Oil, Elections and Fiscal Transparency

Abstract

How does governments' ability to gain financing from oil income affect their behavior? Numerous studies have explored the effects of oil wealth on countries' political characteristics, especially the level of democracy. Oil has also been associated with a significant electoral incumbency advantage across different political regimes. However, the relationship between oil wealth and incumbent governments' behavior, including election-year fiscal manipulation, has been studied to a lesser extent. This article argues that higher oil rents increase election-year public spending, as they provide national governments both with direct revenue as well as increased financing opportunities. However, fiscal transparency mitigates this effect. Consequently, oil-induced electoral budget cycles decrease as fiscal transparency increases. Using a high-quality measure of fiscal transparency in a panel of countries, robust evidence in favor of this argument is found. The findings suggest that many of the previous results on the political effects of oil, including incumbency advantage, might run through an election-year spending channel, and that fiscal institutions might matter substantially for the political effects of oil.

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Introduction

Do changes in the value of national oil production affect the behavior of incumbent governments? With recent years' spikes and falls in international oil prices and the growing interest within national and international policy circles in natural resource management (Baunsgaard et al. 2012), whether and how oil income and its fluctuations impact countries' national politics is an important question. Recent decades have seen a surge in research about the potential political effects of oil wealth (Ross 2015), much of which deals with oil's negative effect on democracy (Ross 2001; Ross 2012) and persistence of autocracy (Wright, Frantz and Geddes 2015). Other research has linked oil wealth with a substantial incumbency advantage in various political regimes (Smith 2004; Goldberg et al. 2008; Andersen and Aslaksen 2013; Wahman and Basedau 2015; Mahdavi 2015; Ross, 2015: 245; Diaz-Rioseco 2016). Government fiscal policy is often pointed out as the central mechanism for these effects, since oil wealth enables an incumbent government to increase public spending without raising taxes (Ross 2012: 67-71). See Morrison (2009) for evidence of this phenomenon.

However, while there has been intense research, especially in the effect of oil on democracy and political regimes, the shorter term political-economic effects of oil wealth and fluctuations in the value of national oil production have received less scholarly attention. In particular, oil wealth's effect on short-term behavior by incumbent governments has been investigated to a lesser extent than the potential longer-term institutional consequences of oil and natural gas abundance. Whether oil affects domestic politics and policies over the electoral cycle has been studied even less. Consequently, little research has been done on the interplay between oil wealth and election-year fiscal manipulation and whether institutional differences have any conditioning effects on this potential relationship. Given that the national value of oil production fluctuates greatly from year to year due to volatile

international oil prices, the potential short-term effects of oil on government behavior are not trivial issues.

This article analyzes how increases in oil rents affect public spending over the electoral cycle and explores how the level of budgetary information, also known as fiscal transparency, impacts this phenomenon. It is one of the first articles to investigate whether and how fluctuations in oil rents and electoral concerns jointly affect incumbent government behavior.[1] It builds on the theoretical argument that oil rents enable an incumbent government to expand public spending, which the government would be inclined to do in election years. However, a higher level of transparency of the public budget exposes the short-term nature of these oil-induced electoral cycles, which should make governments less likely to generate them in the first place.

Using fixed-effects analysis of panel data from a variety of countries, both democratic and non-democratic, with a high-quality measure of fiscal transparency, strong evidence is found for the occurrence of oil-induced electoral cycles in public spending contingent on the level of fiscal transparency. This relationship is particularly strong in electoral autocracies, which suggests that the interaction between oil rents and fiscal transparency might play a particularly important role for political dynamics in these types of regimes.

[1] Another paper, which looks at the relationship between natural resource rents and electoral fiscal manipulation, is Klomp and de Haan (2016). They do, however, look at natural resource more broadly and do not test the potential conditioning effect of fiscal institutions.

In this way, the article contributes to growing literature on how the ability of governments to obtain financing from international financial markets and other external financing sources in conjecture with domestic economic institutions both enables and constrains governments from engaging in opportunistic fiscal expansions (Bodea et al. 2018; Kaplan and Thomsson, 2017; Hyde and O'Mahoney, 2010). Furthermore, these results suggest that many of the previous findings on the political-economic effects of oil wealth, especially regarding oil's effect on regime duration and incumbency advantage, might run through an election-year spending channel. The findings of this article suggest that even modest institutional reform related to the transparency of public expenditures might have a substantial effect on the political dynamics of oil wealth, especially in electoral autocracies and weak democracies.

Oil, elections and fiscal transparency: Theoretical argument

This article's central argument is that oil rents increase election-year public spending and that the effect is limited by fiscal transparency. The theoretical foundation of this argument is the standard reasoning in the political budget cycles literature that an incumbent government will increase public spending before elections in an attempt to increase political support but faces a budget constraint. However, oil rents soften incumbent governments' budget constraint, as oil rents provide the governments with more direct non-tax revenue and better access to credit. Consequently, higher oil rents should increase election-year public spending. However, a higher level of fiscal transparency provides citizens with an insight into the short-term and windfall-nature of opportunistic oil-induced public spending increases,[2] which will make the perceived benefit of these smaller. High levels of

[2] E.g. through dissimilation by the media and/or electoral challengers.

fiscal transparency thus disincentivize the government from using oil rents to increase election-year public spending. In the next subsections, this theoretical argument is drawn out in more detail.

The incentive to increase public spending in election years

Imagine an incumbent government which wants to stay in power and thus wants to be reelected and increase its existing electoral margin. The government assumes that citizens value a government that is able to provide them with increased public goods and transfers at a given tax level. An incumbent government can thus use increased public spending to increase the perception of its own competence, which it would be inclined to do when attention to its performance is greatest. As argued both theoretically and empirically (Rogoff 1990; Healy and Lenz 2014: 31-43), this is in election years. These types of reasoning are the basis of most theoretical models of the occurrence of the so-called political budget cycle (Rogoff, 1990; Shi and Svensson, 2006; Klomp and de Haan 2013: 330).

Theories of political budget cycle occurrence normally explicitly or implicitly assume the existence of democratic elections. However, elections play a potentially influential part in non-democracies and can also be important for incumbents in these regimes (Gandhi and Lust-Okar 2009), as these elections might directly or indirectly cause the incumbent dictator to be removed, especially in the short run, since they can solve coordination problems for the opposition, even in the face of unfair elections (Knutsen et al. 2017). This seems to be true even in oil-rich autocracies, as Andersen and co-authors (2017) found that wealth in tax havens originating from oil-rich autocracies increases immediately before elections, suggesting that even dictators bolstered with oil wealth might feel their political survival threatened by upcoming elections. Furthermore, even non-democratic incumbents facing elections they cannot de-facto lose might also be interested in increasing their electoral margins

to signal the futility in staging opposition to the current regime (Gandhi and Lust-Okar 2009: 405). Non-democratic governments facing elections should therefore be interested in positive voter evaluations, as well as to buy out potential regime supporters and even part of the opposition before elections (Gandhi and Przeworski 2007: 1282). In line with the argument that even incumbents in autocracies might care about election results and distributive rents and patronage around election times, researchers have found existence of political budget cycles even in autocratic regimes (Blaydes, 2011: 77-99). The theoretical argument should consequently also apply – and perhaps be even more applicable[3] – to non-democracies which hold elections, so-called *electoral autocracies*,[4] a regime type which is becoming the most prevalent form of autocracy in recent decades (Mechkova et al. 2017: 164).

Oil as a tool to finance electoral budget cycles

However, it is assumed that the incumbent government faces a budget constraint[5] and is thus limited in its ability to expand election-year public spending without raising the taxation. Since raising public spending by increasing the taxation would not increase the perceived competence of the government, it should not be a preferred government strategy. Even when considering the possibility of government borrowing, there are limits to how much a government can borrow at a given interest

[3] Since the cost of losing an election might be higher and the incentive to run political budget cycles might be greater in these regimes (Shi and Svensson 2006).

[4] In line with Wahman and Basedau (2015) who find oil wealth negatively associated with government electoral turnover in multiparty autocracies.

[5] As in most models of political budget cycles (Shi and Svensson 2006). Intuitively this is arguably a realistic assumption.

rate. As shown by previous research, aspects of government financing, both from financial markets (Kaplan and Thomsson 2017) and the International Monetary Fund (Hyde and O'Mahoney 2010), can severely constrain incumbent governments' ability to run political budget cycles.

However, an increase in the value of national oil production, brought on by higher oil production and especially higher international oil prices, enables the incumbent government to increase election-year public spending more than it would otherwise be able to without an increase in taxation. Since citizens in this situation gain the benefits of increased public spending at the preexisting tax level,[6] they should, at least from the viewpoint of the incumbent government, consider the government more competent and be more likely to vote for and otherwise support the incumbent government. This provides an incentive for the incumbent government to use these oil rents to increase public spending in election years.

Using oil to finance election-year expansion of public spending can be achieved both through the use of the direct increased revenue from taxation of the oil industry and/or income from national oil companies. Even when oil extraction is primarily privately controlled, national governments are usually able to capture at least part of the increases in oil production value, as evidenced from Stroebel and Benthem's (2013: 1622-1623) finding that tax payments from independent oil companies closely

[6] Of course the rents could also be used to finance a decrease in taxes but since increasing public spending is usually a more faster, visible and targetable way of spending revenue windfalls, especially since implementing changes in the tax code can take considerable time, it is assumed that the government is mainly incentivized to use the election year oil rents to increase public spending.

follow the price of oil.[7] However, even ignoring whether the government has the ability to directly capture additional fiscal revenue from oil rents, increases in oil production value also affect the government's ability to finance public spending increases through the ability to obtain more and relatively cheaper credit by using oil as collateral. Increased value of the national oil production factors into the assessment of oil producing countries' credit worthiness (Kretzmann and Nooruddin 2005: 8) and is sometimes even openly stated by credit rating agencies (Moody's 2014). Increases in oil rents thus not only provide the incumbent government with additional revenue, but also soften the government's budget constraint through an effect on the government's ability to borrow from international financial markets and other creditors, even including foreign governments (Ellsworth and Parraga 2012).

Based on the argument above, we should expect oil rents to increase public spending in election years. Oil's effect on public spending due to political concerns is also the argument in other theoretical models about the resource curse (Robinson et al. 2006). However, the above arguments suggest that the effect of oil on public spending should be most dominant in years when elections are held, since these are the times where the political payoff from increasing public spending should be greatest from the viewpoint of the incumbent government.

The effect of fiscal transparency

The reasoning above rests on the government's assumption that the beneficiaries of the election-year spending increase cannot observe or gain insight into the causes of the oil-induced election- year

[7] Mahdavi (2014) also finds that higher oil prices make it more likely for a national government to create national oil companies, which directly creates fiscal revenue from oil extraction.

fiscal expansion and whether this expansion is sustainable long-term. Consequently, the government perceives that citizens will attribute the election-year spending increase to the competence of the incumbent government like in standard political budget cycle models (Persson and Tabellini 2000: 82-91; Shi and Svensson 2006: 1375-1379).

