



Contents lists available at ScienceDirect

Resources Policy

journal homepage: <http://www.elsevier.com/locate/resourpol>

# The Extractive Industries Transparency Initiative (EITI) and corruption in Latin America: Evidence from Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago

Ibeth López-Cazar<sup>\*\*</sup>, Elissaios Papyrakis<sup>\*</sup>, Lorenzo Pellegrini

International Institute of Social Studies (ISS), Erasmus University Rotterdam, Kortenakade 12, The Hague, 2518 AX, the Netherlands

## ARTICLE INFO

### Keywords:

Extractive industries transparency initiative  
Corruption  
Resource curse  
Synthetic control methodology

## ABSTRACT

The Extractive Industries Transparency Initiative (EITI), launched in 2002, has been promoted as an international anti-corruption tool. Several empirical evaluations on the effectiveness of the EITI scheme provide average estimates based on cross-country analysis. However, little empirical work has been conducted on individual case studies, especially in the context of Latin America. Our study uses a Synthetic Control Methodology (SCM) to measure the EITI's impact on several measures of corruption in the first five Latin American countries to join the initiative: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. The method allows us to assess the magnitude and statistical significance of the EITI's effect on perceived corruption at each stage of implementation. Our results cast doubt on how decisive the scheme has been in combatting corruption. In the vast majority of cases, participation in the scheme either had no statistically significant effect or even coincided with marginally increased corruption levels (only in very few cases it was associated with temporary minor improvements). Taken together, the results indicate that joining EITI did not lead to a substantial decrease of corruption in any of the countries under scrutiny.

## 1. Introduction

Charles Darwin famously noted in his travel journal on South America that 'nearly every public officer can be bribed' (Darwin 1990 [1839]). Almost two centuries later, corruption is still pervasive in Latin America and manifests itself in multiple socio-economic domains, ranging from high-profile embezzlement of public funds to petty corruption by street-level bureaucrats. Sometimes the web of corruption extends across multiple countries; the recent Odebrecht scandal exposed illegal financing of political campaigns in 12 Latin American countries by Odebrecht (a Brazilian construction giant) in exchange for project acquisition (La Vanguardia 2018). The Latinobarómetro public opinion surveys (based on responses from 18 Latin American nations) place corruption as the third most important problem in the region after poverty and crime and in the case of Colombia, Peru and Brazil, corruption is ranked as the top priority (Corporación Latinobarómetro 2018).

Corruption tends to be especially prevalent in the extractive value chain due to the high volume of financial transactions and opportunities

for enrichment (OECD 2016; IDB 2015). There is much empirical research supporting a positive link between mineral dependence and incidence of corruption (e.g. Ross 2015). Latin America is the world's leading producer of metals and the second-largest producer of oil; about 40% of all exports originate in the extractive industries, which also represent one of the main sources of public revenue for the mineral-rich economies in the region. Because of the coincidence of high levels of corruption and large extractive sectors, several development agencies and international organizations (e.g. the Inter-American Development Bank (2015), the World Bank (2017) and the German Corporation for International Cooperation (2016) amongst others) have emphasised the need for improving transparency in Latin America's extractive sector. Transparency is embodied in the provision of easily accessible, detailed, credible and verifiable information on financial transactions (and the broader governance) of the extractive sector, wide dissemination of reports to inform public debate and the active engagement of all major stakeholders.

In recent years, the Extractive Industries Transparency Initiative (EITI) has become the international standard to facilitate transparency

\* Corresponding author.

\*\* Corresponding author.

E-mail addresses: [ibeth\\_mlc@hotmail.com](mailto:ibeth_mlc@hotmail.com) (I. López-Cazar), [papyrakis@iss.nl](mailto:papyrakis@iss.nl) (E. Papyrakis).

<https://doi.org/10.1016/j.resourpol.2020.101907>

Received 7 April 2020; Received in revised form 11 October 2020; Accepted 12 October 2020

0301-4207/© 2020 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

in mineral-dependent economies. The scheme was launched in the World Summit on Sustainable Development in Johannesburg in September 2002 with an objective to “promote the open and accountable management of oil, gas and mineral resources” (EITI 2019). Participating countries commit to enhancing transparency in the extractive sector through the disclosure of all relevant financial information and by setting up multi-stakeholder groups (with representatives from government, mining firms and civil society) that oversee implementation of the standard. Member countries participating in the scheme go through different stages. The first stage is one of initial *commitment* (through a government announcement). Secondly, countries are recognised as *candidates* once they put together a work plan (setting out objectives on how to improve governance in the sector) and establish a multi-stakeholder group. Subsequently, once countries fulfil a number of criteria (e.g. in reference to public disclosure of financial information, publication of EITI reports, public awareness of sectoral developments etc), they are then designated as *compliant* by the EITI Board (third stage).<sup>1</sup>

Most of the current empirical evaluations on the effectiveness of the EITI scheme (in curbing corruption) provide average estimates based on cross-country analysis and the evidence is mixed, with some papers failing to report statistically-significant impacts (e.g. Corrigan 2017; Kasekende et al., 2016), while others pointing to a beneficial effect (e.g. Corrigan 2014; Papyrakis et al., 2016). Little empirical work has been conducted on individual case studies, especially in the context of Latin America (with the exception of Etter 2012 on Peru, which lacks inferential results). Our study uses a Synthetic Control Methodology (SCM) to measure the EITI's impact on several measures of corruption in five Latin American countries: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago (countries that were the first in the continent to join the initiative and are all middle-income economies characterised by high levels of corruption and prominent extractive industries). To our knowledge, this is the first quantitative evaluation of the scheme for the broader Latin American region.<sup>2</sup> The adopted methodology allows us to generate synthetic control units (i.e. hypothetical counterfactual units), for which the time evolution of corruption matches closely the one of our Latin American focus countries prior to EITI participation. Any observed deviations in corruption patterns (between the synthetic unit and the actual Latin American counterpart) in the aftermath of the intervention (i.e. participation at the different stages of the EITI) can then be attributed to the EITI scheme. Our results cast doubt on how beneficial the scheme has been on combatting corruption in the Latin American setting. In the vast majority of cases, participation in the scheme either had no statistically significant effect or even coincided with marginally increased corruption levels (with some exceptions, as in the case of Trinidad and Tobago where corruption across public officials declined once the country became a candidate member). Overall, the results indicate that joining EITI did not cause a substantial decrease of corruption in any of the countries under scrutiny.

The remainder of the paper is structured as follows. Section 2 provides a review of the theoretical and empirical literature on the role of the EITI as a transparency-enhancing mechanism. Section 3 describes

our estimation strategy and Section 4 probes into the data used for the empirical analysis. Section 5 presents and discusses the empirical results. Section 6 concludes.

## 2. A review of the literature on the EITI, corruption and mineral resources

Many theoretical and empirical studies claim that the extractive industry impedes the development of good institutions in host countries (e.g. see Ross 2015, for an overview of key studies on the so-called *institutional resource curse* and Papyrakis and Pellegrini 2019 for studies specific to Latin America). The extractive sector provides incentives for rent-seeking, where different interest groups strive for access to the accrued mineral rents. This rent-seeking behaviour can take multiple forms. Politicians may appropriate resource revenues for their own benefit, extractive firms may pay bribes to local officials in exchange for mineral contracts and the public may demand lump-sum transfers and subsidies once extraction commences (Orogun 2010; Vokes 2012). Government officials may intentionally redistribute mineral rents towards specific interest groups in order to gain electoral support (see Robinson and Torvik 2005; Tsui 2011; Vergne 2009). Given these multiple vested interests in grabbing parts of the mineral rents, governments in mineral rich states often have limited controls in place that encourage transparency and limit expropriation (Kolstad and Wiig 2009). The replacement of tax revenues with mineral rents also reduces citizen demand for accountability and provides more room for politicians to engage in corrupt practices (Paler 2013; Williams 2011). In such an environment, corruption often becomes endemic and ‘legitimised’, often with simultaneous incidences both at petty and grand levels (e.g. where both high-ranked politicians and low-level public officials may abuse their power in office, see Ansari 2016). Several empirical cross-country analyses support a strong positive correlation between mineral wealth and the extent of corruption (e.g. see Arezki and Brückner 2011; Leite and Weidmann 2002).

In this context, Vieyra and Masson (2014) find that “resource-rich countries with satisfactory standards of governance and corruption control, complemented by good corporate governance practices, demonstrate better growth, and development results” (Vieyra and Masson 2014). However, the problem of the institutional resource curse is precisely that resource abundance is, on the average, associated with substandard institutional quality (Pellegrini 2011). In this context, the Extractive Industries Transparency Initiative (EITI) has been promoted as a leading anticorruption scheme that can promote transparency and accountability in mineral rich nations (Lujala et al., 2017). Both policy-makers, as well as the EITI secretariat, emphasise that the scheme's institutional benefits will extend and trickle down to multiple sectors (reducing corruption throughout the economy, rather than in the extractive sector alone). The broad institutional benefits of the EITI are highlighted in several documents and sites of the EITI secretariat: e.g. “The results also show that improving extractive governance has positive spillover effects beyond the management of natural resources” (EITI, 2018). The EITI website also makes several references to an explicit relationship between the scheme and economy-wide corruption indicators, such as the Corruption Perceptions Index by Transparency International (EITI 2017; 2018a). Similar references by policy-makers and influential NGOs abound: e.g. “Many of the changes and reforms the government is now pushing through are directly attributed to the work of NEITI” Zainad Ahmed, Minister of budget and National Planning, Nigeria (EITI 2018b) and “EITI implementation will ensure stronger collaboration between the civil society, government and business sector. This collaboration will generate an impulse for greater transparency and accountability in the other sectors of Tajikistan economy” Zuhra Halimova, Executive Director of the Open Society Institute (OSI) in Tajikistan (EITI 2012).

EITI participating countries are obliged to adhere to financial transparency (and audits) in relation to payments and revenues in their

<sup>1</sup> This terminology was used for the longest history of the EITI scheme (i.e. until 2017). In 2016, the EITI Secretariat adopted a different scheme of progression that started being applied in 2018: namely, ‘to be assessed’, ‘inadequate progress’, ‘meaningful progress’, and ‘satisfactory progress’ (where ‘to be assessed’ corresponded to the earlier stage of ‘commitment’ - while ‘inadequate’, ‘meaningful’ and ‘satisfactory progress’ designated the extent of fulfilling EITI requirements, with the latter category being equivalent to the earlier stage of ‘compliance’, see EITI 2016). For our study, we make use of the pre-2018 categorisation, given that this fully overlaps with the period of our analysis (i.e. 2002 to 2017).

<sup>2</sup> We only focus on the five Latin American countries that joined the scheme before 2015; Peru committed to the scheme in 2005, Guatemala and Trinidad and Tobago in 2010, Honduras in 2012, and Colombia in 2013 (EITI 2016).

extractive sectors. They also need to set-up a multi-stakeholder group, which provides civil society and other interested parties (e.g. indigenous communities) a platform to voice concerns, oversee implementation and hold public officials accountable in case of resource mismanagement (Papyrakis et al., 2017). As mentioned earlier, member states pass through different stages (from one of initial commitment, to becoming official candidates and finally designated as compliant). Compliance signifies that multiple criteria related to good governance are simultaneously satisfied (i.e. effective functioning of the multi-stakeholder group, full disclosure of vital information of the mineral sector, dedicated efforts to raise public awareness of key developments in the sector etc).

Some scholars emphasise, however, that the EITI faces multiple limitations in tackling issues of corruption. This is because corruption can breed across various stages of the value chain, while the EITI largely has a rather limited focus on the transparency of financial flows between the government and the extractive firms. For instance, Kolstad and Wiig (2009) mention that members of the multi-stakeholder group engaged in the validation process can themselves fall in the temptation of rent-seeking and patronage. Corrupt practices can also take place during the initial stages of procurement and the later stages of public spending (of accrued mineral rents, see Papyrakis et al., 2017). The relevant information is also not always disseminated in an easily accessible format or in a language that large segments of the local populations understand (Klein 2017). Others suggest that EITI-member states and the private sector at times fail to disclose complete and consistent information (Gillies and Heuty 2011; Ravat and Ufer 2010) and that the civil society is not always fully and actively engaged in the EITI process as part of the multi-stakeholder group (Global Witness 2016; Aaronson 2011; Van Alstine, 2017; Ogè, 2017). In addition, any corruption-reducing effects may be confined within the extractive sector without necessarily institutional spillovers to the rest of the economy (Lujala et al. (2017).

