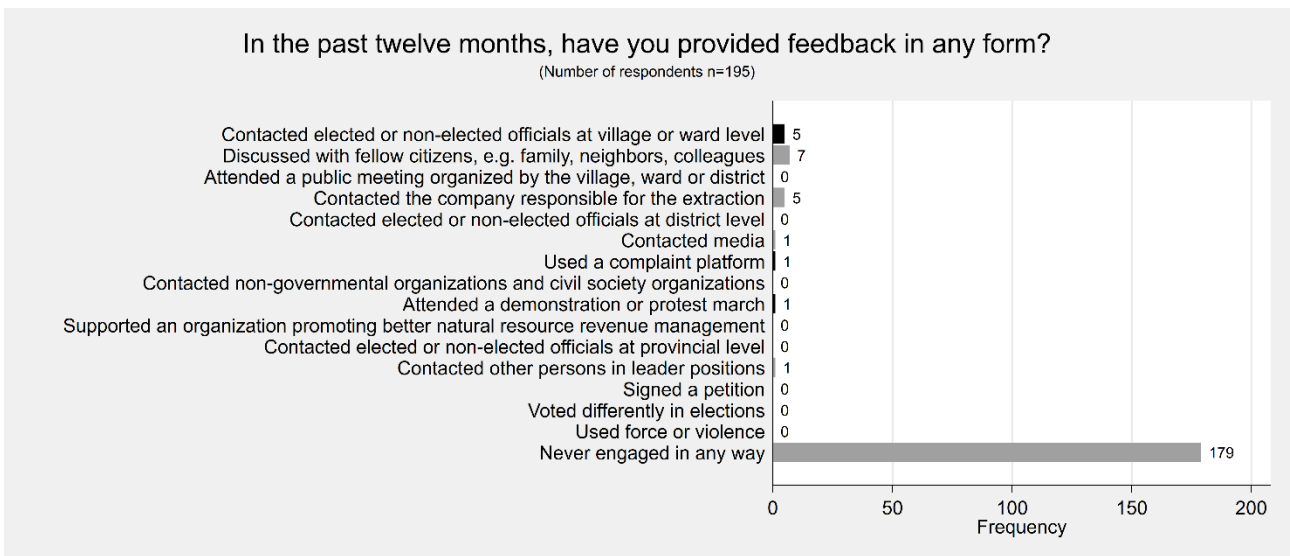
*Appendix Figure 5: Preferred sources of information about oil and gas production. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*
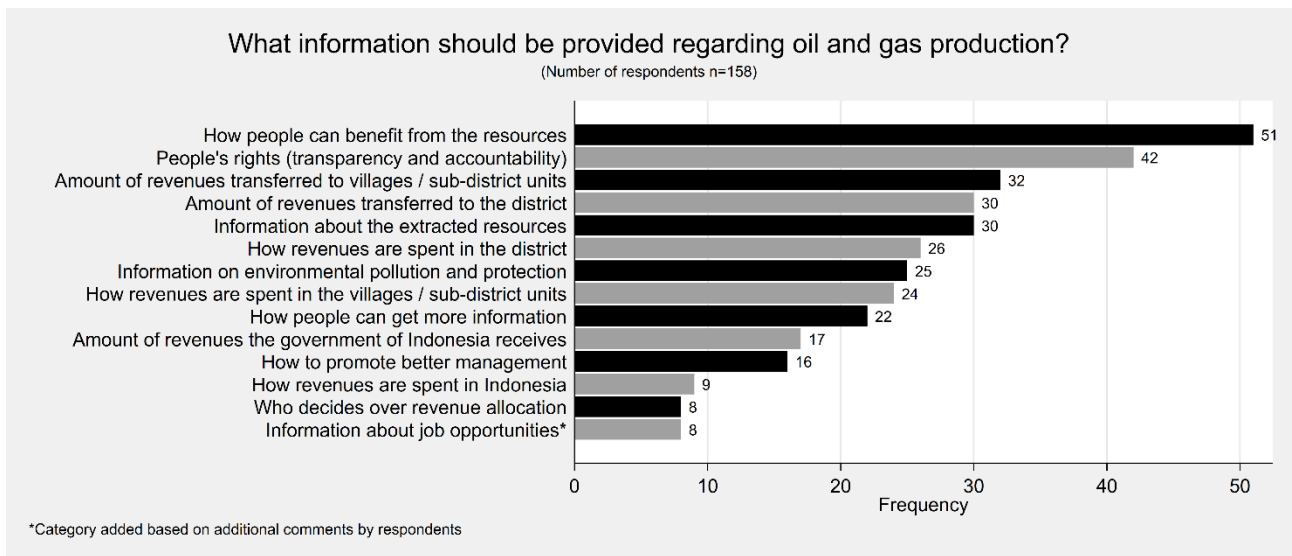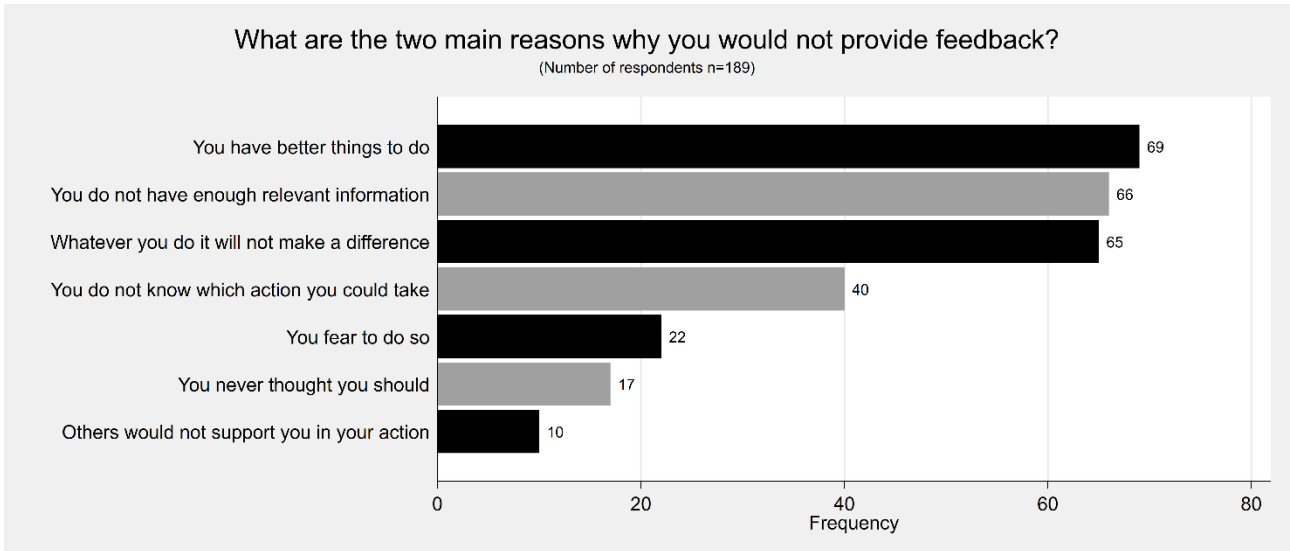


*Appendix Figure 6: Desired types of information about oil and gas production. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*