However, we might consider a situation in which the media, opposition candidates, governmental supporters, and perhaps even ordinary voters, are able to gain knowledge of the fact that the election-year fiscal expansion is caused by short-term oil windfalls rather than structural revenue increases or government competence. This knowledge will then cause these actors to discount the election-year increase in public spending when deciding on their support for the incumbent government; not because these beneficiaries' welfare is not potentially improved temporarily by the election year oil-induced spending increase, but because they know that the increase in public spending is not due to the competence of the government and that the government might be unlikely to be able provide this increased level of spending in the future. These assumptions above are in line with previous theoretical and empirical research within the political budget cycle literature, which generally argue and find that people tend to be less swayed by election-year fiscal manipulation when they are more informed (Brender and Drazen 2005: 1289-1290; Shi and Svensson 2006: 1376-1379).

An incumbent government would then, when the windfall and manipulative nature of the election-year oil-induced increase in public spending is more visible, be less likely to use increases in the value of oil production to expand public spending in election years, since the perceived electoral and other political gains would be lower than in the case when voters and other political actors could not fully observe the reason behind the oil-induced election-year spending increase.

However, in order for voters and other political actors to be able to know the potential short-term nature of oil-induced political budget cycles, and the fact that the election-year fiscal expansion is not caused by government competence but by oil windfalls, they would need reliable budgetary information about past and current public sector spending and revenue as well as reliable projections for public spending, revenue, deficits and debt. Voters might seek out the available budgetary information themselves through official government outlets and publications and/or the information could be disseminated for them by the media and/or an electoral challenger to the government.

An electoral challenger to the incumbent government of course has a huge incentive to make voters discount election-year fiscal expansions and to point out that the fiscal expansion is caused by oil windfalls rather than government competence and is potentially not longer-term sustainable.[8] However, the ability to back these arguments up with high-quality, publically available fiscal information raises the credibility of the challenger's claim and thus the likelihood that the voters will indeed disregard the fiscal expansion when assessing the competence of the incumbent government.

Previous micro- and macro- research on the effects of budgetary information does indeed suggest that citizens have an interest in acquiring budgetary information, and that they might change their behavior when more budgetary information becomes available (de Renzio and Wehner 2017). Thus,

[8] This of course builds on the assumption that there exist potential electoral challenges to the government. Thus, this mechanism is presumably weaker in regimes where there is no multi-party/multi-candidate elections, which is, however, a minority even among autocratic regimes. Furthermore, many of these regimes do not hold elections and therefore do run political budget cycles in the traditional sense.

there is evidence that better availability of fiscal information does change voters' perception of their governments and thus their subsequent electoral behavior. See also model by Alt and Lassen (2006a).

In short, the level of budgetary information available to voters determines whether they discount oil-induced election-year expansions as a sign of government competence and thus whether the incumbent government finds it worthwhile to use oil windfalls to increase election-year public spending.[9]

Consequently, higher levels of budgetary information – fiscal transparency – will lower the level and occurrence of oil-induced election-year increases in public spending, in line with previous findings on how fiscal transparency decreases the incentive for governments to run political budget cycles (Alt and Lassen 2006b).[10]

As knowledge about public spending, the public balance, and government debt, as well as reliable fiscal forecasts, are needed for citizens to be more fully informed about the true nature of an oil-induced election-year spending increase, it is important to specify that fiscal transparency entails

[9] This is a different result from the *petro populism* model of Matsen et al. (2016), where increased voter information about public spending makes oil-financed public spending increases more likely. However, in this model, voter information on public spending is the visibility of public spending rather than overall fiscal transparency, including reliable fiscal forecasts and information about government debt and deficits.

[10] However, in this study and theoretical framework, the varying ability of the government to finance these budgetary cycles – through oil or other revenue windfalls – are not specifically dealt with.

transparency of public finances as a whole and not only transparency in the country's natural resource extraction process.[11] Reliable estimations and forecasts of government deficits and debts, for example, are needed in order to know if the government uses the increased access to credit associated with an increase in oil rents to increase election-year public spending through excessive and potentially non-sustainable government borrowing.

The above theoretical reasoning gives the central theoretical argument of this article. Increases in oil rents should increase public spending in election years and increased fiscal transparency should reduce and eventually nullify this oil-induced election-year expansion of public spending.

Data and estimation strategy

To test the effect of oil and elections on public spending conditional on fiscal transparency, I used an unbalanced panel dataset of 96 countries observed in the years 2005, 2007, 2009 and 2011,[12] where there is high-quality data for levels of fiscal transparency. The measure of fiscal transparency is the Open Budget Index compiled by the NGO, the International Budget Partnership. The index, carried out by independent researchers, measures the level of budgetary information made available to the public by national governments and is based on a comprehensive survey with a large number of

[11] See Pitlik et al. (2010) for a discussion about revenue extraction transparency.

[12] These were the years the fiscal transparency data was collected and are the only years in the dataset. The results of the fiscal transparency data collection were released the year after they were carried out in the publications *Open Budgets Survey 2006, 2008, 2010 and 2012*. Since then, the International Budget Partnership has released a 2015 and a 2017 *Open Budget Survey*.

questions about the public budget in each country. The scores for these questions are normalized to a measure of fiscal transparency ranging from 0 to 100 (International Budget Partnership 2012: 3).

The survey questions concern different aspects of fiscal transparency, such as the level to which expenditures are classified by the administrative unit, the extent to which the different sources of tax revenue are identified, whether the numbers of beneficiaries of expenditure programs are listed in the budget, whether performance indicators for expenditure programs are included in the budget, the existence of in-year fiscal reports, including information on government borrowing, the structure and quality of public auditing, and many more items. Consequently, the Open Budget Index has the advantage of being based on expert assessment of a country's level of fiscal transparency, rather than country self-reporting, and covers a wide variety of items of relevance for the overall transparency of public finances. So, it is generally considered a more fine-grained and valid measure of fiscal transparency than other comparative indexes of fiscal transparency[13] and thus constitutes the best comparable data for budgetary transparency between countries over time.[14] The index's focus on budget transparency items, such as in-year report which include information about on-going

[13] Alt, Lassen and Wehner, (2014), Appendix 2. For a detailed discussion of the Open Budget Index methodology, see Seifert et al. (2013).

[14] Although the questionnaire used to generate the Open Budget Index exhibits small changes over time, the Open Budget Index is generally comparable for countries over time. The most extensive change in the Open Budget methodology took place between the 2011 and 2014 version of the survey, where the results from the latter survey are not part of this article's dataset. Even in this case, the scores in these two years were fairly comparable (International Budget Partnership, 2015, annex B). An alternative analysis (with slightly different data sources but still using the Ross-Mahdavi data), where the 2014 Open Budget Index data is included, yields similar results as in this analysis. Data and replication code is available upon request.

government borrowing, is also very relevant to the theoretical mechanisms for how fiscal transparency should dampen oil-induced fiscal expansions in election years.

Although not all countries in the world receive scores on the index, the index covers a broad variety of countries from all continents and at very different levels of economic development and with very different types of political regimes. Furthermore, the included countries are selected to be scored by the International Budget Partnership rather than selecting themselves into the scoring process, so the issue of endogeneity bias in the data analysis due to country self-selection should be a lesser concern. The full list of the 96 countries included in the main analysis can be found in appendix A.

While oil wealth is negatively associated with overall fiscal transparency (de Renzio and Wehner 2013), the central argument of this article is that a further *increase* in the value of national oil production spills over into increased public spending in election years under low levels of fiscal transparency but not under high levels of fiscal transparency. Given that fiscal transparency is a slowly changing variable that exhibits great stability, at least within the time-frame of this study (Alt, et al. 2014: Appendix 2), concerns that fiscal transparency might be endogenously short-term lowered in election years and/or during oil booms should not be an issue. This is further suggested by the fact that regressing fiscal transparency on the election variable yields a null.[15]

While oil wealth and fiscal transparency thus exhibit a long-term endogenous relationship (de Renzio and Wehner 2013), the short-term interaction between oil rents increases and fiscal transparency (and

[15] Results are available upon request.

elections) should not be endogenous,[16] especially not in a country-fixed effects setup where the outcome variable is regressed on deviations from the mean of national oil rents. There is also a substantial variation in fiscal transparency among countries at different levels of oil rent endowment, confer appendix B. Furthermore, the later regression analysis uses country-fixed effects, which should also account for time-invariant institutional factors that might simultaneously be correlated with government fiscal preference and fiscal transparency,[17] removing yet another potential source of endogeneity with regards to fiscal transparency.

The central independent variable apart from fiscal transparency is oil rents. I follow much of the literature on the political effects of oil and measure oil rents as the value of oil and natural gas production per capita in constant 2014 US dollars using the data from the Ross and Mahdavi (2015) database. This variable is logged, and oil and gas production per capita for less than 1 US dollar has been coded to zero in order to prevent negative values when taking the natural log. This variable, of course, does not necessarily represent rents readily available to finance public spending by an incumbent government. However, the extensive government ownership of oil reserves and, as is the case in many countries, the dominance of fully or partly government owned oil companies (Ross 2012: 33-43) would make it plausible that national government would be able to gain access to at least some of the value of oil rent increases. Furthermore, as previously argued, even in the presence of mainly private sector oil extraction, higher oil rents might induce incumbent government to renegotiate contracts with private oil companies (Mahdavi 2014: 230), partly or fully nationalize oil extraction (Stroebel and Benthem 2013: 1636-1637; Mahdavi 2014) or increase the taxation of the

[16] See Bun and Harison (2019) on the validity of interactions in OLS estimations with endogenous regressors.

[17] Such as legal and/or colonial origin (Alt and Lassen 2006a).

oil industry (Stroebel and Benthem 2013: 1622-1623), which might also provide the government with more revenue from increases in the value of national oil production. As argued in the theory section, increases in the value of the national oil production might also increase public spending through better access to cheaper credit, which is not contingent on the government's immediate ability to transform higher oil rents into present revenue.

The election variable is coded as an election which, at least hypothetically, represents a turnover possibility for the chief executive. This is coded as a presidential election in a presidential system and a parliamentary election in other regime types.[18] Data for these variables is from the 2012 version of the Database of Political Institutions (Beck et al. 2001).

The dependent variable of interest is the level of public spending, which is measured as general government expenditures as a percentage of GDP. While the theory concerns elections and government incentive at the national level, a lot of public spending takes place at the subnational level in many countries, and the central government has many tools to expand spending there, including increasing intergovernmental grants, relaxing subnational fiscal spending limits and increasing reimbursements for subnational governments. Using general government rather than central

[18] A concern might be that since all variables are measured at the yearly level, elections held early in the year might be an issue for the interpretation of the effect of this variable. However, recoding the election variable such that the election dummy takes the value 0 if the election takes place in the first three months of the year does not change the core results.

government spending thus gives a fuller picture of potential fiscal expansions. Data for general government spending is from the IMF's World Economic Outlook database.