There have been several empirical attempts to assess the effectiveness of the EITI, especially in relation to influencing institutional outcomes (as well as other economic indicators, see Appendix 1 for an overview of such studies). Results tend to be mixed, with some studies supporting a beneficial role of the EITI in reducing corruption levels, while others finding either a non statistically-significant correlation or even a corruption-enhancing effect. The majority of these estimate average effects on a large sample of participating countries (while few provide individual case studies). One of the earliest cross-sectional (multi-country) studies is the one by Corrigan (2014) who finds that corruption drops already during the 'commitment' phase of the scheme. Similarly, the follow-up study by Papyrakis et al. (2017) found that EITI participation (especially when countries receive candidature status) fully neutralises the institutional natural resource curse (i.e. the tendency of mineral-rich countries to experience increased levels of corruption over time); they argue that anti-corruption reforms may accelerate faster once countries become candidates and strive to be recognised as compliant by the EITI Board. Is it a realistic assumption however to conjecture that the EITI may influence corruption even at the early stages of participation, as suggested by Corrigan (2014) and Papyrakis et al. (2017) (for other studies that also look at disaggregated effects per stage of implementation, see Fenton Villar and Papyrakis 2017; Fenton Villar 2020; Poncian and Kigodi 2018)? Already at this very early stage of commitment, governments need to take a series of steps (set up a work plan with objectives, establish a multi-stakeholder group to enhance transparency etc) in order to receive candidate status; only clear evidence of concrete steps towards enhancing transparency at the very onset of participation in the scheme would warranty a smooth transition to candidature (and as a matter of fact, several countries had to wait very long to become candidates, as in the case of Azerbaijan and Ghana where there was a 4-year time gap between the expression of commitment and candidature). What is also important to note is that the institutional indices used in this type of cross-country comparative analysis largely capture perceptions of corruption; in

other words, even initial signals from public authorities (in the form of expression of commitment to the EITI) can influence perceptions on the extent of corruption and the direction of its change. As David-Barrett and Okamura (2016, p.227) put it, "governments are motivated to subscribe to a norm so as to build a reputation ... and, in so doing, gain access to social and material benefits".

Other studies provide limited support to a corruption-reducing impact of the scheme. Ogè (2016) uses interrupted time series and panel data fixed-effects to find a non-statistically significant effect of EITI membership on corruption; likewise, a more recent study by Corrigan (2017) that also includes country fixed effects finds similar results. Sovacool et al. (2016) focus on 16 countries that achieved EITI compliance and use non-parametric tests to demonstrate that compliant countries did not perform better across multiple governance metrics, including control of corruption. Kasekende et al. (2016) use a Full Information Maximum Likelihood (FIML) cross-country estimation to avoid selection bias and find a small statistically-significant increase in corruption in the aftermath of EITI participation; in view of their findings, they advise in favour of performing more case study analyses in the future to shed more light into why the scheme may be effective in some contexts but not in others.

Individual case studies allow us to infer more country-specific evaluations of the EITI. The study by Fenton Villar and Papyrakis (2017) on Zambia uses the synthetic control method (as we do in our analysis) to show a statistically-significant drop in corruption at the earlier stages of participation (i.e. during the years between commitment to the scheme and receiving candidate status). An earlier application of the synthetic control method in the context of EITI (for Mali and Peru) can be found in Etter (2002), who found a corruption reducing (enhancing) effect for Peru (Mali), without though measuring the statistical significance of the corresponding estimates. The case studies on Azerbaijan and Liberia by Sovacool and Andrews (2015) use a more descriptive time-trend analysis between 2006 and 2012 confirming a reduction in corruption for Azerbaijan, but not Liberia. Last, Hoinathy and Janszky (2017) conducted qualitative research with civil society groups in Chad and found a rather limited effect of EITI on corruption (and poverty); they claim that civil society representatives largely have their own interests in mind rather than those of the broader community.

### 3. The synthetic control method

We have chosen to employ the Synthetic Control Methodology (SCM) for the purposes of our analysis given its potential to discern and quantify causal impacts of specific policies, underscored by its increasing popularity in impact evaluation. In recent years, the SCM has been extensively applied within several academic fields (economics, political science, health policy, environmental sciences, etc) to evaluate the impact of specific interventions (or exogenous shocks). In health sciences, for example, the method has been applied to evaluate the effect of the 1988 California's Tobacco Control Program on tobacco consumption (Abadie et al., 2010), of the 2008 UK pay-for-performance healthcare scheme on hospital mortality (Kreif et al., 2016) and of the 2004 Los Angeles school nutrition policy (Unified School District's food-and-beverage standards) on students' body weight (Bauhoff 2014). In economics, the SCM has been used, for example, to assess the effect of flat tax reforms on economic growth in Central and Eastern Europe (Adhikari and Alm 2016), of the 2011 international sanctions on Iran on the country's economic performance (Gharehgozli 2017) and of the 2013 foreign exchange interventions by the Brazilian Central Bank on the exchange rate (Chamon et al., 2017). In the domain of political science, scholars have relied on the SCM, for instance, to assess how Hugo Chavez's administration influenced several development indicators (Grier and Maynard 2016), examine the impact of PKK's separatist movement on Turkey's GDP per capita levels (Bilgel and Karahasan 2019) and measure the effect of mergers of local German governments on different types of public good expenditure (Roesel

2017). In environmental studies, recent analyses have probed into the effect of the Wuhan Covid-19 lockdown on local air pollution (Cole et al., 2020) and of waste pricing schemes across Italian municipalities on waste avoidance (Bueno and Valente 2019).

Earlier methodological approaches (e.g. Difference-in-Difference estimations) typically estimated the effect on an outcome variable for a treated unit by comparison to a control group of units (i.e. those unaffected by the intervention, see Abadie et al., 2010; Galiani and Quistorff 2016). However, this comparative approach can suffer from selection bias due to the subjectivity involved in selecting appropriate units of comparison. Instead, the SCM is a data-driven approach that generates one or more combinations of possible comparison units that best match the unit of interest (prior to the intervention). The comparison units are allocated different weights, producing hence a synthetic unit that resembles the behaviour of the focus (treated) unit as closely as possible in the pre-intervention period. As a result, the SCM can attribute any deviations between the treated and the synthetic units in the post-treatment period to the influence of the intervention and perform inference through placebo tests (Abadie and Gardeazabal 2003; Abadie et al., 2010). For these reasons, other traditional inference techniques are less apt at addressing issues of uncertainty about the capacity of the control units to replicate the counterfactual outcome trajectory prior to the intervention (see Abadie et al., 2010: 493). The synthetic control method is also superior to standard panel-data regressions, where coefficients often capture correlations rather than the magnitude of causal relationships. Even when using instrumental variables, panel-data regressions often suffer from the problem of identifying suitable (and truly exogenous) instruments, which is typically done for only a small number of endogenous variables. The SCM is a relatively novel method that combines elements from the difference-in-differences and matching techniques to precisely address concerns on identification and causality (which are much more prominent in other econometric techniques). This is because SCM explicitly aims to measure the effect of policy interventions by constructing counterfactual synthetic units, with a close match between them and the treatment units prior to the intervention, as well as controlling for a very large number of confounding variables.

A question that may arise is whether observed changes in corruption can be attributed to participation in the EITI scheme or to some underlying third factors that influence both the decision to join the initiative as well as institutional changes (similarly, one may argue that the relationship between EITI participation and corruption may be bidirectional).<sup>3</sup> The synthetic control method (SCM) is constructed precisely to address this concern. This is because the SCM controls for a wide range of predictor variables when constructing the synthetic counterfactual units for each of the case-study countries (i.e. other factors that potentially influence corruption outcomes over time). In other words, the counterfactual synthetic unit is, by construction, meant to resemble the actual behaviour of the case-study country before the intervention (i.e. before the decision to join the EITI), by having similar characteristics (as captured by the vector of predictor variables) with

only exception being the participation in the EITI scheme.<sup>4</sup>

For each of our treated units (i.e. our EITI case-study countries: Colombia, Guatemala, Honduras, Peru, Trinidad and Tobago) we have a corresponding control-group of (consistently) non-EITI countries (known as 'donors' or 'donor pool' in SCM jargon). We identify a vector of common pre-EITI predictors of corruption for the donor pool and EITI Latin American states members (based on commonly identified predictors from other empirical studies). The synthetic unit for each Latin American EITI member (e.g. synthetic Colombia, synthetic Guatemala etc) is based on an optimal combination of weights that minimise the distance (the root mean squared prediction error or RMSPE) between the actual corruption values of each EITI participant country and the weighted average of its donors' corruption values (i.e. the corruption outcomes of its corresponding synthetic unit). Assuming that pre-treatment outcomes are well matched, trajectory differences in corruption (during post-EITI years) between each Latin American EITI country and its synthetic counterpart can be attributed to the intervention (i.e. participation in the scheme).

As a next step, the SCM involves falsification exercises with 'placebo effects' to examine the statistical significance of the estimated intervention impact (by looking at the distribution of corresponding SCM placebo effects for donor pool countries; Galiani and Quistorff 2016: 4). In other words, the statistical significance of the intervention effect would be low if the placebo effects (for those countries not subject to the intervention) are of similar magnitude to the ones of EITI members (the p-values can be interpreted as the proportion of non-EITI states with an estimated effect as large as that of treated units). Here, we rely on an alternative inference method suggested by Abadie et al. (2010) that takes into consideration the quality of approximations of the synthetic units of the donors and avoids overly conservative p-values. This Adjusted Non-Restricted Donor Sample Method (ANRDS) divides the post-EITI effect by the corresponding pre-EITI RMSPE and calculates adjusted p-values (again based on the share of non-EITI participant nations with an effect of a similar magnitude to the one of each Latin American EITI member).<sup>5</sup>

#### 4. Data

We study the effect of the EITI on several corruption indicators for the 2002–2017 period across five Latin American participant countries (Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago). Our study period begins in 2002, i.e. the year the EITI was officially launched. We focus only on these five Latin American EITI member countries that joined the scheme before 2015 (with Peru being the first nation to join in 2005); we exclude other Latin-American countries that joined more recently (e.g. Argentina, Dominican Republic, Guyana, Mexico) since the effects of the scheme on institutional quality might take some time to materialise and because of the few data points on corruption available after the countries joined the initiative. The EITI intervention starts when countries express their commitment to the scheme (see Corrigan 2014; Fenton Villar and Papyrakis 2017) and we assess the corresponding effects across all three stages (commitment,

<sup>3</sup> The papers by David-Barrett and Okamura (2016) and Lujala (2018) discuss how both commitment to the scheme, as well as the pace of progress of implementation, may depend on several socio-economic and institutional factors. Both papers, however, provide only tentative support to the claim that high levels of corruption may trigger EITI participation (the coefficient of corruption is statistically insignificant in more than half of their estimations, suggesting lack of consistency); Papyrakis et al. (2017) also run a series of Probit models (regressing the decision to join EITI on the level of corruption in the previous period amongst other variables) and find statistically insignificant marginal effects.

<sup>4</sup> As a matter of fact, the vector of predictor variables that we control for includes almost the same predictor factors incorporated in the analysis by David-Barrett and Okamura (2016) and Lujala (2018) (e.g. population levels, level of economic development and past growth, mineral rents dependence, past levels of corruption, other institutional dimensions, conflict/violence etc).

<sup>5</sup> Alternatively, the statistical significance can be calculated based on a restricted donor pool that best matches the treated unit in the pre-treatment period (so that their corresponding pre-EITI RMSPE values do not exceed the ones of the treatment units by much). The cut-off point is however arbitrarily defined and typically the pre-treatment RMSPE of donors can be restricted to be anything from twice or twenty times as large (see Fenton Villar and Papyrakis, 2017 on the associated methodological limitations).



candidature, compliance). Table 1 provides the timeline for each of our Latin American case studies (and successive progression across the 3 stages) with the year of commitment demarcating the pre-treatment period.

#### 4.1. Outcome variables - corruption

We make use of three distinct outcome variables as to evaluate EITI's effect on corruption. The first corruption measurement that we use is the 'control of corruption' index by the World Governance Indicators (WGI 2019). This measure captures "the perception of the extent to which public power is exercised for private gain, as well as the capture of the state by elites and private interests" (WGI 2019) and takes values between  $-2.5$  and  $2.5$  points with higher values corresponding to lower values of corruption. Here, we have reversed the scale (by multiplying by  $-1$ ) so that higher values, more intuitively, correspond to a higher incidence of corruption. The second corruption index relates to the extent of 'public sector corruption', and captures whether "public sector employees grant favors in exchange for bribes, kickbacks, or inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use". The third one relates to the higher-scale 'regime corruption' and focuses on the set of corrupt acts carried out by those occupying political offices. Both the public sector and regime corruption indicators come from the Varieties of Democracy dataset (V-Dem 2019) and take values between 0 and 1 (with higher values corresponding to more extensive corruption).