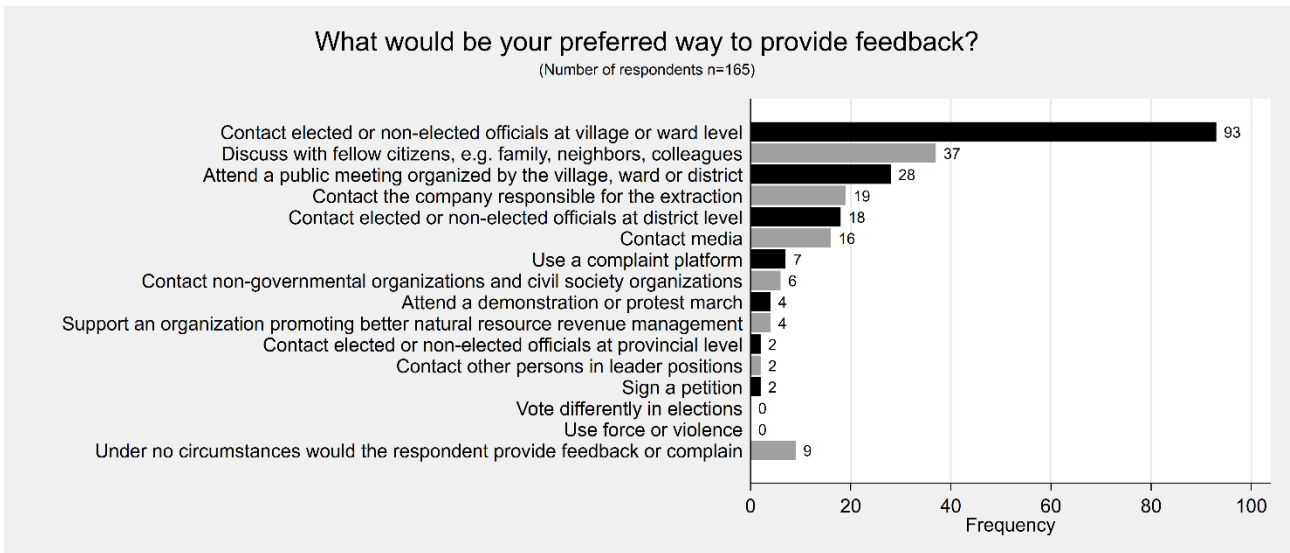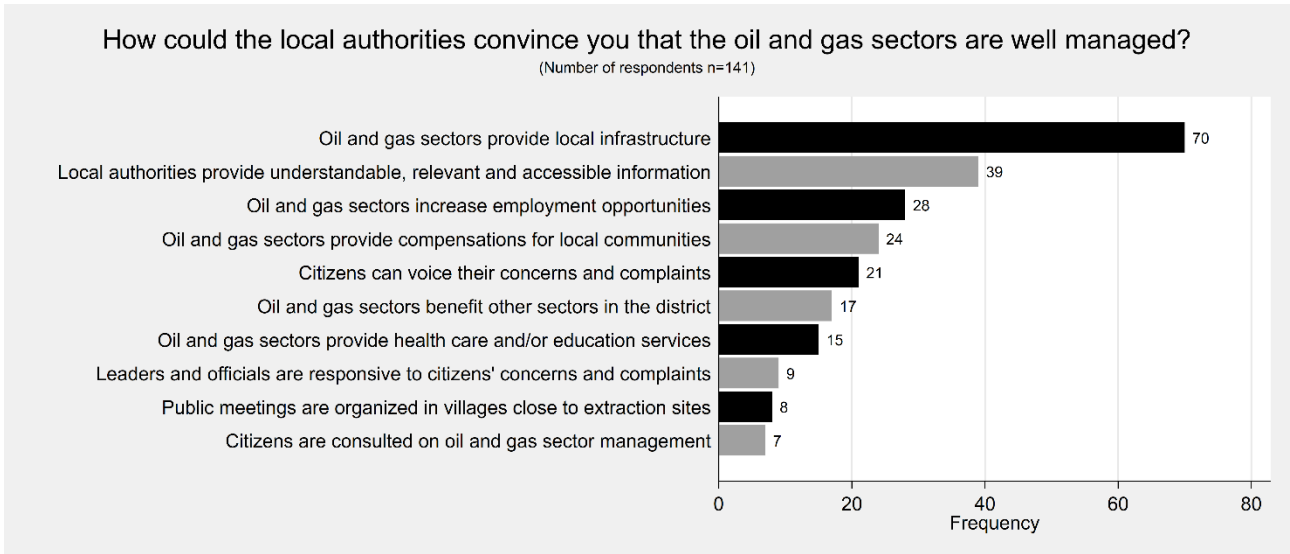
*Appendix Figure 7: Preferred ways to provide feedback about oil and gas production. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*



*Appendix Figure 8: Types of feedback provision in the past 12 months. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*

*Appendix Figure 9: Main reasons for not providing feedback. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*



*Appendix Figure 10: Measures that could convince people that the oil and gas sectors are managed well. Respondents could choose as many categories as applied from a list. The figure presents the total count per category.*