I also included a number of control variables. As the central political control, I used the country's level of democracy by the well-known POLITY2 index (Marshall et al. 2014). Democracy is potentially endogenous to both oil rents (Ross 2015: 243-248) and public spending levels (Boix 2001), so it is a potentially important control variable. However, there is still a substantial level of variation in fiscal transparency, even among countries with the same level of democracy. Confer appendix B.

To control for the level of economic development, a potential confounder of both size of the public sector (Boix 2001) as well as fiscal transparency (de Renzio and Wehner 2013), a log of GDP per capita in US dollars was added as a control. GDP growth is also added as an economic control to make sure that the effects of oil on election-year public spending are not caused by oil shocks' effect on GDP growth. Furthermore, higher GDP growth would affect the denominator of the public spending variable, and GDP growth could also either in- or decrease the demand for public spending,[19] whereas the theoretical argument is that oil increases public spending through a government supply mechanism. Additionally, short-term increases in public spending might also

[19] Depending on whether it increases the demand for government services (Boix 2001: 5), or whether citizens will use an increase in their income to purchase these services privately.

affect GDP growth. Thus, GDP growth is potentially endogenous to the main measure of oil rents and the dependent variable and is therefore a necessary control.[20]

In some of the specifications, general government revenue as a percent of GDP is added to isolate the unique effect of oil rents increases on election-year public spending independent of public revenue levels. As previously argued, increased oil rents might increase public spending not only through a direct effect on public revenues but also by providing an incumbent government with better and cheaper access to credit. The source for all economic controls is the IMF's World Economic Outlook Database.[21] Descriptive statistics can be found in appendix C.

The statistical estimation was done using ordinary least squares (OLS) with country- and year-fixed effects to take a potential trend in public spending levels into account.[22] As country-fixed effects estimation regresses on deviations from the country mean, within-country increases in oil rents should be captured by applying country-fixed effects, since positive values on the log of oil rents variable would capture larger than average oil rents. The analysis was carried out using two different estimations. The first estimation is reported in equation 1, which tests the occurrence of an oil-induced electoral budget cycle independent of level of fiscal transparency, and the second estimation is

[20] However, the results are similar if GDP growth and log of GDP per capita are not included. Results are available upon request.

[21] The database only reports GDP per capita in current US dollars, which should be a lesser concern given the relatively short time span of the panel, especially since the GDP per capita variable is logged.

[22] Core results are similar if the year dummies are replaced with a time trend.

reported in equation 2, where the oil-induced electoral budget cycle is contingent on fiscal transparency as argued in the theoretical section.

$$Y_{it} = \beta_1(O_{it}E_{it}) + \beta_2 O_{it} + \beta_3 E_{it} + \beta_4 V_{it} + \gamma_t + \delta_i + \varepsilon_{it} \quad (1)$$

$$Y_{it} = \beta_1(O_{it}\, E_{it}\, T_{it}) + \beta_2(O_{it}E_{it}) + \beta_3(O_{it}\, T_{it}) + \beta_4(E_{it}\, T_{it}) + \beta_5 O_{it} + \beta_6 E_{it} + \beta_7 T_{it} + \beta_8 V_{it} + \gamma_t + \delta_i + \varepsilon_{it} \quad (2)$$

Y is the public expenditure level in country *i* at time *t*. *O* is the log of oil production value per capita, *E* is the election dummy and *T* the fiscal transparency index. *V* is the vector of control variables and γ and δ are the year- and country-fixed effects respectively, while ε is the error term. For these types of panel analyses, clustering the standard errors at the unit-level would be normal procedure (Angrist and Pischke 2009: 318-319). However, due to data availability, the number of observations for each country varies between one and four in the dataset. This makes the cluster sizes very unbalanced, which might make the clustered standard errors less reliable than non-clustered standard errors (Nichols and Schaffer 2007). I have therefore chosen to keep the standard errors non-clustered in the main analyses. In Appendix D, the main results are reported with country-clustered standard errors, which show very similar results.

Results

Table 1, Columns 1 and 2 report the results from the first of the two estimations which test the occurrence of the pure oil-induced electoral budget cycle in public spending. As evident from Column 1, the co-occurrence of an election and a one log point increase in oil rents increases public spending levels by almost 0.22 percentage point of GDP. However, this effect is not statistically significant. There seems to be little robust evidence in favor of an independent oil-induced electoral budget cycle in public spending for the analyzed countries. This does not change with the addition of the control of government revenue as a percentage of GDP in column two, which, unsurprisingly, has a strong

positive association with public spending as a percentage of GDP. Of the other control variables, only GDP growth has a statistically significant effect on public spending as a percentage of GDP. This effect is negative, which is most likely a feature of GDP growth lowering the denominator of the public spending variable.

However, as argued in the theory section, electoral budget cycles in public spending caused by increases in oil rents might be contingent on fiscal transparency. This argument is tested in Table 2, Columns 3 and 4, which reports the results from the second estimation and shows whether the oil-induced electoral cycle in public spending is contingent on the level of fiscal transparency. In Column 3, the election and log of oil production value interaction has a positive effect on public spending with a size effect of 1.24 which is statistically significant at a $p<0.01$-level. This indicates that at the lowest level of fiscal transparency, an increase in oil rents of about one log point of oil production value per capita[23] translates to about 1 percentage point increase in public spending in an election year, which indicates a substantial oil-induced electoral cycle in public spending. However, as evident from the interaction between oil rents, election and fiscal transparency, the strength of this relationship is contingent on the level of fiscal transparency, as this three-variable interaction has a negative sign with an effect which is statistically significant at $p<0.01$-level. As fiscal transparency increases, the oil-induced political budget cycles in public spending become smaller.

[23] A little more than the increase experienced by Azerbaijan between 2005 and 2007. Ghana experienced an even larger increase in log of oil and gas production value per capita between 2009 and 2011.

The size and statistical significance of the relationship between oil, election year and fiscal transparency do not change much with the inclusion of the public revenue variable in Column Four, suggesting, in accordance with the arguments from the theoretical section, that the transparency contingent oil-induced electoral cycle does not work exclusively through oil rents' direct effects on public revenue but potentially also through an effect on the government's access to more and cheaper borrowing opportunities.

Table 1: Fiscal transparency and the oil-induced electoral budget cycle

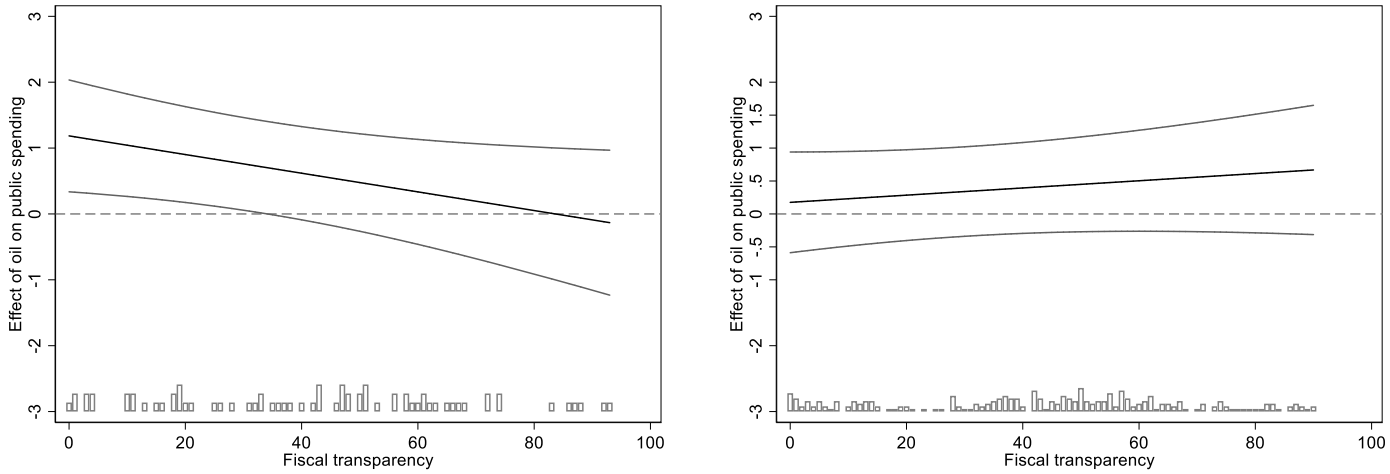
	(1)	(2)	(3)	(4)
Log of oil production value per capita	0.63 (0.47)	0.44 (0.42)	0.35 (0.53)	0.18 (0.46)
Election	0.04 (0.77)	-0.01 (0.68)	-3.77 (1.80)**	-3.04 (1.59)*
Election X log of oil production value per capita	0.22 (0.17)	0.20 (0.15)	1.24 (0.33)***	1.01 (0.29)***
Fiscal transparency	-	-	-0.01 (0.04)	-0.03 (0.03)
Fiscal transparency X election	-	-	0.09 (0.04)**	0.07 (0.03)**
Fiscal transparency X log of oil production value per capita	-	-	0.00 (0.01)	0.01 (0.01)
Fiscal transparency X log of oil production value per capita X election	-	-	-0.02 (0.01)***	-0.02 (0.01)***
Democracy	0.03 (0.15)	-0.04 (0.13)	0.06 (0.15)	0.01 (0.13)
GDP growth	-0.24 (0.06)***	-0.26 (0.05)***	-0.21 (0.06)***	-0.23 (0.05)***
Log of GDP per capita	-1.21 (1.73)	-2.01 (1.52)	-0.29 (1.77)	-1.29 (1.57)
Revenue as percent of GDP	-	0.61 (0.07)***	-	0.58 (0.07)***
Country-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Number of countries	96	96	96	96
Number of observations	324	324	324	324
Within R-square	0.31	0.47	0.35	0.49

Dependent variable is general government expenditure as a percent of GDP. Standard errors in parentheses.*: p<0.10, **: p<0.05, ***: p<0.01.

The relationship between fiscal transparency, elections and oil rents is visualized in Figure 1, which plots the model from Table 1, Column four. As evident from Figure 1a, increased oil rents increase election-year public spending as a percentage of GDP but only when fiscal transparency is low. In an election year, under very low levels of fiscal transparency, public spending increases with over 1 percent of GDP per one log increase in oil rents. The oil-induced electoral cycle in public spending decreases in size as the value on the Open Budget Index increases, and it eventually disappears at about medium levels of fiscal transparency.[24] In non-election years, increased oil rents do not cause a statistically significant increase in the public spending level regardless of the level of budgetary information, as evident from Figure 1b.