In general, these three metrics will give us three distinctive perspectives on corruption. The 'control of corruption' index, for instance, adopts a broad perspective of corruption across all levels in the public sphere (encompassing both petty and grand forms of corruption). On the other hand, the 'public sector corruption' variable focuses on perceptions of corruption at the lower levels of public administration. Last, the 'regime corruption' index captures the extent of grand corruption committed by high-ranked officials (in the executive, legislative and judicial domains). A correlation table for these corruption indices is presented in Appendix 2.

Unfortunately, there is no sector-specific measure of corruption with an explicit focus on the extractive industry. The only proxy measure of institutional quality in the extractive sector is the Resource Governance Index (RGI) by the Natural Resource Governance Institute, which measures the quality of governance in the oil, gas and mining sector (based on an assessment of several dimensions related to tax practices, information disclosure, environmental impacts etc). However, data are only available for few countries and years; the absence of continuous time

**Table 1**

Stages of EITI implementation per Latin America case study.

Country	Year of commitment	Year of candidature	Year of compliance
Colombia	2013	2014	
Guatemala	2010	2011	2014
Honduras	2012	2013	
Peru	2005	2007	2012
Trinidad and Tobago	2010	2011	2015

Source: Author's elaboration based on information by the EITI secretariat (EITI Colombia 2019; EITI Guatemala 2019; EITI Honduras 2019a; EITI Peru 2019; EITI Trinidad and Tobago 2019).

series data would, hence, prevent us from carrying out a synthetic control analysis using the RGI index. In addition, the RGI index itself relies on the same economy-wide broader institutional data that we also use in our analysis (e.g. the Control of Corruption index of the WGI dataset), as to assess aspects of the 'enabling environment' in the extractives sector. Furthermore, the RGI index (for 2017 where data coverage is wider) correlates strongly with the 3 broader institutional measures used in our analysis (size of correlation between RGI and the Control of Corruption, Regime Corruption and Public Sector Corruption measures are equal to 0.71, 0.62 and 0.72 respectively). The use of these broader institutional indicators to assess the institutional impacts of minerals or of the EITI initiative is also a common practice in the empirical literature (e.g. Corrigan 2014; Kasekende et al., 2016). The assumption adopted in this type of analysis is that natural resource management in mineral-dependent economies can have a trickle-down effect that will gradually influence the overall level of corruption.

We note that, since secrecy is one of the defining features of corruption, the indexes that we use do not measure corruption proper but rather the perception of corruption. Furthermore, there is an extensive discussion on the very meaning of corruption and on the specifics of different definitions that are employed by different sources to generate aggregate indexes of corruption. With this caveats in mind, we also note that these indexes have been used extensively in the literature and have been found to be good predictors of many indicators of socio-economic performance, implying that perception does matter and that definitional imprecision and measurement errors are not so serious to impair the meaning of the indexes (Williams and Siddique, 2008; Boehm and Lambsdorff, 2009; Moisé, 2020; Pellegrini, 2011).

#### 4.2. Predictor variables

We rely on a large number of socio-economic predictor variables for the different corruption indices (e.g. economic growth, level of GDP per capita, unemployment rates, democracy, other institutional variables etc) to help us build the corresponding synthetic units (i.e. the counterfactual corruption outcomes for each Latin-American EITI country). The list of these predictor variables can be found in Appendix 3 and has been compiled based on the empirical literature on the socio-economic determinants of corruption (for some key studies on significant corruption correlates see Ades and Di Telia 1999; Treisman 2000; Jain 2001; Ali and Isse 2003; Brunetti and Weder, 2003; Park 2003; Persson et al., 2003; Serra 2006; Shabbir and Anwar 2007; Pellegrini and Gerlagh 2008; Ata and Arvas 2011; Elbahnasawy and Revier 2012; Tyburski et al., 2020). Similar to other synthetic control studies (Abadie et al., 2015; Ando 2015; Fenton Villar and Papyrakis 2017) we use the pre-intervention outcome variables (i.e. the pre-EITI corruption values) as additional predictors; this helps control for unobservable characteristics (and ensure that any post-EITI differences observed between the synthetic and actual units can be attributed to the intervention).

## 5. Findings

### 5.1. General findings

We relied on consistently non-EITI participating countries to compile the donor pools and counterfactual units for each of our Latin-American case studies. Appendix 4 presents the estimated weights per donor country, corruption indicator, and Latin American case study (where the weighted averages per corruption index produce the corresponding synthetic units with the best fit in the pre-intervention period). As to evaluate the fit of the counterfactual unit, the SCM allows us to visually

inspect differences in pre-treatment outcomes for each treated and synthetic unit (where small differences would enhance the forecasting capacity for each synthetic unit over time in the absence of the intervention). Overall, our results point to a relatively small difference in pre-treatment corruption levels (i.e. prior to the EITI commitment stage) between the actual and synthetic units (see section 5.2).

Subsequently, we obtain the ‘in place’ placebo effects to derive the statistical significance of the post-intervention difference between the treated and synthetic units (i.e. of the outcome gap attributed to the EITI intervention). This allows us to derive the statistical significance for the gap for each post-treatment year based on the ANRDS inference method. For each graph depicting the comparison in corruption outcomes between the actual and synthetic unit, we also present the corresponding p-values signifying the statistical significance of the gap (and hence of

the EITI intervention).

Our results are mixed and cast doubt on how beneficial the scheme has been on combatting corruption (see summary Table 2). In the vast majority of cases, participation in the scheme either had no statistically significant effect (out of 42 estimated coefficients, only two are statistically significant at 1% level) or even coincided with marginally increased corruption levels (with some exceptions, as in the case of Trinidad and Tobago where corruption across public officials declined once the country became a candidate member). Regarding the Control of Corruption index, there is no statistically significant post-EITI deviation between our focus countries and their synthetic counterfactuals with the exception of Trinidad and Tobago (where the results suggest a marginally significant higher corruption level for all three EITI stages). In the case of regime corruption (i.e. corruption involving high-ranked public

**Table 2**  
EITI effect on corruption (overall results).

Country	Dependent variable	Stage	Year	Gap (EITI effect)
Colombia	Control of Corruption Index	Commitment	2013	+
		Candidate	2014–2017	+
	Regime Corruption Index	Commitment	2013	+
		Candidate	2014–2017	+
	Public Sector Corruption Index	Commitment	2013	+*
		Candidate	2014–2017	+**
Guatemala	Control of Corruption Index	Commitment	2010	–
		Candidate	2011–2013	–
		Compliant	2014–2017	+
	Regime Corruption Index	Commitment	2010	+
		Candidate	2011–2013	+*
		Compliant	2014–2017	+*
	Public Sector Corruption Index	Commitment	2010	+
		Candidate	2011–2013	–
		Compliant	2014–2017	–
Honduras	Control of Corruption Index	Commitment	2012	+
		Candidate	2013–2016	+
		Compliant	2017	–
	Regime Corruption Index	Commitment	2012	–
		Candidate	2013–2016	+
		Compliant	2017	+
	Public Sector Corruption Index	Commitment	2012	+
		Candidate	2013–2016	+
		Compliant	2017	–
Peru	Control of Corruption Index	Commitment	2005–2006	+
		Candidate	2007–2011	–
		Compliant	2012–2017	+
	Regime Corruption Index	Commitment	2005–2011	+
		Candidate	2012–2016	+*
		Compliant	2017	.*
	Public Sector Corruption Index	Commitment	2005–2011	+
		Candidate	2012–2016	+
		Compliant	2017	+
Trinidad and Tobago	Control of Corruption Index	Commitment	2010	+*
		Candidate	2011–2014	+*
		Compliant	2015–2017	+*
	Regime Corruption Index	Commitment	2010	+*
		Candidate	2011–2014	+*
		Compliant	2015–2017	..**
	Public Sector Corruption Index	Commitment	2010	+*
		Candidate	2011–2014	..**
		Compliant	2015–2017	..**

\*\* and \* correspond to 5 and 10% levels of significance. +/– denotes higher/lower corruption levels with respect to synthetic unit. *Source:* Authors' calculations.

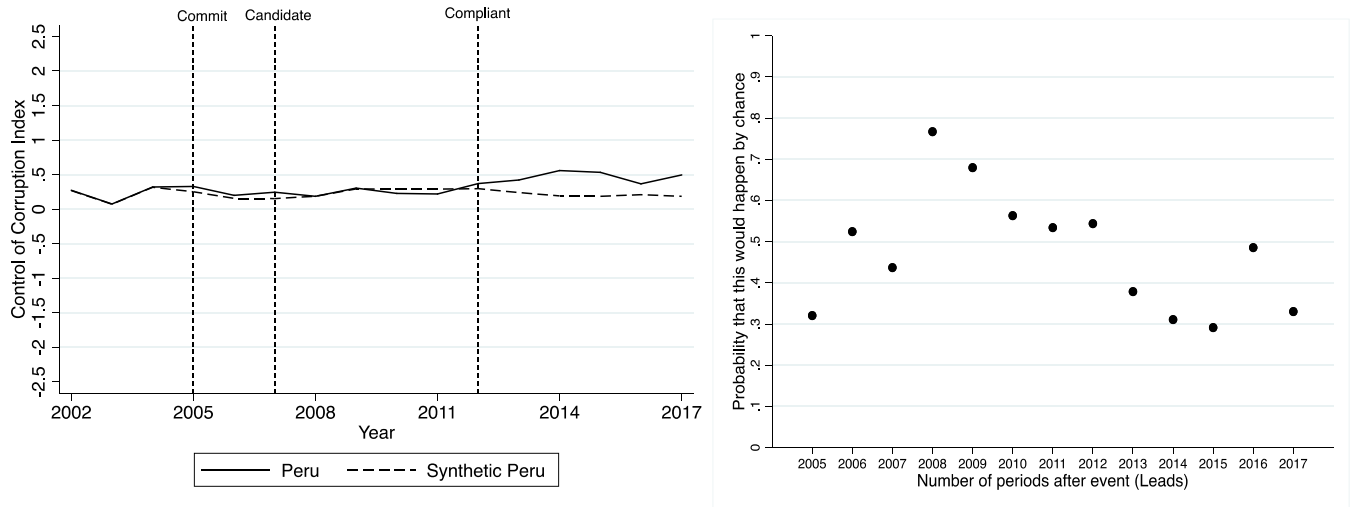


Fig. 1. Control of corruption index of Peru and adjusted P-Values.

officials), the statistically significant post-EITI gaps generally point to higher corruption levels for Guatemala, Peru and Trinidad and Tobago during the candidature stage, although corruption becomes lower (in relation to the synthetic units) for the later years of compliance for the last two countries. Finally, with respect to Public Sector Corruption, the only statistically significant effects point to a higher level of corruption for Colombia (during the commitment and candidature stages), while Trinidad and Tobago experiences higher corruption levels at the initial commitment phase and a lower level subsequently (during the candidature and compliance stages). In all cases, the deviation from the synthetic units are relatively small. The largest positive and statistically-significant gap (pointing to a higher level of corruption) was close to 0.36 for the Control of Corruption index during the commitment stage

(in 2014) of Trinidad and Tobago (index range between  $-2.5$  and  $2.5$ ); the smallest negative and statistically-significant gap (pointing to a lower level of corruption) was close to  $0.10$  for the Regime Corruption index during the compliance stage of Peru (index range between  $0$  and  $1$ ). These coefficients suggest rather modest impacts, since the corruption index has a standard deviation of  $1$ . Overall, the coefficients tend to be statistically insignificant and are otherwise of modest magnitude, suggesting that participation in the EITI does not affect the perception of corruption across the country. In the next [subsection 5.2](#), we discuss in greater detail the country-specific results for Peru and Trinidad and Tobago, while [Appendix 5](#) provides a slightly more condensed discussion on Colombia, Guatemala and Honduras. For every case study, we add a subsection on “EITI reporting and transparency” to highlight

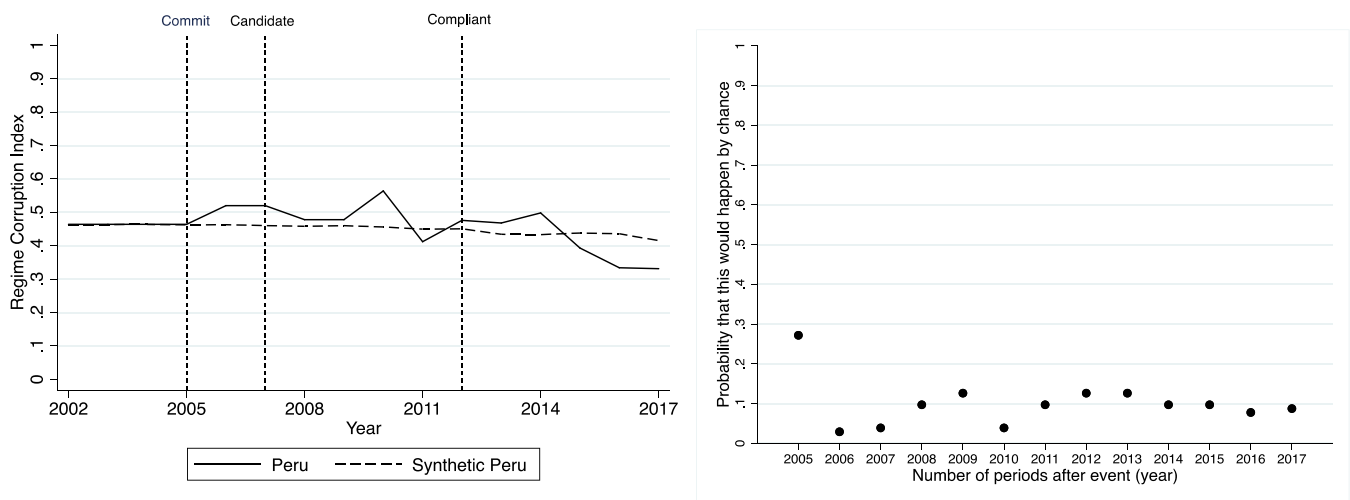


Fig. 2. Regime corruption index of Peru and adjusted P-Values.