Figure 1: Marginal effect of oil rents and fiscal transparency on public spending

a: Election year b. Non-election year



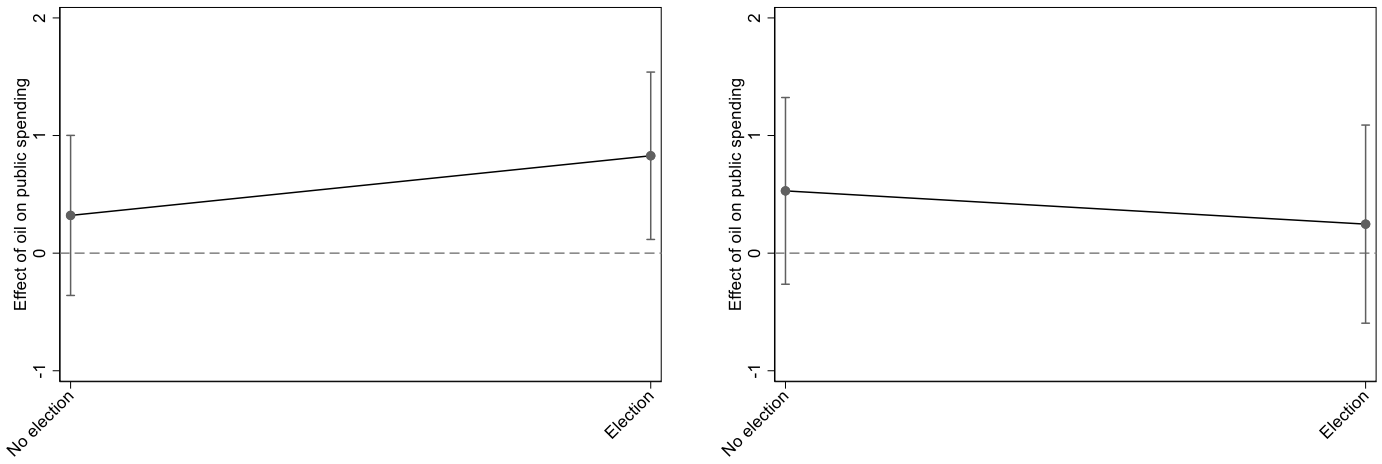
Note: Outer lines show 90 pct. confidence intervals.

[24] As visible from the histograms below, Figures 1a and 1b, there are observations for both election and non-election years across the entire range of the Open Budget Index, so issues of lack of common support and severe interpolation (Hainmueller et al. 2019) should not be a concern. However, the core results are robust to removing observations which score above 80 on the Open Budget Index. Results are available upon request.

In Figure 2, which also plots the model from Table 2, Column 4, the marginal effect of oil rents in election year versus non-election year for low and high fiscal transparency countries can be seen. Again, the same pattern emerges. In low-fiscal-transparency countries, increased oil rents lead to a substantial increase in public spending in election years, while in high-fiscal-transparency countries, there is no statistically significant difference between oil rents' effect on public spending in election years versus non-election years. Oil-induced political budget cycles are apparently a feature of low-fiscal-transparency countries.

Figure 2: Marginal effect of oil rents and elections on public spending

a: Low fiscal transparency: Open Budget Index<50 b. High fiscal transparency: Open Budget Index>=50



Note: Outer lines show 90 pct. confidence intervals.

To sum up, while increases in oil rents seem to cause incumbent governments to increase election-year public spending, the ability of citizens to know, through budgetary information, the short-term and manipulative nature of election-year oil-induced increases in public spending causes this tendency to decrease and eventually to disappear. As evident from Figure 1, the amount of budgetary information does not need to reach very high levels before oil-induced election-year fiscal manipulation becomes statistically undetectable. The positive effect of oil on election-year public spending eventually disappears at just above medium levels of fiscal transparency. Budgetary

information apparently does not need be extensive before election-year fiscal manipulation that is made possible by oil rents increases becomes a less viable strategy for incumbent governments.

Robustness tests

The results above have provided evidence in favor of oil-induced electoral cycles in public spending conditioned by fiscal transparency. However, concerns might arise about whether fiscal transparency really is the factor which determine the occurrence of oil-induced electoral budget cycles or whether it might merely proxy for other institutional characteristics. Fiscal transparency might be endogenous to other aspects of governance (de Renzio and Wehner 2013), and these factors might be the ones determining the existence of oil-induced electoral budget cycles. Thus, I conducted a number of robustness tests testing whether other governance factors rather than fiscal transparency condition the oil-induced electoral cycles in public spending.[25]

First, I tested for whether the effect of fiscal transparency instead really captures the effect of democracy, which is potentially correlated with fiscal transparency, oil wealth and perhaps the occurrence of political budget cycles (de Renzio and Wehner 2013; Ross 2012: 80-81; Klomp and de Haan 2013). Although I previously included level of democracy as a control variable, it did not enter as a conditioning variable. To address this issue, I interacted level of democracy[26] with the election and log of oil rents variables and added it to the full model from Table 1, Column 4. The results are shown in Table 2. The inclusion of the democracy interactions did not change the substantial size

[25] Appendix E also contains a robustness test where trade openness and the exchange rate are added as additional international economic control variables. Here, the results remain unchanged.

[26] Rescaled to run from 0 to 20 instead of -10 to 10.

effects or the statistical significance of the interaction between oil rents and elections and the interaction between elections, oil rents and fiscal transparency. With regards to the democracy, election and oil rents interaction, neither this interaction nor its constituting elements were statistically significant.

Similar results are found if the democracy variable using the Polity IV's definition is replaced with a dummy measuring whether the country is a *liberal democracy* using the data from the Varieties of Democracy dataset (Coppedge et al. 2018: 219),[27] which further suggests that fiscal transparency does not merely capture the effect of a consolidated democracy with a high level of rule of law. Fiscal transparency and its effect on oil-induced electoral cycles in public spending are not just spurious to democracy.

[27] Results are available upon request.

Table 2: Democracy instead of fiscal transparency?

	(1)
Fiscal transparency	-0.02 (0.03)
Log of oil production value per capita	0.45 (0.87)
Election	-5.03 (3.29)
Fiscal transparency X election	0.06 (0.04)
Fiscal transparency X log of oil rents	0.00 (0.01)
Election X log of oil production value per capita	1.45 (0.54)***
Fiscal transparency X log of oil production value per capita rents X election	-0.02 (0.01)**
Democracy	0.02 (0.19)
Democracy X log of oil production value per capita	-0.01 (0.04)
Democracy X election	0.15 (0.21)
Democracy X log of oil production value per capita X election	-0.04 (0.04)
Country-fixed effects	Yes
Year-fixed effects	Yes
Number of countries	96
Number of observations	324
Within R-squared	0.50

Dependent variable is general government expenditure as a percent of GDP. Controls as in Table 1 column four included but not shown. Standard errors in parentheses. *: p<0.10, **: p<0.05, ***: p<0.01.

I then tested for the effect of freedom of the press. A concern might be that transparency of the public budget is instead capturing the general level of public information and press freedom, and that these factors, rather than budgetary information, determine whether government uses oil rents to increase election-year public spending. Previous scholars have used media freedom and media penetration as factors determining the level and occurrence of political budget cycles (Shi and Svensson 2006), including natural resource-induced budget cycles (Klomp and de Haan 2016). Furthermore, media

freedom could even be endogenous to oil wealth (Egerov et al. 2009). As the measure of press freedom, I used the Freedom of the Press Index provided by Freedom House. The index runs from 0 to 100, where higher scores mean lower levels of media freedom. The index is interacted with log of oil rents and the election dummy and added to the estimation.

The results are reported in Table 3. In this specification, the interaction between fiscal transparency, log of oil rents and the occurrence of an election is still statistically significant at a $p<0.1$-level and has a negative coefficient, which has about the same size as in Table 1. Neither press freedom nor its interactions with log oil rents and election are statistically significant predictors of public spending in contrast with Klomp and de Haan's (2016: 85-87) findings. This provides support in favor of the theoretical argument that fiscal transparency has an independent conditioning effect on the occurrence of oil-induced electoral budget cycles in public spending and is not merely a proxy for freedom of the press.

In an analysis in Appendix F, I also address the potential endogeneity of oil rents. Here, the effect of fiscal transparency, oil rents and elections on public spending remains.

Table 3: Freedom of the press instead of fiscal transparency?

	(1)
Fiscal transparency	-0.02 (0.03)
Log of oil production value per capita	-0.48 (0.88)
Election	-3.15 (3.96)
Fiscal transparency X election	0.07 (0.04)*
Fiscal transparency X log of oil production value per capita	0.00 (0.01)
Election X log of oil rents	0.52 (0.73)
Fiscal transparency X log of oil production value per capita X election	-0.02 (0.01)*
Press freedom	0.02 (008)
Press freedom X log of oil production value per capita	0.02 (0.02)
Press freedom X election	0.00 (0.06)
Press freedom X log of oil production value per capita X election	0.01 (0.01)
Country-fixed effects	Yes
Year-fixed effects	Yes
Number of countries	96
Number of observations	324
Within R-squared	0.51

Dependent variable is general government expenditure as a percent of GDP. Controls as in Table 1 column four included but not shown. Standard errors in parentheses. *: p<0.10, **: p<0.05, ***: p<0.01.

Exploring the effects in different regime types

Fiscal transparency's moderating effect on oil-induced electoral budget cycles does not seem to merely reflect the difference between consolidated democracies and other regimes. However, an additional question emerges on whether the existence and size of oil-induced electoral budget cycles moderated by fiscal transparency are different between regime types. Not all regimes, e.g. some autocracies, hold elections and political budget cycles seems to be more prevalent in some regime

types than others (Brender and Drazen 2005), perhaps since losing elections/holding on to power might provide different costs/benefits to the incumbent across regime types (Shi and Svensson 2006). To explore these issues, but to simultaneously prevent too much loss of variation by analyzing regime types separately, in Table 4 I redid the main analysis, removing one regime type from the estimation at the time. I follow the Varieties of Democracy project's regime classification and distinguish between four types of regimes, *closed autocracies* with no multiparty elections for the chief executive or the parliament, *electoral autocracies* which fail to meet democratic standards but which hold multiparty elections, *electoral democracies*, which hold free and fair elections but lack rule of law and executive constraints and *liberal democracies*, which feature both free and fair elections as well as a sufficient level of rule of law and executive constraints (Coppedge et al. 2018: 219). An overview of the countries in these regime categories can be found in Appendix G.

The previous results in favor of oil-induced electoral cycles conditional on fiscal transparency generally hold with the removal of each of these types of regimes. The size effects even grow when liberal democracies are removed from the sample. However, the results change when electoral autocracies are removed from the sample. While the standard errors stay roughly the same, the coefficient for the interactions drops dramatically, making these interactions statistically insignificant. These results suggest the occurrence of oil-induced fiscal expansions in election years conditional on fiscal transparency may be especially prevalent in electoral autocracies, non-democracies which regularly hold multiparty elections but where other institutional prerequisites for the democratic process is generally lacking (Coppedge et al. 2018: 219).[28] Indeed, in the category of

[28] In a similar exercise, in Appendix H, the estimation is redone, grouping the countries in three income categories based on the 2018 World Bank's categorization. Here, the results are mainly robust for the middle-income group of countries, to which most of the electoral autocracies of the panel belong.

electoral autocracies, confer Appendix G, we find countries where oil and natural gas resources clearly have played an important role in their national politics,[29] such as post-Soviet countries such as Azerbaijan, Kazakhstan and Russia, African countries such as Equatorial Guinea and Nigeria and Latin-American countries such as Venezuela.[30]

[29] Including the political survival of their leaders, such as Vladimir Putin, Teodoro Obiang Nguema Mbasogo and Hugo Chavez.

[30] However, the overall trend in the relationship between oil rents, elections and fiscal transparency remains if each of these countries are excluded from the analysis, confer Appendix I. It should also be noted that not all of these countries' presidential elections are included in the panel due to the lack of fiscal transparency data.

Table 4: Exclusion of regime types

	Excluding closed autocracies	Excluding electoral autocracies	Excluding electoral democracies	Excluding liberal democracies
Log of oil production value per capita	0.09 (0.47)	0.41 (0.44)	1.36 (1.09)	-0.27 (0.53)
Election	-2.63 (1.60)	0.19 (1.55)	-6.03 (3.40)*	-4.56 (1.92)**
Election X of oil production value per capita	0.94 (0.30)***	0.01 (0.34)	1.48 (0.54)	1.62 (0.36)
Fiscal transparency	-0.03 (0.03)	0.03 (0.03)	-0.03 (0.06)	-0.04 (0.04)
Fiscal transparency X election	0.06 (0.03)*	0.02 (0.03)	0.10 (0.06)*	0.13 (0.05)***
Fiscal transparency X log of oil production value per capita	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)
Fiscal transparency X log of oil production value per capita X election	-0.02 (0.01)***	-0.00 (0.01)	-0.02 (0.01)***	-0.04 (0.01)***
Democracy	-0.08 (0.19)	-0.02 (0.16)	0.05 (0.18)	0.00 (0.14)
GDP growth	-0.26 (0.06)***	-0.11 (0.06)*	-0.31 (0.08)***	-0.22 (0.06)***
Log of GDP per capita	-1.21 (1.67)	-1.92 (1.60)	-2.44 (2.26)	-0.40 (1.93)
Revenue as percent of GDP	0.66 (0.08)***	0.55 (0.09)***	0.43 (0.10)***	0.57 (0.08)***
Country-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Number of countries	89	70	65	76
Number of observations	295	228	193	256
Within R-squared	0.52	0.52	0.52	0.52

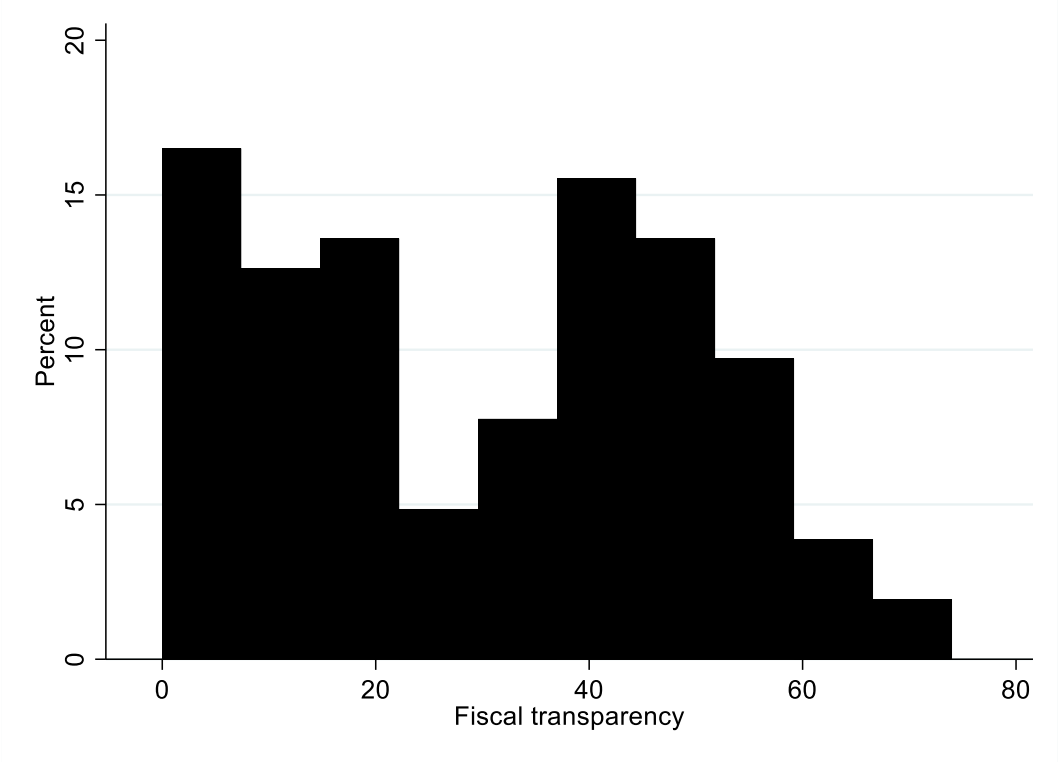
Dependent variable is general government expenditure as a percent of GDP. Standard errors in parentheses.
*: p<0.10, **: p<0.05, ***: p<0.01.

As fiscal transparency exhibits a lot of variation even among electoral autocracies, confer Figure 3, this does not seem to merely reflect low levels of fiscal transparency in these types of regimes. The existence of election year fiscal expansions in the form of public and/or patronage goods – a potential survival strategy for electoral autocrats (Knutsen et al. 2017: 110-112; Blaydes 2011; Brancati 2014: 317) – seems to be substantially moderated both by access to financing opportunities from oil wealth

as well as fiscal institutions.[31] These results seem to supplement previous research which has found a substantial incumbency advantage effect of oil wealth in electoral autocracies (Wahman and Basedau 2015).

The variation in fiscal transparency and oil wealth might thus matter substantially for observed differences in election-year manipulation and perhaps broader political dynamics – including incumbency advantage and eventually prospect for democratization[32] – within this type of regime, which is by far the most numerous type of autocracy today (Mechkova et al. 2017: 164).

Figure 3: Distribution of fiscal transparency among electoral autocracies



[31] Fails (2019) recently find that oil income increase the personalization of autocracies. Presumably through the autocrat's ability to provide patronage goods and other types of public spending.

[32] See Knutsen et al. (2017) and Egdell et al. (2018).

Discussion and conclusion

National oil production value clearly has important effects on countries' fiscal policies. However, the results of this article have shown that this relationship is shaped by both electoral incentives and fiscal institutions. Increases in oil production value cause increases in election-year public spending, which give rise to an oil-induced electoral cycle in public spending. However, this phenomenon is significantly mitigated by a country's level of fiscal transparency. As fiscal transparency increases, the oil-induced electoral cycle in public spending decreases. The ability of citizens to gain insight into the short-term and windfall nature of oil-induced electoral cycles in public spending through increased budgetary information apparently makes incumbent government less likely to generate these. These dynamics seem to be particularly prevalent in electoral autocracies.

The findings of this article speak to the broader literature on the political effects of oil wealth. It raises the questions of whether many of the proposed relationships between political regimes and oil dynamics, especially the regime duration, incumbency advantage and their relations to public spending (Smith 2004; Goldberg et al. 2008; Morrison 2009; Mahdavi 2015; Diaz-Rioseco 2016), run specifically through increases in election-year public spending. The results of this article could suggest that oil-induced budget cycles and their potential electoral and non-electoral returns are the drivers of the incumbency advantage of oil wealth, especially in weak democracies and electoral autocracies. These findings further show that budgetary transparency might potentially limit these effects, which is similar to arguments made about oil wealth and democracy in general (Ross 2012: 105-109).[33] The manipulative potential of oil rents and perhaps their broader political consequences,

[33]See also Hollyer et al. (2015) for the link between government transparency and autocratic survival.

which might include the likelihood of democratization, can apparently be countered by increasing the level of budgetary information.

Taking this perspective, this article has also made a potential contribution to the wider discussion of transparency in natural resource extraction, which has come to the forefront of research and international policy work within natural resources, especially with the launch of the Extractive Industries Transparency Initiative (EITI) (Pitlik et al. 2010: 178-180), the Publish What You Pay initiative, and other attempts at international governance of the natural resource industry (Ross 2018). While these initiatives have often focused on the revenue side of natural resource transparency, this article has shown the fruitfulness in also looking at the spending side of fiscal transparency in line with previous scholarly recommendations (Kolstad and Wiig 2009: 529). Since this article's results have shown that oil-induced electoral budget cycles become undetectable even at medium levels of fiscal transparency, it suggests that even modest institutional reform could have potential large effect on governance in oil-producing countries. Perhaps countries might not need "Norwegian" institutions (Mehlum et al. 2006: 3) before the dynamics of oil's effect on national politics and fiscal policy change.

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Appendix A: Countries in the analysis

Albania (2005, 2007, 2009, 2011)	Malawi (2005, 2007, 2009, 2011)
Algeria (2005, 2007, 2009, 2011)	Mali (2011)
Angola (2005, 2007, 2009, 2011)	Mexico (2005, 2007, 2009, 2011)
Argentina (2005, 2007, 2009, 2011)	Mongolia (2005, 2007, 2009, 2011)
Azerbaijan (2005, 2007, 2009, 2011)	Morocco (2005, 2007, 2009, 2011)
Bangladesh (2005, 2007, 2009, 2011)	Mozambique (2009, 2011)
Benin (2011)	Namibia (2005, 2007, 2009, 2011)
Bolivia (2005, 2007, 2009, 2011)	Myanmar (2011)
Botswana (2005, 2007, 2009, 2011)	Nepal (2005, 2007, 2009, 2011)
Brazil (2005, 2007, 2009, 2011)	New Zealand (2005, 2007, 2009, 2011)
Bulgaria (2005, 2007, 2009, 2011)	Nicaragua (2005, 2007, 2009, 2011)
Burkino Faso (2005, 2007, 2009, 2011)	Niger (2007, 2009, 2011)
Cambodia (2007, 2009, 2011)	Nigeria (2005, 2007, 2009, 2011)
Cameroon (2005, 2007, 2009, 2011)	Norway (2005, 2007, 2009, 2011)
Chad (2005, 2007, 2009, 2011)	Pakistan (2005, 2007, 2009, 2011)
Chile (2009, 2011)	Papua New Guinea (2005, 2007)
China (2007, 2009, 2011)	Peru (2005, 2007, 2009, 2011)
Colombia (2005, 2007, 2009, 2011)	Philippines (2005, 2007, 2009, 2011)
Costa Rica (2005, 2007, 2009, 2011)	Poland (2005, 2007, 2009, 2011)
Croatia (2005, 2007, 2009, 2011)	Portugal (2009, 2011)
Czech Republic (2005, 2007, 2009, 2011)	Qatar (2011)
Democratic Republic of Congo (2007, 2009, 2011)	Romania (2005, 2007, 2009, 2011)
Dominican Republic (2007, 2009, 2011)	Russia (2005, 2007, 2009, 2011)
Ecuador (2005, 2007, 2009, 2011)	Rwanda (2007, 2009, 2011)
East Timor (2009, 2011)	Saudi Arabia (2007, 2009, 2011)
Egypt (2005, 2007, 2009, 2011)	Senegal (2007, 2009, 2011)
El Salvador (2005, 2007, 2009, 2011)	Sierra Leone (2011)
Equatorial Guinea (2007, 2009, 2011)	Slovakia (2009, 2011)
Fiji (2007, 2009, 2011)	Slovenia (2005, 2007, 2009, 2011)
France (2005, 2007, 2009, 2011)	South Africa (2005, 2007, 2009, 2011)
Georgia (2005, 2007, 2009, 2011)	Spain (2009, 2011)
Germany (2007, 2009, 2011)	Sri Lanka (2005, 2007, 2009, 2011)
Ghana (2005, 2007, 2009, 2011)	Sudan (2007, 2009)
Guatemala (2005, 2007, 2009, 2011)	Sweden (2005, 2007, 2009, 2011)
Honduras (2005, 2007, 2009, 2011)	Tajikistan (2011)
India (2005, 2007, 2009, 2011)	Tanzania (2005, 2007, 2009, 2011)
Indonesia (2005, 2007, 2009, 2011)	Thailand (2007, 2009, 2011)
Iraq (2011)	Trinidad and Tobago (2007, 2009, 2011)
Italy (2009, 2011)	Turkey (2005, 2007, 2009, 2011)
Jordan (2005, 2007, 2009, 2011)	Uganda (2005, 2007, 2009, 2011)