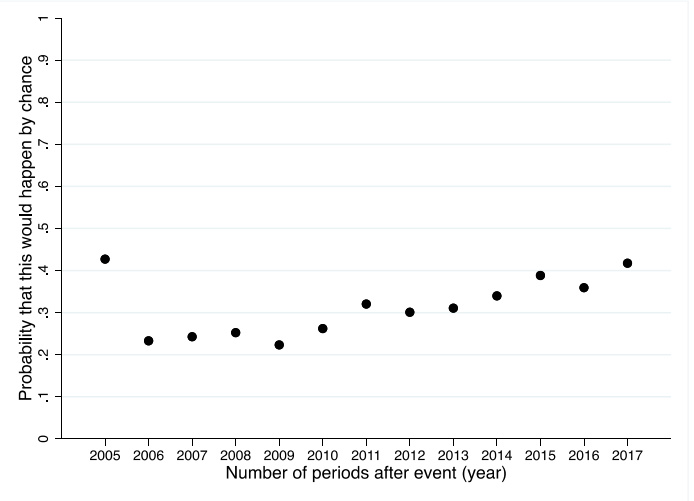
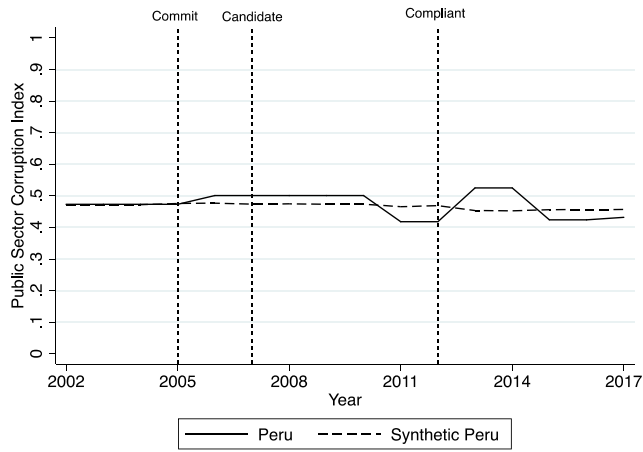


Fig. 3. Public sector corruption index of Peru and adjusted P-Values.

issues related to EITI implementation per country. These subsections largely demonstrate the multiple challenges EITI faces in constraining corruption in the extractive industry (let alone, broader corruption found elsewhere). We choose to focus on Peru and Trinidad Tobago in the main text, because their economies depend the most on the extractive sector. Furthermore, Peru was the first country in the region to participate in the EITI making it a particularly important case to analyse.

## 5.2. Country-specific findings

### 5.2.1. Peru

Extractive industries account for around 13% of the Peruvian GDP

and the country is the second-largest producer of copper, silver, and zinc globally (EITI Peru 2019). At the same time, the country has a long history of political corruption, epitomised by the 2007 conviction for embezzlement of public funds of the former President, and ardent promoter of large-scale extractive projects, Alberto Fujimori and the resignation in 2018 of President Pedro Kuczynski after the release of videos depicting vote-buying. Peru expressed commitment to the EITI scheme in 2005 and received candidate and compliant status in 2007 and 2012 respectively and was commonly perceived as a pilot scheme in the region (EITI Peru 2019).

Figs. 1–3 depict the values for the Control of Corruption, the Regime Corruption and Public Sector Corruption indices. The left panel of each

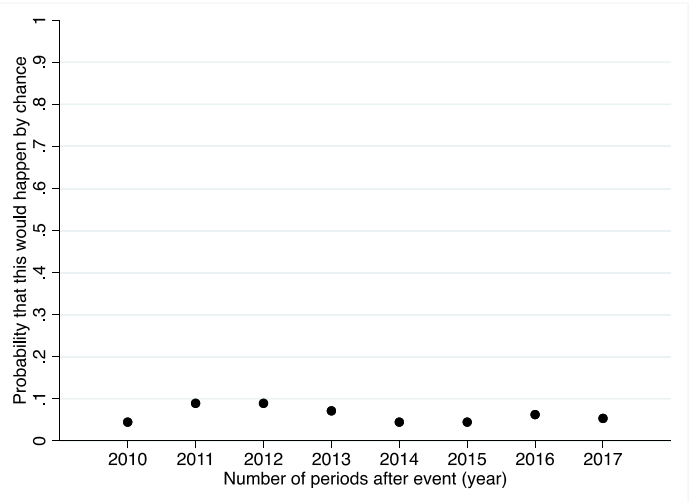
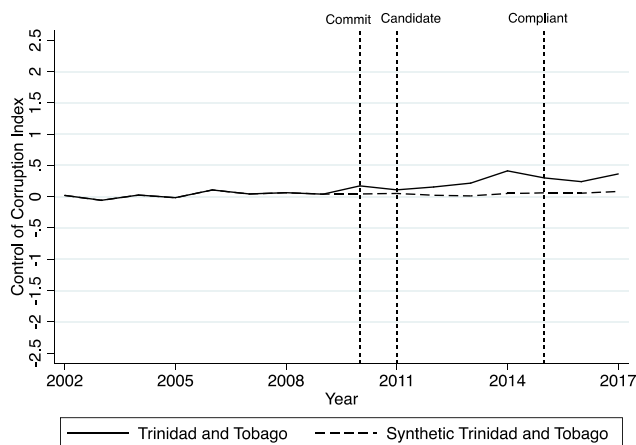


Fig. 4. Control of corruption index of Trinidad and Tobago and adjusted P-Values.



graph displays the actual values for Peru as well as the corresponding ones for its synthetic unit; the right panels show the statistical significance of the difference between the two lines (i.e. of the effect attributed to the EITI). The Control of Corruption and Public Sector Corruption indices (Figs. 1 and 3) generally display limited variability. The gap between the treated and the synthetic units in the post-EITI period is small and statistically insignificant across all EITI stages. These findings are in line with Figaredo (2018) who confirms little improvement in corruption in recent years despite the EITI implementation and the launch of a national anti-corruption plan in 2012.

Fig. 2 displays values for the Regime Corruption index. In large, the actual regime corruption is higher compared to the values of the synthetic unit for most post-EITI years – the effect is significant at the 10% level for the largest part of the candidature and commitment periods (with the largest positive gap in 2010 being close to 0.1). This also coincides with a period of several scandals with high-ranked public officials in the extractive sector; many of these were related to the state-owned oil company Petroperu and became widely known to the public through the release of tapes (referred to as the ‘petroaudios’) revealing the payments of bribes to favour Norwegian companies for exploration activities (De Cuello Blanco 2012). However, the trend became reversed in 2015 with regime corruption dropping below the values of the synthetic units in recent years (with a negative gap of a similar magnitude in 2016 and 2017).

The failure of the EITI to tackle corruption issues (with active civil society participation) can also be related to multiple tensions between companies and local communities. Antamina (a local mining firm) received a lot of negative criticism around 2012–3 for appropriating land illegally, displacing local communities, as well as causing soil and water pollution through rupture of some of its pipelines (Quispe et al., 2018). Oil companies operating in the Peruvian Amazon have been producing scores of socio-environmental liabilities affecting indigenous and mestizo populations often with the complicity or silence of state authorities (Orta-Martínez et al., 2018). Some of the scandals in the extractive industry, however, came to light with much delay. The Oderbrecht corruption scandal gained much attention in 2016 revealing multiple payments of bribes (of about \$29 million) from the company to Peruvian officials for securing earlier contracts (Faiola 2018); the Oderbrecht company engaged into illegal transactions already since 2005 to secure large infrastructure projects (construction of gas pipelines, hydroelectric power stations) worth about \$12 billion (IDL Reporteros 2016).

The more recent modest fall in regime corruption (a gap close to  $-0.07$  between 2015 and 2017 compared to the values of synthetic Peru) might reveal some efforts to improve transparency in the sector (e. g. EITI Peru 2019). Since 2015, the investigation of corruption cases increased by 60%, most of which related to the Oderbrecht scandal; the imprisonment of key public officials involved in the scandal sent a strong signal that the government was intensifying efforts to tackle grand corruption (which possibly influenced public opinion favourably, see Gestion 2017).

**5.2.1.1. EITI reporting and transparency.** Overall, the EITI documentation highlights minimal discrepancies between the financial flows reported by mining companies and the government; however, EITI reports have also highlighted a number of irregularities over time regarding the lack of transparency in the sector. For instance, the initial rate of participation of hydrocarbon companies in the EITI was relatively low

(with participating firms capturing about 70% of production value in 2007, EITI Peru 2009) and gradually increased to approximately 95% by 2012 (EITI Peru, 2014). In 2016, the EITI Peruvian team with its multi-stakeholder group, expanded the scope of the scheme to include transparency in the extractive sector for two local governments (i.e. for Piura and Moquegua, where extensive irregularities regarding the concessions of mining projects and intended use of royalties were suspected, see EITI Peru 2016a, b). In addition, the 2016 EITI validation report (EITI Peru 2016c) was much more critical than previous ones, disapproving the earlier omission of several types of flows (such as in-kind revenues, infrastructure arrangements and barter, mandatory social expenditures, transportation revenues, subnational direct payments etc), condemning the absence of any critical reflection by the auditing firm regarding the reliability of controls and data produced, and recommending a closer inspection of Petroperu’s financial transactions and transparency practices. EITI reports also generally fail to provide any information regarding the revenue management process (of royalties accruing to the government), which could strengthen the ability of the public to hold the government accountable for its spending priorities (EITI Peru 2016c). Although the EITI reports do not highlight cases of corruption, they criticise the industry practice of making discretionary social contributions to local communities; these are often based on rather informal agreements with dubious motivations which undermine transparency (EITI Peru 2016c). The 2016 validation report (EITI Peru 2016c) has also been vocal on the failure of the multi-stakeholder group to reflectively endorse and act upon recommendations from earlier EITI reports.

### 5.2.2. Trinidad and Tobago

Trinidad and Tobago is a highly mineral-dependent economy, with the extractive sector accounting for 32.2% of its GDP and 77% of its exports (EITI Trinidad and Tobago 2019). Most of the revenues generated relate to the production of oil and liquefied gas. At the same time, corruption is rampant. According to the World Economic Forum Global Competitiveness Report, corruption (in the form of nepotism, police and political abuse of power, tax evasion, collection of bribes) is a major hindrance to doing business in the country (World Economic Forum 2017). In general, the public often expresses mistrust towards the judicial system, the police force and senior public officials who are largely seen as prone to engaging in corrupt and illegal activities (Sookoo 2017). Trinidad and Tobago expressed commitment to the EITI scheme in 2010 and received candidate and compliant status in 2011 and 2015 respectively. Compliance was achieved a year later than initially expected – delays were related to government efforts towards persuading mineral firms to disclose tax data through signed agreements (EITI Trinidad and Tobago 2019).

Figs. 4–6 depict the values for the Control of Corruption, the Regime Corruption and Public Sector Corruption indices. Contrary to results in other Latin American countries, the EITI intervention appears to have had statistically significant effects in almost every EITI stage for the three outcome corruption variables. In Fig. 4, one can see that the Control of Corruption index has largely fluctuated between 0 and 0.5 during the last two decades. Corruption values were larger compared to the ones of the synthetic unit following the EITI intervention (with a gap size close to 0.13 during the commitment stage and 0.21 on average for the overall candidate and compliant stages of implementation). In Fig. 5, we see a similar pattern for regime corruption following commitment to the scheme. During commitment and the first years of candidature (2010–2012), the positive deviation in regime corruption between

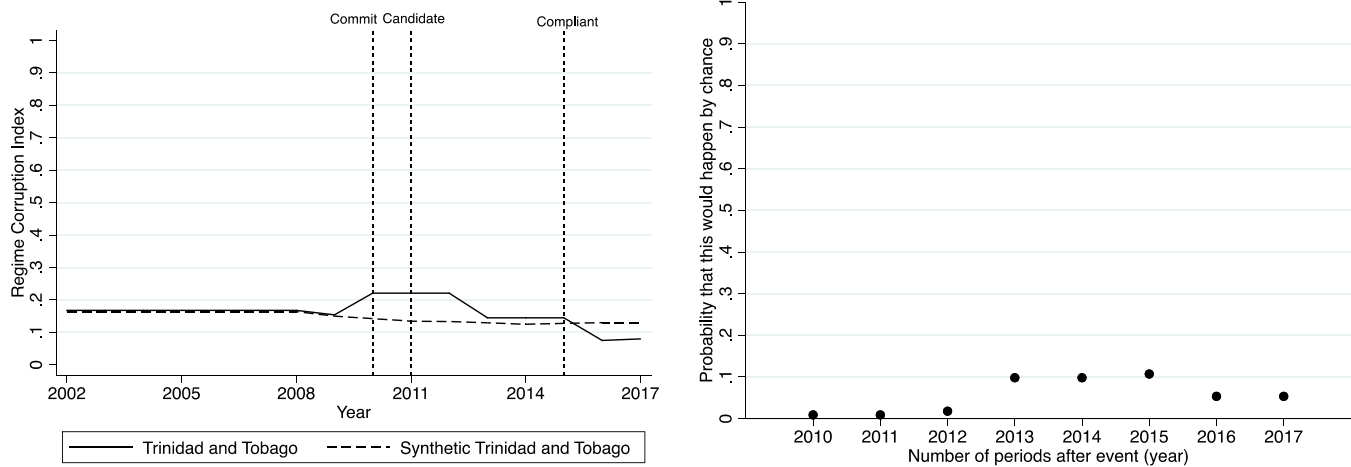


Fig. 5. Regime corruption index of Trinidad and Tobago and adjusted P-Values.

Trinidad and Tobago and its synthetic unit was close to 0.1 units. The positive gap decreased in size since 2013 and since 2016 Trinidad and Tobago performed better than its counterfactual (with a negative gap close to 0.05 – statistical significance at the 5% level).

On the one hand, it appears that the EITI implementation (especially in its earlier stages) failed to tackle corruption. During the same years, corruption scandals in the extractive industry exemplified failure to reduce chronic corruption in the sector (that effectively constrained potential benefits from participation in the EITI). Increased oil and gas prices in the 2000s led to increased (but often wasteful and prone to rent-seeking) government spending. One of the most prominent cases was that of Petrotrin, a state-owned company that built a reputation of poor corporate governance, corruption and nepotism and finally became bankrupt and shut down in late 2018. One of its most notorious cases of mismanagement was its joint venture with World GTL (a private company specialising in diesel fuels) to construct a gas-to-liquids plant; the project (initiated in 2005 and beset by multiple delays) cost the government US\$399 million (more than twice its original budget) and the incomplete plant was finally sold to another private company NiQuan Energy in 2012 for only \$35 million (Guardian 2018). In another case, Calder Hart (the former executive chairman of the public infrastructure company Urban Development Corporation of Trinidad and Tobago) fled to the United States of America in 2010; documents linked him with corruption allegations and receipt of bribes for awarding contracts (Guardian 2012). The Ministry of Energy acknowledged that public officials were previously appropriating extractive rents for own benefit and attributed the drop in public revenues from the sector to a 'tax leakage' rather than changes in production or market conditions (Guyana Times 2018).

On the other hand, Fig. 6 shows that Trinidad and Tobago has managed to constrain 'public sector corruption' (corruption at the lower levels of public administration) since 2013 (i.e. two years after the country received a candidate status). The gap has varied between  $-0.05$  and  $-0.08$  units (with a widening in more recent years – statistical significance at the 1% level). This modest improvement may be related to the intensified efforts by Trinidad and Tobago's Integrity Committee to reduce corruption across the public sector by scrutinising practices of public organizations and investigate cases of corruption (with a much

higher number of cases being reported and investigated since 2009, Drayton 2015). In addition, Trinidad and Tobago's EITI multi-stakeholder group have purposively participated in radio and television shows since 2013 in order to highlight the anti-corruption benefits of the scheme to the wider public and explain in plain terms its mandate, procedures and measures (EITI Trinidad and Tobago 2019).

**5.2.2.1. EITI reporting and transparency.** While the majority of companies in the hydrocarbon industry participate in the EITI process, this has not been the case for other mining firms (only in 2016, a pilot with 10 mining firms was launched, with only 4 returning the templates with their financial information, see EITI Trinidad and Tobago 2013a; 2014a, 2016). A recurring concern in several EITI reports is the inadequate release of information regarding financial flows (with national legislation protecting the right of private firms and public entities to refuse access to such information; see EITI Trinidad and Tobago 2013a, 2016); both the Ministry of Finance and the Economy and the IRD (Inland Revenue Division) have been reluctant in releasing financial information (EITI Trinidad and Tobago 2014a, 2015, 2016, 2018). This has also been the case with state-owned enterprises (for example, the National Gas Company of Trinidad and Tobago Limited (NGC) supplies gas to the Trinidad and Tobago Electricity Commission without any formal contracting in place; EITI Trinidad and Tobago 2013a). The EITI reports also repeatedly criticise the lack of audits of the financial accounts of subsidiaries of international companies (EITI Trinidad and Tobago 2014a, b); in some cases, signature bonuses (one-time license fees) were also settled in cash with the corresponding financial flows being unreported by the government (EITI Trinidad and Tobago 2014b). On a more positive note, in 2013, the EITI multi-stakeholder group initiated an awareness campaign on the purposes and findings of the EITI process, targeting especially the younger generation (EITI Trinidad and Tobago 2013b), while in 2018 a user-friendly online portal for communicating data from the sector was launched (EITI Trinidad and Tobago 2018).

## 6. Conclusions

Concerns about corruption in mineral-rich countries (and the

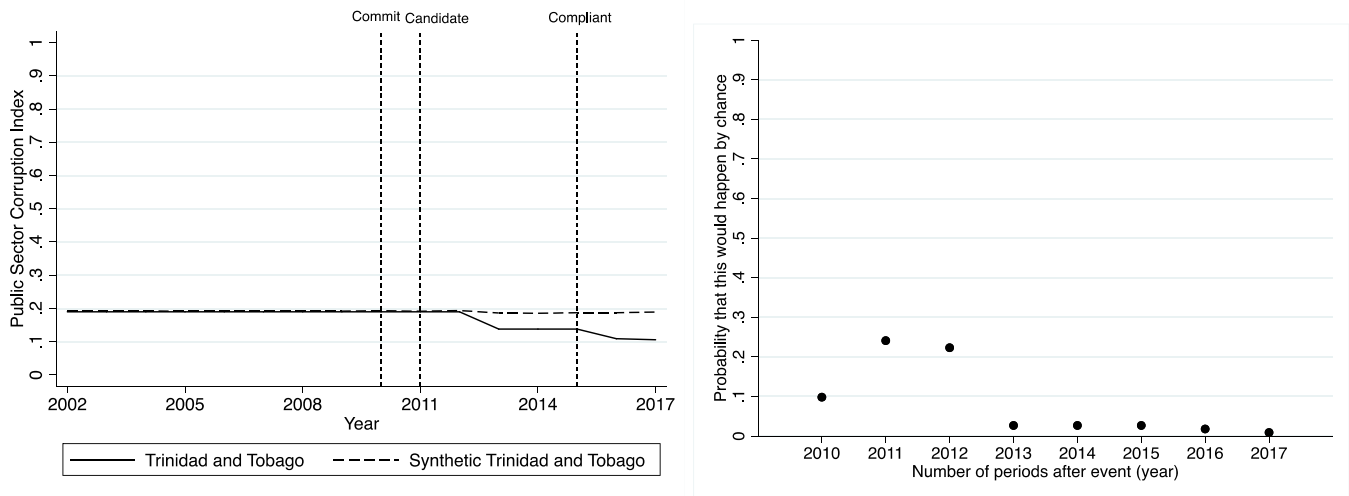


Fig. 6. Public sector corruption index of Trinidad and Tobago and adjusted P-Values.

development implications thereof) have engendered initiatives that promote good governance, transparency and accountability in the extractive sector and the broader economy. Within this context, the EITI has been promoted as an anti-corruption scheme in the extractive industry, with country membership increasing fast over time. More recently, numerous studies have attempted to investigate the EITI's impact on institutional and economic variables. Most of the current empirical evaluations, however, provide average estimates based on cross-country analysis. Little empirical research has been conducted on individual case studies, especially in the context of Latin America. Our study uses a Synthetic Control Methodology (SCM) to measure the EITI's impact on several measures of corruption in five Latin American countries: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. To our knowledge, this is the first quantitative evaluation of the scheme for the broader Latin American region. The results cast doubt on how beneficial the scheme has been on combatting country-level corruption. In the vast majority of cases, participation in the scheme either had no statistically significant effect or even coincided with marginally increased corruption levels (with some exceptions, as in the case of Trinidad and Tobago where corruption across public officials declined marginally once the country became a candidate member).

The EITI scheme aims to increase transparency primarily in the extractive sector; this is likely to constraint the ability of the scheme to tackle corruption in other fields (although one can argue of the possibility of spillover effects). As a result of this, it is naturally impossible to attribute changes in corruption indices exclusively to participation in the EITI scheme (although the association is likely to be stronger for countries with economies that are largely dependent on minerals). As mentioned in the literature (e.g. see [Kasekende et al., 2016](#); [Lujala et al., 2017](#) and [Ogë, 2016](#)) complementary measures need to be in place to

ensure that the EITI has an effective anti-corruption effect (i.e. measures that facilitate the reporting of corruption acts and allow for a more meaningful and effective participation of the civil society).

Our study is a first attempt at evaluating systematically the EITI-corruption nexus in the Latin-American context. Several studies in the literature, as well as the EITI secretariat, influential policymakers and NGOs, emphasise that the institutional benefits of the scheme can extend and trickle down to multiple sectors. Contrary to such expectations, our results offer a sobering prospect with respect to the potential of the EITI to lead to substantial improvements of institutional quality.

The current process of expanding EITI to include beneficial ownership, to provide more information at the sub-national level and to extend the reach of the scheme to environmental issues might enhance the scheme's ability to deter corruption (and, more broadly, improve governance in the sector). Also, in the future, improved data coverage of sector-specific corruption (with an explicit focus on the extractive sector, as opposed to general national level indicators of corruption) would allow research to assess more accurately how the EITI initiative can affect institutional changes specific to the extractive sector. Furthermore, a more coarse global analysis (of all EITI members) can also be a worth-pursuing avenue for future research; the individual country estimates per year could be merged into a panel dataset with subsequent regression analysis estimating the overall average effect for the whole sample.

#### CRediT authorship contribution statement

**Ibeth López-Cazar:** Methodology, Software, Formal analysis, Writing - original draft, Formal analysis, Data curation, Investigation. **Elissaios Papyrakis:** Supervision, Formal analysis, Writing - review &

## Appendix 1. Literature Review (EITI's effect on institutional and economic variables)

Authors	Scale	Dependent variable	Effect	Statistical significance	Method
Corrigan (2014)	Global	Economic development (GDP per capita) Governance (voice and accountability, political stability, government effectiveness, regulation quality, rule of law, control of corruption)	(–) (–)	Yes	Cross-country panel regressions
Corrigan (2017)	Global	Corruption	(+)	No	Panel data country fixed effects and Ordinary Least Square (OLS) regressions
Etter (2012)	Peru and Mali	Economic development Corruption	(+) Peru (+) Mali (+)	Yes Peru: Yes Mali: No	Balancing and synthetic control groups, country difference-in-difference
Hoinathy and Janszky (2017)	Chad	Corruption	Limited	–	Qualitative research with civil society groups
Kasekende et al. (2016)	Global	Corruption	(+) weak	Yes	Full Information Maximum Likelihood (FIML)
Malden (2017)	Global	Mineral investment climate	(+)	Yes	Propensity Score Matching
Öge (2016)	Global	Transparency Corruption	(+) (–)	Yes No	Interrupted time series and panel data fixed effects analysis
Öge (2017)	Azerbaijan and Kazakhstan	Civil Society Organizations	(–)	No	Interrupted time-series analysis
Papirakis et al. (2017)	World	Corruption Rule of Law	(–) (–)	Yes	Cross-country panel regressions
Sovacool et al. (2016)	16 compliant countries	Governance (accountability, political stability, government effectiveness, regulatory quality, rule of law, corruption) Economic development (foreign direct investment, GDP per capita)		No	Non-parametric test (Wilcoxon rank-sum test) and regression analysis
Sovacool and Andrews (2015)	Azerbaijan and Liberia	Corruption Government effectiveness	Azerbaijan (–) Liberia (+) Azerbaijan (–) Liberia (–)	Non applicable	Qualitative analysis (tendency line graphs)
Fenton Villar and Papirakis (2017)	Zambia	Corruption	(–)	Yes	Synthetic Control Method

editing, Investigation. **Lorenzo Pellegrini:** Supervision, Formal analysis, Writing - review & editing, Investigation.