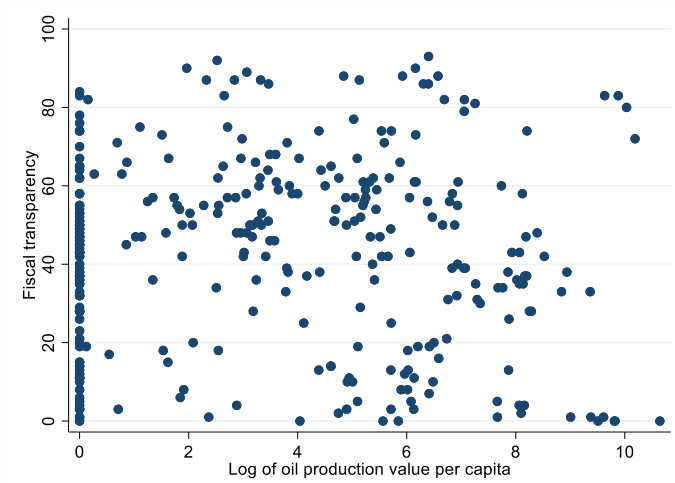
Kazakhstan (2005, 2007, 2009, 2011)	Ukraine (2007, 2009, 2011)
Kenya (2005, 2007, 2009, 2011)	United Kingdom (2005, 2007, 2009, 2011)
Republic of Korea (2005, 2007, 2009, 2011)	United States (2005, 2007, 2009, 2011)
Kyrgyz Republic (2005, 2007, 2009, 2011)	Venezuela (2007, 2009, 2011)
Lebanon (2007, 2009, 2011)	Vietnam (2005, 2007, 2009, 2011)
Liberia (2007, 2009, 2011)	Yemen (2007, 2009, 2011)
Macedonia (2007, 2009, 2011)	Zambia (2005, 2007, 2009, 2011)
Malaysia (2007, 2009, 2011)	Zimbabwe (2011)

Note: Numbers in parentheses are the years in which the country is included in the panel.

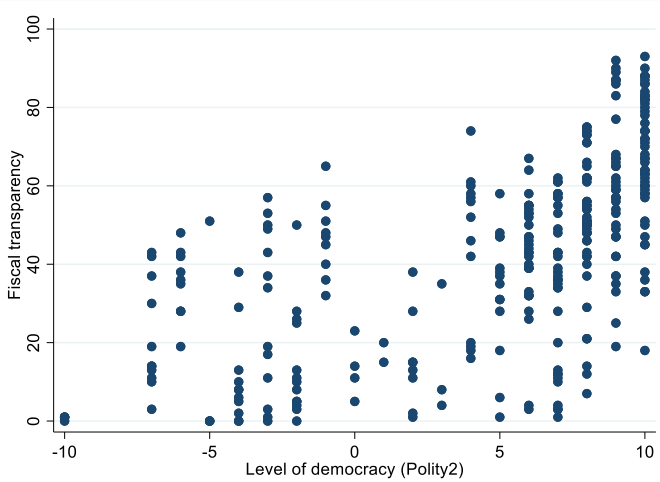
Appendix B: Bivariate relationship between fiscal transparency, oil and democracy

Figure B1: Bivariate relationship between fiscal transparency and other variables

a: Log of oil production value per capita -fiscal transparency



b. Level of democracy - fiscal transparency



Appendix C: Descriptive statistics

Table C1. Descriptive statistics

Variable	Level	Mean	Std. Dev.	Min	Max	Observations
Expenditure as percent of GDP	Within-country		3.14	12.61	51.49	
	Overall	29.60	10.13	10.62	64.12	324
Election	Within-country		0.36	-0.44	0.98	
	Overall	0.23	0.42	0	1	324
Fiscal transparency	Within-country		6.88	15.72	67.47	
	Overall	42.97	24.17	0	93	324
Log of oil production value per capita	Within-country		0.42	1.43	7.15	
	Overall	3.57	3.03	0	10.64	324
Democracy	Within-country		1.19	-4.26	10.08	
	Overall	4.74	5.40	-10	10	324
GDP growth	Within-country		3.71	-10.74	15.56	
	Overall	4.36	4.85	-15.14	26.40	324
Log of GDP per capita	Within-country		0.22	7.29	8.81	
	Overall	8.18	1.39	5.31	11.51	324
Revenue as percent of GDP	Within-country		2.17	19.30	38.14	
	Overall	28.08	10.91	9.30	62.32	324

Appendix D: Main results with country-clustered standard errors

Table D1: Main estimations with country-clustered standard errors

	(1)	(2)	(3)	(4)
Log of oil production value per capita	0.63 (0.59)	0.44 (0.43)	0.35 (0.64)	0.18 (0.43)
Election	0.04 (0.99)	-0.01 (0.82)	-3.77 (2.80)	-3.04 (2.15)
Election X log of oil rents	0.22 (0.31)	0.20 (0.24)	1.24 (0.80)	1.01 (0.58)
Fiscal transparency	-	-	-0.01 (0.04)	-0.03 (0.03)
Fiscal transparency X election	-	-	0.09 (0.05)*	0.07 (0.04)*
Fiscal transparency X log of oil rents	-	-	0.00 (0.01)	0.01 (0.01)
Fiscal transparency X log of oil rents X election	-	-	-0.02 (0.01)*	-0.02 (0.01)*
Democracy	0.03 (0.07)	-0.04 (0.06)	0.06 (0.08)	-0.01 (0.06)
GDP growth	-0.24 (0.14)*	-0.26 (0.12)**	-0.21 (0.12)*	-0.23 (0.11)**
Log of GDP per capita	-1.21 (2.62)	-2.01 (2.37)	-0.29 (2.49)	-1.29 (2.30)
Revenue as percent of GDP	-	0.61 (0.13)***	-	0.58 (0.11)*
Country-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Number of countries	96	96	96	96
Number of observations	324	324	324	324
Within R-squared	0.31	0.47	0.35	0.49

Dependent variable is general government expenditure as a percent of GDP. Standard errors clustered by country in parentheses.
*: p<0.10, **: p<0.05, ***: p<0.01.

Appendix E: Controlling for potential international economic confounders

Table E1: Controlling for international economic factors

	(1)
Log of oil rents	0.08 (0.44)
Election	-3.40 (1.50)**
Election X log of oil rents	1.17 (0.29)***
Fiscal transparency	-0.04 (0.03)
Fiscal transparency X election	0.08 (0.03)**
Fiscal transparency X log of oil rents	0.01 (0.01)
Fiscal transparency X log of oil rents X election	-0.02 (0.01)***
Democracy	-0.01 (0.12)
GDP growth	-0.26 (0.06)***
Log of GDP per capita	-1.79 (1.55)
Revenue as percent of GDP	0.59 (0.07)***
Trade openness (imports and exports as percent of GDP)	-0.02 (0.01)*
Exchange rate (Local currency to one US dollar)	-0.00 (0.00)
Country-fixed effects	Yes
Year-fixed effects	Yes
Number of countries	92
Number of observations	313
Within R-squared	0.55

Dependent variable is general government expenditure as a percent of GDP.
Standard errors in parentheses.
*: p<0.10, **: p<0.05, ***: p<0.01.

Appendix F: The potential endogeneity of oil rents: International oil price as exogenous variation

A potential concern, when interpreting the results from the main analysis, is the potential endogeneity of increases in oil rents (Dunning 2010). An incumbent government might try to increase oil production/government share of oil rents in election years precisely in order to run oil-induced political budget cycles or in an attempt to boost the national economy. The argument that oil income can be endogenous also underlies some of the arguments about the lack of a causal effect of oil and gas wealth on democracy (Haber and Menaldo 2011; Menaldo 2016; Brooks and Kurtz 2016).[34] The key arguments of this article, that incumbent governments can use the revenue and/or credit opportunities from oil rents to increase election-year public spending and that fiscal transparency decreases this effect, are not necessarily invalidated if oil rents are endogenous to the occurrence of elections. Fiscal transparency might still determine whether a short-term oil rents increase, endogenous or not, is put towards expanding public spending in election years. Nonetheless, the endogeneity of oil rents could still be a challenge for the interpretation of the above results, especially if the ability of the incumbent government to control the scale of the national oil production is endogenous to fiscal transparency.[35]

In order to address this issue, I reanalyzed the relationship between oil rents, elections and fiscal transparency using an alternative measure of increases in oil wealth with a far larger exogenous component. I followed an approach similar to that of Acemoglu et al. (2013: 1083) and Carreri and Dube (2017: 506) and replaced the log of oil rents variable with another oil wealth variable, which is

[34] See the counterargument to Haber and Menaldo (2011) in Ross and Andersen (2014).