#### Declaration of competing interest

None.

## Appendix 2. Correlation Matrix (Institutional Outcome Indices)

	Control of Corruption	Regime Corruption	Public Sector Corruption
Control of Corruption	1.000		
Regime Corruption	0.883	1.000	
Public Sector Corruption	0.882	0.931	1.000

## Appendix 3. Data Description

Variable Name and Summary Statistics (mean, standard deviation, minimum, maximum)	Description	Source
<b>Outcome Variables</b>		
Regime corruption (0.508, 0.304, 0.006, 0.980)	The extent to which political actors use political office for private or political gain. It focuses on specific set of actors – those who occupy political offices - and a set of corrupt acts that relate neopatrimonial rule (higher scores = more regime corruption). Scale 0 (lowest) to 1 (highest)	V-Dem (2019)
Public sector corruption (0.506, 0.303, 0.004, 0.979)	The extent to which public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often they steal, embezzle, or misappropriate public funds or other state resources for personal or family use (from less corrupt to more corrupt). Scale: 0 (lowest) to 1 (highest)	V-Dem (2019)
Control of Corruption (0.114, 1.018, -2.469, 1.868)	It defines the exercise of public power for private gain. It includes additional payments to get things done, corruption on the business environment, “grand corruption” in the political arena or in the tendency of elite forms to engage in “state capture”. Scale - 2.5 (less corrupt) to 2.5 (highest corruption). Indicator inverted for equivalence with the other indicators of corruption.	WGI (2019)
<b>Predictor Economic Variables</b>		
Log of GDP (24.239, 2.129, 18.880, 30.257)	Log of GDP (current US\$)	WDI (2019)
GDP growth (4.242, 5.095, -52.428, 14.394)	GDP growth (annual % change)	
Log of GDP per capita (8.242, 1.538, 5.196, 11.433)	Log of GDP per capita (current US\$)	
Trade (89.709, 51.899, 2.278, 392.886)	Trade (% of GDP). Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	
Mineral rents(7.631, 12.948, 0, 56.694)	Aggregate value of mineral rents, coal rents, gas rents, and oil rents (% of GDP)	
<b>Predictor Social Variables</b>		
Log of Population (15.991, 1.663, 11.357, 20.999)	Log of total population	WDI (2019)
Birth rate (23.357, 11.598, 8.373, 51.107)	Birth rate, crude (per 1000 people). Number of live births occurring during the year, per 1000 people	
Death rate (8.708, 3.345, 1.581, 17.877)	Death rate, crude (per 1000 people). Number of deaths occurring during the year, per 1000 people	
Basic drinking water services (82.086, 20.266, 17.700, 100)	People using at least basic drinking water services (% of population).	
Basic sanitation services (69.336, 31.346, 4.906, 100)	People using at least basic sanitation services (% of population)	
Access to electricity (74.502, 33.033, 1.371, 100)	Access to electricity (% of population)	
Adolescent fertility rate (57.588, 47.099, 0.638, 209, 188)	Adolescent fertility rate (births per 1000 women, ages 15–19)	
Life expectancy at birth, female (71.042, 10.047, 46, 305, 85.865)	Life expectancy at birth, female (years). The number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth	
Life expectancy at birth, male (66.223, 9.001, 44.520, 79.782)	Life expectancy at birth, male (years). The number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth.	
Mortality rate, infant (32.296, 28.217, 2.309, 119, 682)	Mortality rate, infant (per 1000 live births). Number of deaths of infants under one year old per 1000 live births	
Labour force participation (62.129, 10.572, 40.999, 87.701)	Labour force participation rate, total (% of total population ages 15+)	
Unemployment (8.098, 5.967, 0.722, 34.032)	Unemployment, total (% of total labor force). Share of the labor force that is without work but available for and seeking employment.	
Vulnerable employment (41.168, 28.620, 0.344, 94.711)	Vulnerable employment, total (% of total employment)	
Employment to population ratio, female 46.363, 16.439, 10.607, 83.516)	Employment to population ratio, 15+, female (%). Proportion of a country's population of female that is employed.	
Employment to population ratio, male (68.226, 10.354, 44.192, 93.207)	Employment to population ratio, 15+, male (%). Proportion of a country's population of male that is employed.	
Female employers (1.675, 1.362, 0.037, 8.994)	Employers, female (% of female employment). Female workers on their own account or with one or a few partners.	
Male employers (4.155, 2.929, 0.064, 18.351)	Employers, male (% of male employment). Male workers on their own account or with one or a few partners.	
<b>Predictor Governance and Transparency Variables</b>		
Regulatory Quality (-0.093, 0.991, -2.354, 1.882)	It includes measures of the incidence of market unfriendly policies. Scale: -2.5 (weak) to 2.5 (strong)	WGI (2019)
Voice and Accountability (-0.161, 0.999, -2.313, 1.801)	It captures aspects of the political process, civil liberties and political rights. Scale: -2.5 (weak) to 2.5 (strong)	
Political Stability and Absence of Violence/Terrorism (-0.184, 0.949, -2.926, 1.525)	It measures perceptions of the likelihood that the government in power will be destabilised or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism. Scale: -2.5 (weak) to 2.5 (strong)	
Rule of Law (-0.156, 1.002, -2.315, 1.956)		

(continued on next page)



(continued)

Variable Name and Summary Statistics (mean, standard deviation, minimum, maximum)	Description	Source
<b>Predictor Political Liberties Variables</b>	It gauges the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. Scale: −2.5 (weak) to 2.5 (strong)	
Freedom of expression (0.683, 0.270, 0.012, 0.991)	The extent to which the government respect press and media freedom, the freedom of ordinary people to discuss political matters at home and in the public sphere, as well as the freedom of academic and cultural expression. Scale: 0 (lowest) to 1 (highest)	V-Dem (2019)
Civil liberties (0.696, 0.241, 0.125, 0.972)	It measures the extent to which civil liberty are respected. Scale: 0 (lower) to 1 (higher)	
CSO repression (1.031, 1.399, −3.729, 3.379)	It captures the government attempt to repress civil society organizations. Scale: from least democratic “−3.73” to most democratic “3.38”	
Electoral democracy (0.533, 0.260, 0.021, 0.923)	It measures to what extent is the ideal of electoral democracy in its fullest sense achieved—liberal, participatory, deliberative, egalitarian, or some other. Scale: 0 (lowest) to 1 (highest)	
Political civil liberties (0.704, 0.269, 0.012, 0.984)	It includes freedom of association and freedom of expression, relevant for political competition and accountability. Scale: 0 (lowest) to 1 (highest)	

## Appendix 4. Donor Pool Countries and Weights

Treated country	Colombia			Guatemala			Honduras		
Donor Pool	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.
Algeria	0	0	0.007	0	0.003	0	0	0	0
Angola	0	0	0.005	0	0.018	0	0	0	0
Australia	0	0	0.008	0	0.001	0	0	0	0
Austria	0	0	0.008	0	0.001	0	0	0	0
Bahrain	0	0	0.007	0	0.003	0	0	0	0
Bangladesh	0	0	0.002	0	0.002	0	0.207	0.102	0
Barbados	0.006	0	0.009	0	0.001	0	0	0	0
Belarus	0	0	0.020	0	0.002	0	0	0	0
Belgium	0	0	0.008	0	0.001	0	0	0	0
Benin	0	0	0.020	0	0.004	0.168	0	0	0
Bhutan	0	0	0.008	0	0.001	0	0	0	0
Bolivia	0	0	0.007	0	0.009	0	0	0	0
Bosnia and Herzegovina	0	0	0.007	0	0.002	0	0	0	0
Botswana	0	0	0.007	0	0.001	0	0	0	0
Brazil	0	0	0.007	0	0.002	0	0	0	0
Bulgaria	0	0.004	0.029	0	0.001	0	0	0	0
Burundi	0	0.044	0.003	0	0.045	0.012	0	0.004	0
Cabo Verde	0	0	0.008	0	0.001	0	0	0	0
Cambodia	0	0	0.005	0	0.008	0	0	0	0
Canada	0	0	0.007	0	0.001	0	0	0	0
Chile	0	0	0.007	0	0.001	0	0	0	0
China	0	0	0.006	0	0.002	0	0	0	0
Comoros	0	0	0.007	0	0.002	0	0	0	0
Costa Rica	0	0.017	0.007	0	0.001	0	0	0	0
Croatia	0	0.213	0.005	0	0.001	0	0	0.037	0
Cuba	0	0	0.006	0	0.002	0	0	0	0
Cyprus	0	0.220	0.008	0	0.001	0	0	0	0
Czech Republic	0	0	0.009	0	0.002	0	0	0	0
Denmark	0	0	0.008	0	0.001	0	0	0	0
Ecuador	0	0	0.007	0	0.002	0	0	0	0
Egypt, Arab Rep.	0	0	0.004	0	0.006	0	0	0	0.380
El Salvador	0	0	0.007	0	0.002	0	0	0	0
Equatorial Guinea	0	0	0.005	0	0.053	0	0	0.197	0
Eritrea	0	0	0.006	0	0.002	0	0	0	0
Estonia	0	0	0.008	0	0.001	0	0	0	0
Eswatini	0	0	0.005	0	0.002	0	0	0	0
Fiji	0.135	0	0.005	0	0.002	0	0	0	0
Finland	0	0	0.008	0	0.001	0	0	0	0
France	0	0	0.008	0	0.001	0	0	0	0
Gabon	0	0	0.006	0	0.005	0	0	0	0
Gambia, The	0	0	0.007	0	0.003	0	0	0	0
Georgia	0.024	0.14	0.004	0	0.100	0.105	0.187	0.005	0
Greece	0	0	0.007	0	0.002	0	0	0	0
Guinea-Bissau	0	0	0.003	0	0.009	0.693	0	0.156	0.040
Haiti	0	0	0.004	0.050	0.011	0	0	0	0
Hungary	0	0	0.007	0	0.002	0	0	0	0
Iceland	0	0	0.008	0	0.001	0	0	0	0
India	0	0	0.008	0	0.002	0	0	0	0
Iran, Islamic Rep.	0	0	0.005	0	0.002	0	0.118	0	0
Ireland	0	0	0.008	0	0.001	0	0	0	0
Israel	0	0	0.008	0	0.001	0	0	0	0

(continued on next page)

(continued)