[35] Which could especially be the case in countries with dominant national oil companies (Ross 2012: 59-62).

the log of oil reserves of the country as a share of the population times the international oil price. For the vast majority of the world's oil producers, they are not in a situation where they can directly influence the international market price of oil,[36] and in the short run, the oil reserves of a country are given. Consequently, this variable has a much more exogenous component than oil rents' percentage of GDP, although it does not actually measure de-facto oil rents but rather the potential for these rents. However, since the potential for oil rents might at least increase the ability to gain cheaper credit for the country in question, the potential for oil rents might also induce higher election-year spending contingent on fiscal transparency in line with the argument from the theoretical section. Data for both oil reserves, measured in 100 million barrels, and the international oil price, which is measured in constant 2013 US dollars, is from the British Petroleum's (BP) Statistical Review of World Energy 2014 dataset,[37] while population data is from World Bank's database. The estimation for this analysis is similar to that of the main analysis and is rewritten in equation 1.

$$Y_{it} = \beta_1(O_{it} E_{it} T_{it}) + \beta_2(O_{it} E_{it}) + \beta_3(O_{it} T_{it}) + \beta_4(E_{it} T_{it}) + \beta_5 O_{it} + \beta_6 E_{it} + \beta_7 T_{it} + \beta_8 V_{it} + \gamma_t + \delta_i + \varepsilon_{it} \quad (1)$$

However, the oil variable in this estimation is defined as the log of the national oil reserves per inhabitant of the country times the international oil price at time *t*.

$$O_{it} = ((log(Oil\ reserves_{it}))/population_{it})\, International\ oil\ price_t \quad (2)$$

The results from this analysis can be found in Table F1. With this alternative measure of oil rents, the results are similar to when log of actual oil rents was used as the oil variable. The interaction between

[36] One of the only countries which might be able to, Saudi Arabia, does not hold elections and therefore does not contribute to the calculation of the effect of the interaction between oil rents, elections and fiscal transparency.

[37] Countries with so low oil reserves that they receive no independent value in the BP Statistical Review score a 0 on this variable.

oil and election is positive and statistically significant, while the three-variable interaction between oil, election and fiscal transparency has a negative size effect, which is statistically significant at the $p<0.01$ level. So, even when a much more exogenous measure of oil wealth is used, there is still substantial evidence in favor of oil-induced electoral cycles conditional on the level of fiscal transparency.

Table F1: Alternative exogenous measure of oil rents

	(1)
(Log oil reserves/population X oil price)	76565.98 (37253.37)**
Election	0.10 (0.85)
Fiscal transparency	0.01 (0.02)
Fiscal transparency X election	0.01 (0.02)
Fiscal transparency X (Log oil reserves/population X oil price)	-2269.63 (1032.17)**
Election X (Log oil reserves/population X oil price)	108844.20 (20717.55)***
Fiscal transparency X (Log oil reserves/population X oil price) X election	-2888.87 (702.18)***
Democracy	-0.02 (0.12)
GDP growth	-0.19 (0.05)***
Log of GDP per capita	-0.32 (1.40)
Revenue as percent of GDP	0.50 (0.07)***
Country-fixed effects	Yes
Year-fixed effects	Yes
Number of countries	96
Number of observations	324
Within R-squared	0.55

Dependent variable is general government expenditure as a percent of GDP. Standard errors in parentheses.
*: p<0.10, **: p<0.05, ***: p<0.01.

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Appendix G: The countries in each regime category

Closed autocracy	Electoral autocracy	Electoral democracy	Liberal democracy
Angola (2005, 2007, 2009, 2011) Bangladesh (2007) China (2007, 2009, 2011) Fiji (2007, 2009, 2011) Jordan (2005, 2007, 2009, 2011) Morocco (2005, 2007, 2009, 2011) Nepal (2005) Qatar (2011) Saudi Arabia (2007, 2009, 2011) Thailand (2007) Vietnam (2005, 2007, 2009, 2011)	Algeria (2005, 2007, 2009, 2011) Azerbaijan (2005, 2007, 2009, 2011) Bangladesh (2011) Cambodia (2007, 2009, 2011) Cameroon (2005, 2007, 2009, 2011) Chad (2005, 2007, 2009, 2011) Democratic Republic of Congo (2007, 2009, 2011) Egypt (2005, 2007, 2009, 2011) Equatorial Guinea (2007, 2009, 2011) Honduras (2011) Kazakhstan (2005, 2007, 2009, 2011) Kenya (2005, 2007, 2009, 2011) Kyrgyz Republic (2007, 2009, 2011) Lebanon (2007) Malawi (2005, 2007) Malaysia (2005, 2007, 2009, 2011) Mozambique (2009, 2011) Myanmar (2011) Nicaragua (2011) Niger (2009) Nigeria (2005, 2007, 2009, 2011) Pakistan (2005, 2007, 2009) Papua New Guinea (2007, 2009, 2011) Philippines (2009) Russia (2005, 2007, 2009, 2011)	Albania (2005, 2007, 2009, 2011) Argentina (2005, 2007, 2009, 2011) Bangladesh (2005, 2009) Benin (2011) Bolivia (2005, 2007, 2009, 2011) Botswana (2005, 2007, 2009, 2011) Brazil (2005, 2007, 2009, 2011) Bulgaria (2005, 2007, 2009, 2011) Burkina Faso (2005, 2007, 2009, 2011) Colombia (2005, 2007, 2009, 2011) Croatia (2005, 2007, 2009, 2011) Dominican Republic (2007, 2009, 2011) East Timor (2009, 2011) Ecuador (2005, 2007, 2009, 2011) Georgia (2005, 2007, 2009, 2011) Guatemala (2005, 2007, 2009, 2011) Honduras (2005, 2007, 2009) India (2005, 2007, 2009, 2011) Indonesia (2005, 2007, 2009, 2011) Lebanon (2009, 2011) Liberia (2007, 2009, 2011) Macedonia (2007, 2009, 2011) Malawi (2009, 2011) Mali (2009, 2011)	Chile (2009, 2011) Costa Rica (2005, 2007, 2009, 2011) Czech Republic (2005, 2007, 2009, 2011) France (2005, 2007, 2009, 2011) Germany (2007, 2009, 2011) Ghana (2005, 2007, 2009, 2011) Italy (2009, 2011) Republic of Korea (2005, 2007, 2009, 2011) New Zealand (2005, 2007, 2009, 2011) Norway (2005, 2007, 2009, 2011) Poland (2005, 2007, 2009, 2011) Portugal (2009, 2011) Slovakia (2009, 2011) Slovenia (2005, 2007, 2009, 2011) South Africa (2005, 2007, 2009, 2011) Spain (2009, 2011) Sweden (2005, 2007, 2009, 2011) Trinidad and Tobago (2007, 2009, 2011) United Kingdom (205, 2007, 2009, 2011) United States (2005, 2007, 2009, 2011)

	Rwanda (2007, 2009, 2011) Sri Lanka (205, 2007, 2009, 2011) Sudan (2007, 2009) Tajikistan (2011) Tanzania (2005) Thailand (2009, 2011) Uganda (2005, 2007, 2009, 2011) Venezuela (2007, 2009, 2011) Yemen (2007, 2009, 2011) Zimbabwe (2011)	Mexico (2005, 2007, 2009, 2011) Mongolia (2005, 2007, 2009, 2011) Namibia (2005, 2007, 2009, 2011) Nepal (2009, 2011) Nicaragua (2005, 2007, 2009) Niger (2007, 2011) Peru (2005, 2007, 2009, 2011) Philippines (2007, 2011) Romania (2005, 2007, 2009, 2011) Senegal (2007, 2009, 2011) Sierra Leone (2011) Tanzania (2007, 2009, 2011) Turkey (2005, 2007, 2009, 2011) Ukraine (2007, 2009, 2011) Zambia (2005, 2007, 2009, 2011)	

Note: Numbers in parentheses are the years in which the country is included in the panel and belongs to the regime category.

Appendix H:

Table H1: Estimation for different country income categories

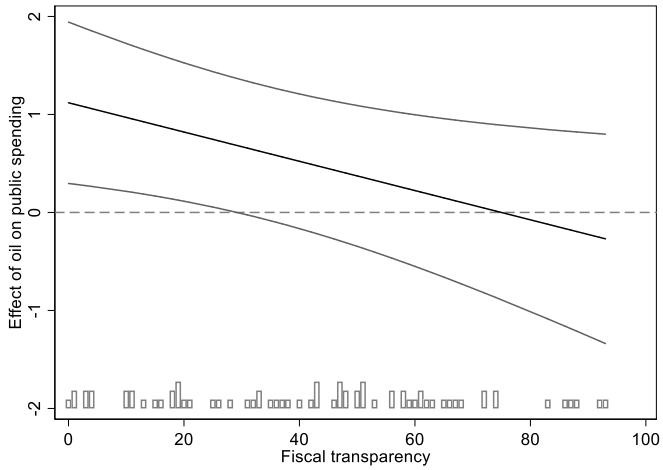
	Low income: GDP per capita < 996	Middle income: GDP per capita >996 & < 12055	High income: GDP per capita >12055
Log of oil rents	-1.48 (1.07)	0.70 (0.84)	-5.18 (3.01)*
Election	3.62 (2.58)	-3.94 (2.53)	-3.74 (13.78)
Election X log of oil rents	-0.80 (1.14)	1.37 (0.49)***	2.12 (1.58)
Fiscal transparency	-0.02 (0.05)	-0.03 (0.05)	-0.30 (0.18)
Fiscal transparency X election	-0.04 (0.05)	0.12 (0.06)**	0.07 (0.19)
Fiscal transparency X log of oil rents	-0.02 (0.03)	0.01 (0.01)	0.07 (0.03)**
Fiscal transparency X log of oil rents X election	0.01 (0.04)	-0.04 (0.01)***	-0.03 (0.02)
Democracy	0.05 (0.12)	-0.14 (0.28)	0.94 (1.90)
GDP growth	-0.13 (0.17)	-0.19 (0.06)***	-0.51 (0.23)**
Log of GDP per capita	-8.75 (6.26)	0.72 (2.00)	-6.53 (5.53)
Revenue as percent of GDP	0.83 (0.18)***	0.55 (0.10)***	-0.02 (0.21)
Country-fixed effects	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes
Number of countries	29	61	65
Number of observations	66	193	24
Within R-squared	0.72	0.49	0.83

Dependent variable is general government expenditure as a percent of GDP. Standard errors in parentheses.
*: p<0.10, **: p<0.05, ***: p<0.01.