Treated country	Colombia			Guatemala			Honduras		
Donor Pool	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.
Italy	0	0	0.007	0	0.003	0	0	0	0
Jamaica	0	0	0.008	0	0.001	0	0	0	0
Japan	0	0	0.008	0	0.001	0	0	0	0
Jordan	0.124	0	0.007	0	0.002	0	0	0	0
Kenya	0	0	0.005	0	0.002	0	0	0	0
Korea, Rep.	0	0.012	0.007	0	0.004	0	0	0	0
Kuwait	0	0	0.009	0	0.003	0	0	0	0
Lao PDR	0	0	0.006	0	0.003	0	0	0	0
Latvia	0.116	0	0.008	0	0.001	0	0	0	0
Lebanon	0	0	0.009	0.443	0.002	0	0	0	0
Lesotho	0	0	0.005	0	0.002	0	0	0	0.001
Libya	0	0	0.017	n/a	n/a	n/a	0	0	0.332
Lithuania	0	0	0.007	0	0.001	0	0	0	0
Luxembourg	0	0	0.008	0	0.001	0	0	0	0
Malaysia	0	0	0.011	0	0.002	0	0	0	0
Maldives	0	0	0.006	0	0.001	0	0	0	0
Malta	0	0	0.008	0	0.002	0	0	0	0
Mauritius	0	0	0.009	0	0.002	0	0	0	0
Moldova	0	0	0.109	0	0.003	0	0.032	0.142	0
Montenegro	0	0	0.017	0	0.003	0	0	0	0.026
Morocco	0	0	0.007	0	0.002	0	0	0	0
Namibia	0	0	0.008	0	0.002	0	0	0	0
Nepal	0	0	0.006	0	0.002	0	0	0	0
Netherlands	0	0	0.008	0	0.001	0	0	0	0
New Zealand	0	0	0.008	0	0.001	0	0	0	0
Nicaragua	0	0.237	0.014	0	0.003	0	0	0	0
North Macedonia	0	0	0.015	0.062	0.023	0	0	0	0
Oman	0	0	0.006	0.013	0.001	0	0	0	0
Pakistan	0	0	0.002	0	0.029	0	0	0	0.015
Panama	0	0	0.007	0	0.002	0	0	0	0
Paraguay	0	0	0.006	0.207	0.002	0.022	0	0	0.072
Poland	0	0	0.007	0	0.001	0	0	0	0
Portugal	0	0	0.008	0	0.001	0	0	0	0
Qatar	0	0	0.007	0.039	0.002	0	0	0	0
Romania	0	0	0.006	0	0.002	0	0	0	0.031
Russian Federation	0	0	0.009	0	0.003	0	0.126	0	0
Rwanda	0	0	0.006	0	0.002	0	0	0	0
Saudi Arabia	0	0	0.007	0	0.003	0	0	0	0
Serbia	0	0	0.007	0	0.002	0	0	0	0
Singapore	0	0	0.008	0	0.001	0	0	0	0
Slovak Republic	0.007	0	0.008	0	0.002	0	0	0	0
Slovenia	0	0	0.008	0	0.001	0	0	0	0
South Africa	0.254	0	0.006	0	0.002	0	0	0	0
Spain	0	0	0.007	0	0.001	0	0	0	0
Sri Lanka	0	0	0.006	0	0.002	0	0	0	0
Sudan	0.010	0	0.012	0	0.006	0	0	0	0
Sweden	0	0	0.008	0	0.001	0	0	0	0
Switzerland	0	0	0.008	0	0.001	0	0	0	0
Syrian Arab Republic	0	0	0.004	0	0.004	0	0.089	0	0
Thailand	0	0	0.007	0	0.017	0	0	0	0
Tunisia	0	0.114	0.002	0	0.003	0	0	0.052	0
Turkey	0	0	0.005	0	0.002	0	0	0	0
Turkmenistan	0	0	0.071	0	0.462	0	0	0.305	0.101
Uganda	0	0	0.005	0	0.003	0	0	0	0
United Arab Emirates	0	0	0.006	0	0.001	0	0	0	0
Uruguay	0	0	0.007	0	0.001	0	0	0	0
Uzbekistan	0	0	0.003	0	0.008	0	0	0	0.002
Vanuatu	0.020	0	0.007	0	0.002	0	0	0	0
Venezuela, RB	0.306	0	0.004	0	0.006	0	0.240	0	0
Vietnam	0	0	0.007	0	0.002	0	0	0	0
West Bank and Gaza	0	0	0.010	0.187	0.001	0	0	0	0
Zimbabwe	0	0	0.006	0	0.006	0	0	0	0

n/a corresponds to countries dropped because of lack of information in the pre-intervention period.

Treated country	Peru			Trinidad and Tobago		
Donor Pool	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.
Algeria	0.003	0.010	0.010	0.003	0.001	0.003
Angola	0.001	0.010	0.014	0.001	0.001	0.003
Australia	0.003	0.009	0.008	0.005	0.010	0.053
Austria	0.003	0.009	0.008	0.004	0.002	0.007
Bahrain	0.002	0.010	0.009	0.003	0.001	0.004

(continued on next page)

(continued)

Treated country	Peru			Trinidad and Tobago		
Donor Pool	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.
Bangladesh	0	0.010	0.016	0.032	0.001	0.002
Barbados	0.003	0.009	0.009	0.005	0.003	0.008
Belarus	0.004	0.010	0.009	0.002	0.001	0.012
Belgium	0.003	0.009	0.008	0.004	0.013	0.029
Benin	0.003	0.010	0.011	0.006	0.002	0.004
Bhutan	0.004	0.009	0.008	0.004	0.034	0.016
Bolivia	0.002	0.010	0.009	0.002	0.002	0.003
Bosnia and Herzegovina	0.003	0.010	0.010	0.003	0.001	0.003
Botswana	0.194	0.009	0.008	0.108	0.002	0.005
Brazil	0.003	0.010	0.009	0.004	0.002	0.004
Bulgaria	0.003	0.009	0.009	0.005	0.001	0.006
Burundi	0.002	0.010	0.009	0.003	0.001	0.001
Cabo Verde	0.003	0.009	0.009	0.003	0.003	0.006
Cambodia	0.002	0.011	0.012	0.119	0.001	0.003
Canada	0.003	0.009	0.008	0.003	0.008	0.012
Chile	0.002	0.009	0.008	0.003	0.009	0.012
China	0.005	0.010	0.010	0.003	0.001	0.003
Comoros	0.003	0.010	0.010	0.002	0.001	0.003
Costa Rica	0.005	0.009	0.008	0.006	0.002	0.007
Croatia	0.003	0.015	0.015	0.006	0.004	0.003
Cuba	0.002	0.009	0.011	0.003	0.002	0.003
Cyprus	0.005	0.009	0.009	0.003	0.003	0.006
Czech Republic	0.003	0.009	0.009	0.005	0.079	0.005
Denmark	0.003	0.009	0.008	0.003	0.147	0.065
Ecuador	0.002	0.010	0.009	0.003	0.002	0.005
Egypt, Arab Rep.	0.003	0.010	0.015	0.005	0.001	0.002
El Salvador	0.004	0.010	0.011	0.003	0.013	0.003
Equatorial Guinea	n/a	n/a	n/a	0.001	0.001	0.003
Eritrea	0.003	0.010	0.010	0.002	0.002	0.003
Estonia	0.003	0.009	0.008	0.004	0.007	0.009
Eswatini	0.003	0.010	0.012	0.002	0.002	0.003
Fiji	0.002	0.009	0.009	0.002	0.001	0.004
Finland	0.003	0.009	0.008	0.003	0.015	0.017
France	0.003	0.009	0.008	0.003	0.004	0.016
Gabon	0.003	0.010	0.012	0.021	0.001	0.003
Gambia, The	0.007	0.010	0.010	0.015	0.001	0.003
Georgia	0.003	0.008	0.006	0.002	0.002	0.003
Greece	0.002	0.010	0.009	0.003	0.002	0.004
Guinea-Bissau	0.002	0.010	0.011	0.001	0.001	0.002
Haiti	0	0.010	0.012	0.002	0.001	0.003
Hungary	0.003	0.009	0.009	0.004	0.002	0.008
Iceland	0.003	0.009	0.008	0.003	0.01	0.047
India	0.003	0.010	0.009	0.002	0.002	0.005
Iran, Islamic Rep.	0.003	0.010	0.009	0.002	0.001	0.003
Ireland	0.004	0.009	0.008	0.003	0	0.017
Israel	0.003	0.009	0.008	0.002	0.003	0.007
Italy	n/a	n/a	n/a	0.002	0.025	0.005
Jamaica	0.003	0.009	0.009	0.003	0.004	0.006
Japan	0.003	0.009	0.008	0.003	0.004	0.026
Jordan	0.004	0.009	0.009	0.004	0.003	0.004
Kenya	0.002	0.011	0.010	0.003	0.001	0.003
Korea, Rep.	0.004	0.009	0.008	0.124	0.002	0.009
Kuwait	0.002	0.010	0.010	0.004	0.001	0.004
Lao PDR	0.002	0.010	0.011	0.003	0.001	0.003
Latvia	0.004	0.009	0.008	0.003	0.199	0.007
Lebanon	0.002	0.010	0.011	0.101	0.002	0.003
Lesotho	n/a	n/a	n/a	0.003	0.001	0.002
Libya	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	0.003	0.009	0.008	0.057	0.038	0.006
Luxembourg	0.002	0.009	0.008	0.003	0.014	0.017
Malaysia	0.003	0.010	0.011	0.004	0.001	0.004
Maldives	n/a	n/a	n/a	0.004	0.001	0.005
Malta	0.004	0.009	0.009	0.003	0.002	0.006
Mauritius	0.003	0.010	0.009	0.003	0.001	0.005
Moldova	0.003	0.010	0.010	0.002	0.002	0.003
Montenegro	n/a	n/a	n/a	0.003	0.001	0.013
Morocco	0.002	0.009	0.011	0.008	0.002	0.003
Namibia	0.003	0.009	0.009	0.003	0.002	0.005
Nepal	0.009	0.010	0.011	0.002	0.001	0.003
Netherlands	0.003	0.009	0.008	0.004	0.011	0.017
New Zealand	0.003	0.009	0.008	0.004	0.037	0.045
Nicaragua	0.002	0.011	0.010	0.004	0.002	0.003
North Macedonia	0.002	0.011	0.010	0.003	0.001	0.008
Oman	n/a	n/a	n/a	0.003	0.002	0.004

(continued on next page)

(continued)

Treated country	Peru			Trinidad and Tobago		
Donor Pool	Control of Corr.	Reg. Corr.	Public Sector Corr.	Control of Corr.	Reg. Corr.	Public Sector Corr.
Pakistan	0.516	0.010	0.010	0.002	0.001	0.002
Panama	0.002	0.010	0.009	0.003	0.002	0.004
Paraguay	0.001	0.010	0.010	0.002	0.001	0.003
Poland	n/a	n/a	n/a	0.003	0.004	0.006
Portugal	0.003	0.009	0.008	0.004	0.005	0.007
Qatar	0.003	0.010	0.009	0.002	0.001	0.004
Romania	n/a	n/a	n/a	0.003	0.001	0.004
Russian Federation	0.003	0.011	0.012	0.003	0.001	0.003
Rwanda	0.002	0.010	0.009	0.003	0.002	0.005
Saudi Arabia	n/a	n/a	n/a	0.002	0.001	0.003
Serbia	0.004	0.010	0.010	0.003	0.001	0.003
Singapore	0.002	0.009	0.008	0.004	0.022	0.08
Slovak Republic	0.003	0.009	0.009	0.004	0.001	0.005
Slovenia	0.003	0.010	0.008	0.004	0.009	0.01
South Africa	0.002	0.009	0.009	0.003	0.002	0.004
Spain	0.003	0.009	0.008	0.004	0.018	0.02
Sri Lanka	0.002	0.010	0.009	0.003	0.001	0.003
Sudan	0.002	0.011	0.012	0.001	0.003	0.003
Sweden	0.003	0.009	0.008	0.003	0.076	0.065
Switzerland	0.003	0.009	0.008	0.003	0.029	0.026
Syrian Arab Republic	0.002	0.010	0.012	0.001	0.001	0.003
Thailand	0.003	0.010	0.010	0.083	0.001	0.003
Tunisia	0.003	0.010	0.012	0.003	0.001	0.003
Turkey	0.004	0.010	0.009	0.003	0.002	0.003
Turkmenistan	0.001	0.011	0.013	0.005	0.001	0.003
Uganda	0.002	0.010	0.010	0.003	0.001	0.003
United Arab Emirates	0.002	0.009	0.009	0.004	0.003	0.004
Uruguay	0.004	0.009	0.008	0.004	0.021	0.008
Uzbekistan	0.002	0.011	0.013	0.001	0.001	0.003
Vanuatu	0.003	0.010	0.009	0.002	0.002	0.004
Venezuela, RB	0.002	0.011	0.012	0.002	0.001	0.003
Vietnam	0.004	0.010	0.010	0.012	0.001	0.003
West Bank and Gaza	0.002	0.009	0.009	0.015	0.003	0.016
Zimbabwe	0.002	0.010	0.013	0.002	0.001	0.003

n/a corresponds to countries dropped because of lack of information in the pre-intervention period.

## Appendix 5. Results for Colombia, Guatemala, and Honduras

### Colombia

The extractive sector in Colombia (petroleum, natural gas, coal, iron ore, nickel, gold, copper, emeralds) accounted for about 6.4% of GDP in 2017 (WDI 2019). Extensive corruption in the management of royalties from the extractive industry is often associated with the inability of local communities to benefit from the sector (Arise and González 2014). Given these concerns, the Colombian government signaled already in 2012 its intention to join the EITI (as a means to curb corruption); the interest in the scheme was largely seen as part of an overall government commitment towards transparency and good governance (also partly driven by its efforts to be admitted to the OECD; see Bebbington et al., 2017). Colombia officially expressed its commitment to the scheme in 2013 (during the 6th EITI Global Conference) and obtained candidate status a year later (EITI Colombia 2019).

Figs. 7–9 depict values for the Control of Corruption, the Regime Corruption and Public Sector Corruption indices. There is no statistically significant deviation in the post-intervention period for the Control of Corruption (Fig. 7) and the Regime Corruption indices (Fig. 8). However, we observe larger (and statistically significant at the 1% level) values for Public Sector Corruption (Fig. 9) in comparison to the ones of the synthetic unit during the ‘commitment’ and ‘candidate’ stages (with a gap size close to 0.08 between 2013 and 2015). This coincides with the exposure of a series of corruption scandals since 2013. In early 2014, a corruption network was uncovered with military officers receiving bribes in exchange for contracts, as well as appropriating funds meant for military supplies (BBC 2014). During the same time, several corruption scandals also surfaced involving multiple public companies (e.g. the national railway company Ferrovias, the ports authority Foncolpuertos, the Chivor water reservoir utility company etc), which is likely to have influenced public perceptions on public sector corruption (Warf 2019).