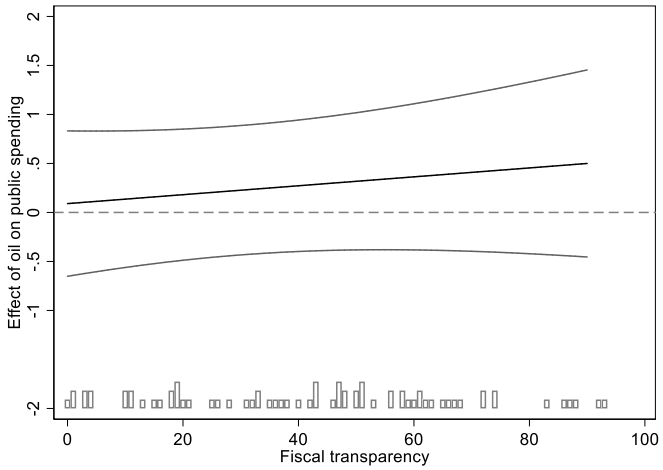
Appendix I: Exclusion of certain electoral-autocratic oil-states

Figure I1: Marginal effect of oil rents and fiscal transparency on public spending excluding Azerbaijan

a: Election year



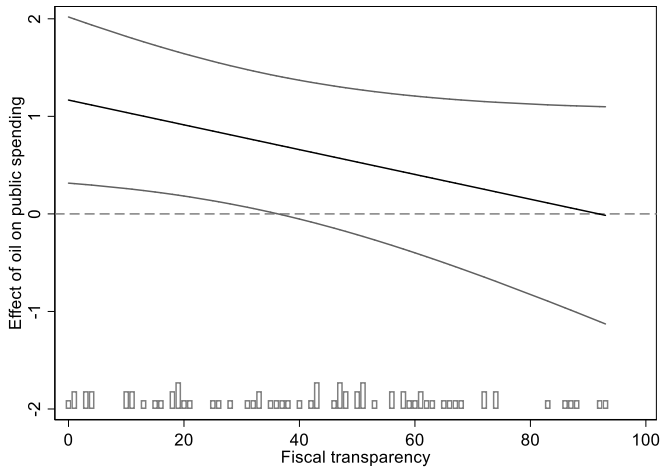
b. Non-election year



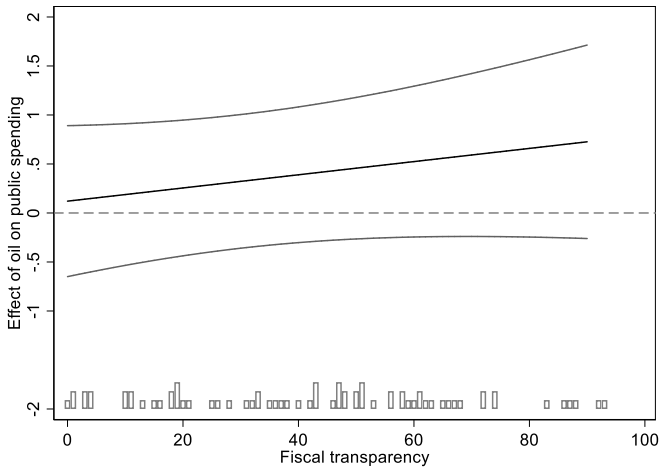
Note: Outer lines show 90 pct. confidence intervals.

Figure I2: Marginal effect of oil rents and fiscal transparency on public spending excluding Kazakhstan

a: Election year



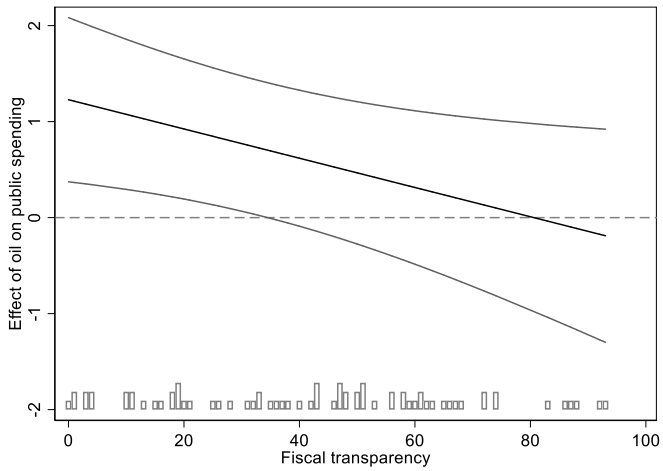
b. Non-election year



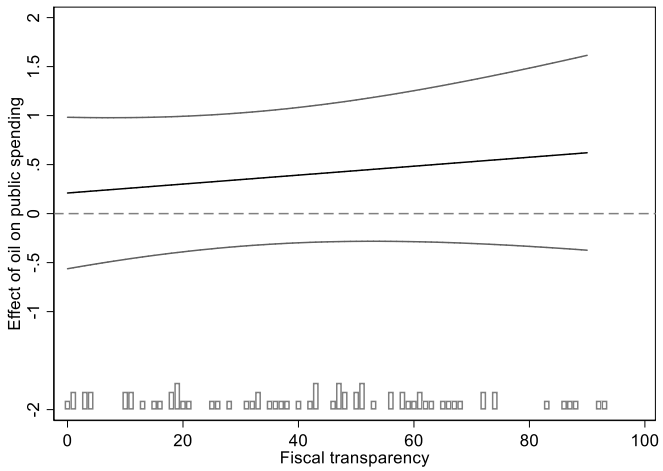
Note: Outer lines show 90 pct. confidence intervals.

Figure I3: Marginal effect of oil rents and fiscal transparency on public spending excluding Russia

a: Election year



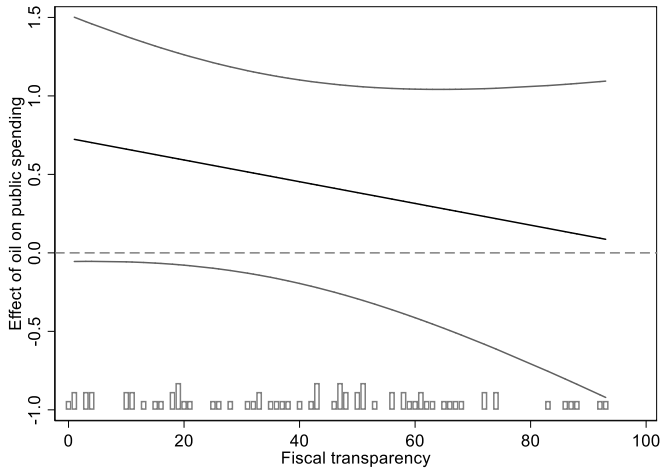
b. Non-election year



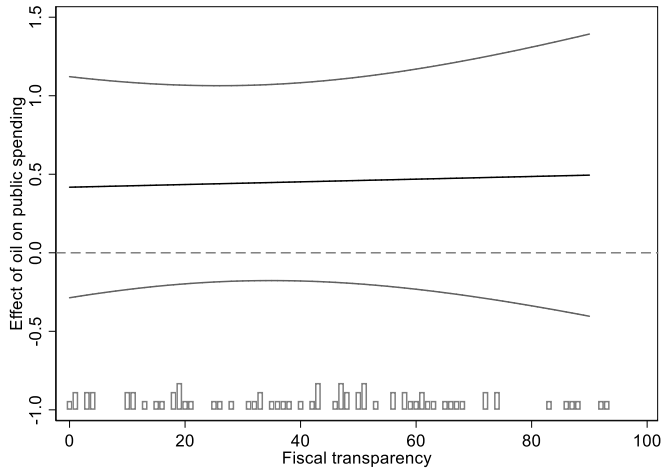
Note: Outer lines show 90 pct. confidence intervals.

Figure I4: Marginal effect of oil rents and fiscal transparency on public spending excluding Equatorial Guinea

a: Election year



b. Non-election year

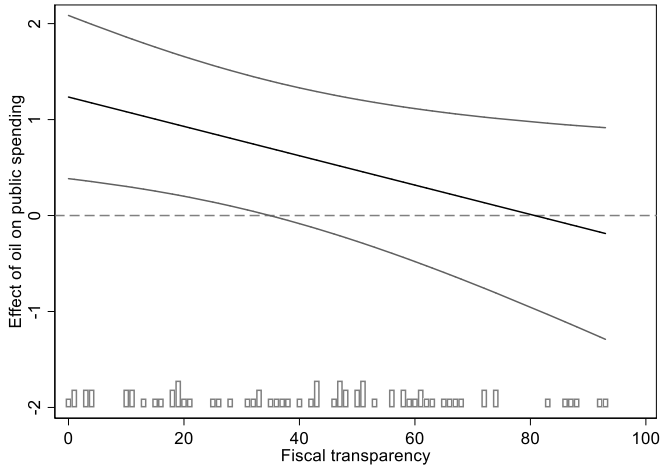


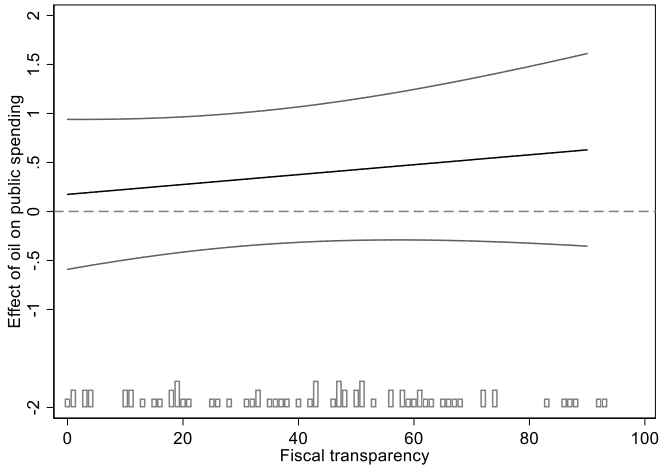
Note: Outer lines show 90 pct. confidence intervals.

Figure I5: Marginal effect of oil rents and fiscal transparency on public spending excluding Nigeria

a: Election year

b. Non-election year

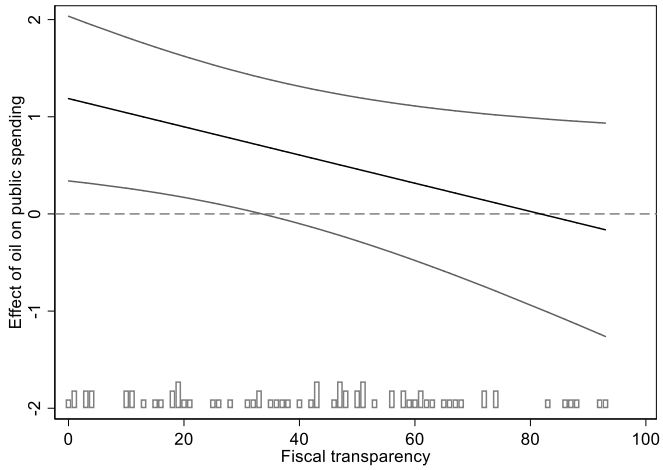




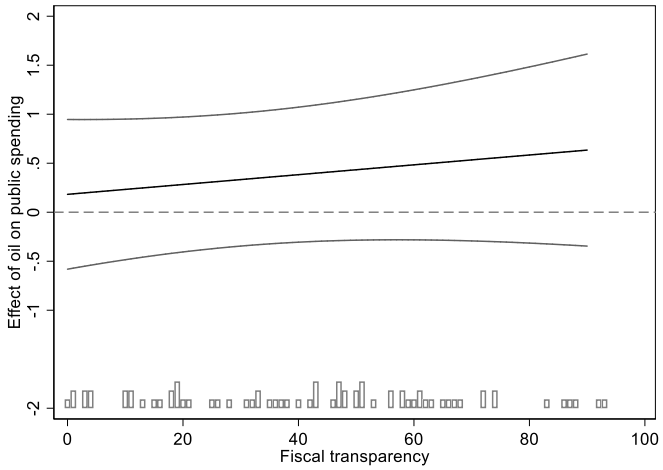
Note: Outer lines show 90 pct. confidence intervals.

Figure I6: Marginal effect of oil rents and fiscal transparency on public spending excluding Venezuela

a: Election year



b. Non-election year



Note: Outer lines show 90 pct. confidence intervals.