### EITI reporting and transparency

Overall, the EITI documentation highlights minimal discrepancies between the financial flows reported by mining companies and the government; however, there seems to be a reduction in the share of the extractive sector captured by firms participating to the scheme, which was close to 95% in 2013 (in terms of value of production, see EITI Colombia 2015) and fell below 90% in 2016 (EITI Colombia 2017). The informality of the gold mining sector appears (in all EITI documents) as particularly problematic (with more than 85% of small producers abstaining from reporting any data) and even seems to be on the rise in recent years (EITI Colombia 2018b). In addition, Ecopetrol, Colombia’s largest and largely government-owned petroleum company, did not disclose all information regarding contracts at the beginning of the EITI scheme (EITI Colombia 2016) and fully complied only in 2016 (EITI Colombia 2018a). EITI reports also emphasise the need for better communication at the local level, where communities demonstrate extensive distrust towards extractive firms as well as public authorities (given the limited information on how mineral revenues become distributed and for what purposes, EITI Colombia 2016; 2018b); at the same time, the strong anti-extractives sentiments found in many local communities also hinders the ability of the EITI to reach them and inform on any associated progress with respect to local resource governance (EITI Colombia 2018b). The 2018 EITI validation report (EITI Colombia 2018b) summarises the key factors limiting the effectiveness of the EITI scheme in

enhancing transparency: namely, the mistrust associated with the failure of the extractive sector to support local development as the initially booming extractive sector suffered from lower mineral prices and reduced foreign direct investment, the 2013 introduction of a more complex allocation system of mineral revenues to local governments (with many mineral-dependent regions losing out) and extensive doubts on the ability of public authorities in containing the expansion of illegal gold mining.

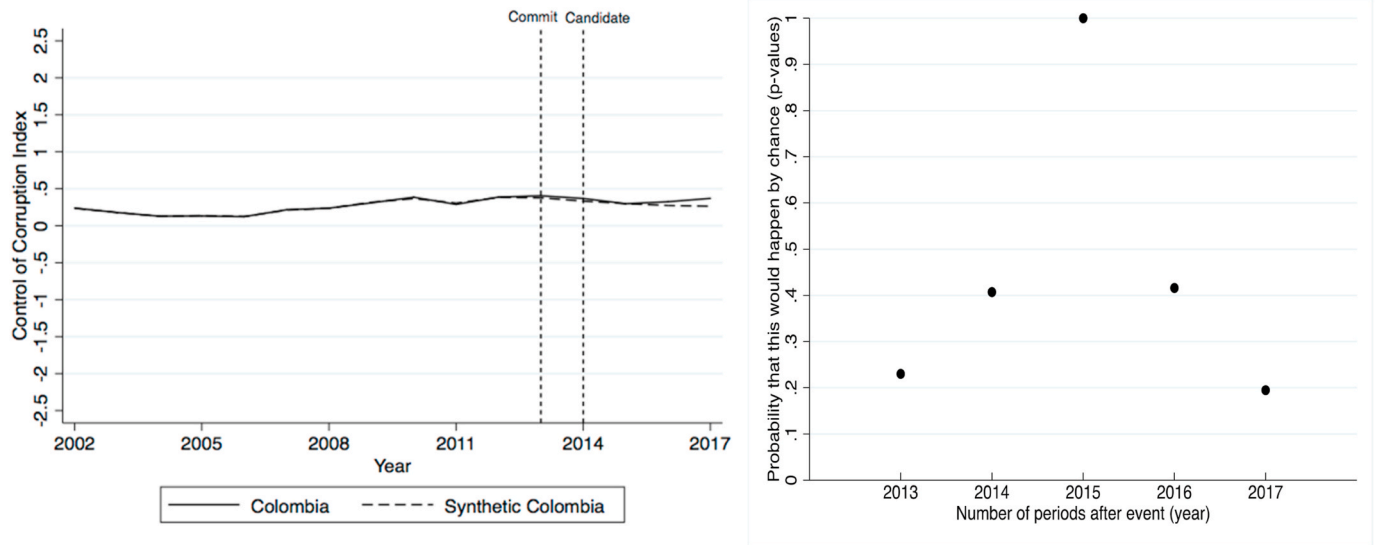


Fig. 7. Control of corruption index of Colombia and adjusted P-Values.

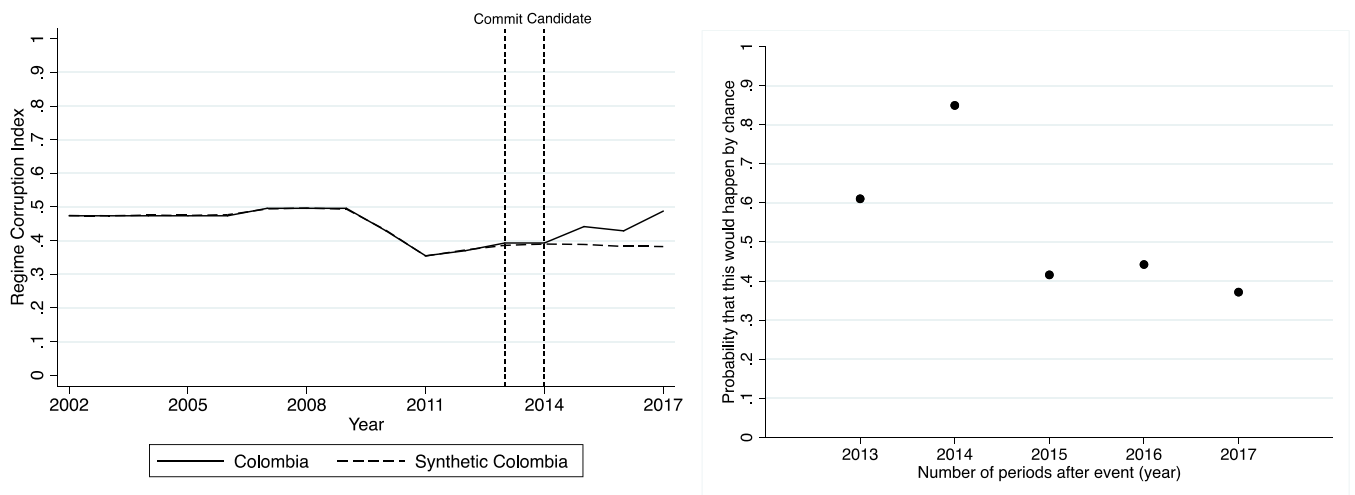


Fig. 8. Regime corruption index of Colombia and adjusted P-Values.



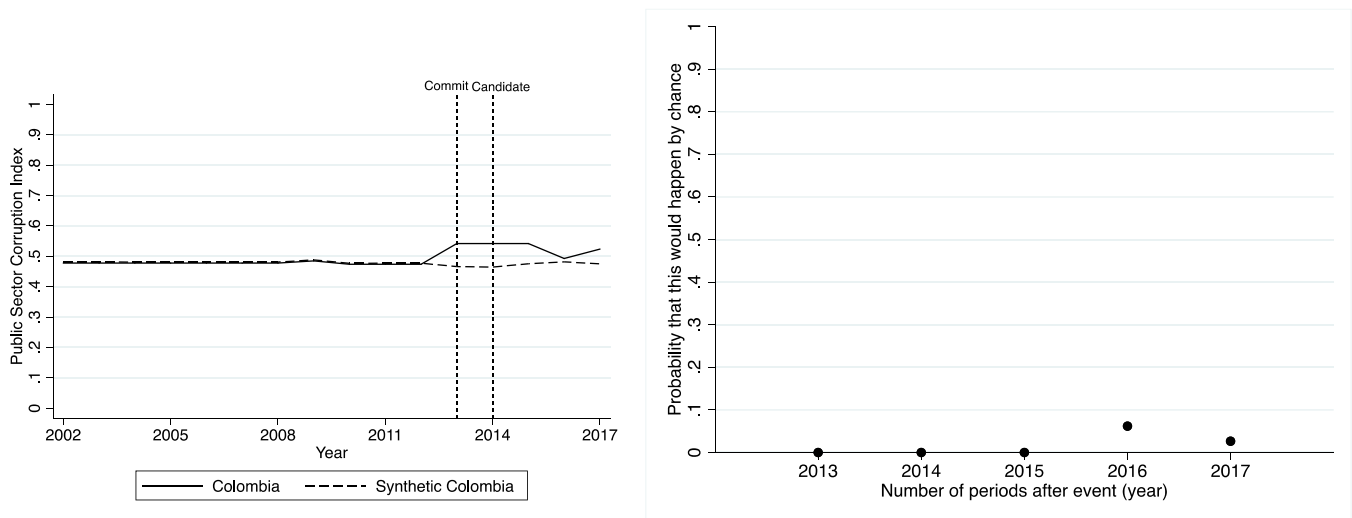


Fig. 9. Public sector corruption index of Colombia and adjusted P-Values.

### Guatemala

In comparison to other Latin America EITI members, Guatemala's economy is less dependent on the extractive sector, which accounted for approximately 2% of its GDP in 2017 (and about 13% of its foreign direct investment and 14% of its export revenues). Almost four fifths of royalties stem from the production of gold and silver (World Mining Congress 2019). Furthermore, Guatemala seems to suffer from higher levels of corruption compared to the other Latin American focus countries, e.g. with the Control of Corruption Index varying between 0.5 and 0.9 points since 2002, see Fig. 10). Large parts of the country are under the control of drug lords and crime syndicates; the inability of the government to take corrective action has led to public frustration and rioting in recent years. This culminated in 2015 when the International Commission against Impunity in Guatemala and state prosecutors accused several politicians of creating a customs corruption ring to appropriate public revenues; violent demonstrations led to the resignation (and finally imprisonment after an anti-corruption investigation) of the then President Otto Pérez Molina (Warf and Stewart 2016).

Guatemala officially expressed its commitment to the EITI scheme in 2010 and obtained candidate status a year later with support from the World Bank and the German Corporation for International Cooperation (EITI Colombia 2019). The country finally achieved compliance in 2014.

Figs. 10–12 depict values for the Control of Corruption, the Regime Corruption and Public Sector Corruption indices. There is no statistically significant deviation in the post-intervention period for the Control of Corruption (Fig. 10) and the Public Corruption indices (Fig. 12). However, we observe larger (and statistically significant at the 10% level) values for Regime Corruption (Fig. 11) in comparison to the ones of the synthetic unit between 2013 and 2015 (i.e. during the later years of 'candidature' and 'compliance' stages, with a gap size close to 0.07). This coincides with a period of increased public dissatisfaction and rioting against mining concessions provided by the government. In 2013 local communities expressed serious concerns about the pollution stemming from mining activity and complained of receiving threats after expressing their discontent (Movimiento Mesoamericano contra el Modelo Extractivo Minero 2014). In addition, the political scandal of 2015 involving President Molina further heightened public perceptions of regime corruption (and increased distrust towards any scheme associated with his government, including the EITI). This general climate of mistrust towards government and politicians also deterred many civil society groups (especially those critical of the practices within the extractive sector) to get involved in EITI consultations (EITI Guatemala 2019).

### EITI reporting and transparency

The EITI reports generally highlight problems associated with the functioning of the multi-stakeholder group (on the other hand, there appear to be only minor discrepancies between the financial flows reported by mining companies and the government). The EITI reports generally recommend that the multi-stakeholder group should broaden its focus and definition of transparency with a critical reflection on the environmental, social and educational aspects of the extractive industry, as well as identified irregularities in licensing processes (EITI Guatemala 2013a, b). It also criticises the limited participation of the civil society, which correspondingly limits the checks and balances envisaged within the EITI scheme (EITI Guatemala 2013b). Many civil society groups have little trust in the government and the EITI and are, hence, very critical of other civil society organizations that decide to participate. To a large extent, the government is also to blame for this by dominating discussions within the multi-stakeholder group and treating non-government representatives as 'guests' rather than equal partners (EITI Guatemala 2013b). Several civil society groups and local communities have a deep mistrust towards the government and the extractive sector and largely perceive the EITI as a distraction from other more fundamental issues (environmental impacts, human rights issues, equitable distribution of rents etc, see EITI Guatemala 2013b). While participation of extractive firms has been consistently high (with participating firms accounting for more than 96% of value produced already since 2010, see EITI Guatemala 2013a), many small mining firms have not joined the scheme (although there were some temporary efforts in this direction during 2012–2013, see EITI Guatemala, 2014). Before 2013, the vast majority of participating firms requested that only aggregate financial figures for the sector as a whole should be included in EITI reports (generating, hence, a sense of secrecy, see EITI Guatemala 2013b). Municipalities have also consistently failed to provide data on accrued rents (EITI Guatemala 2016).

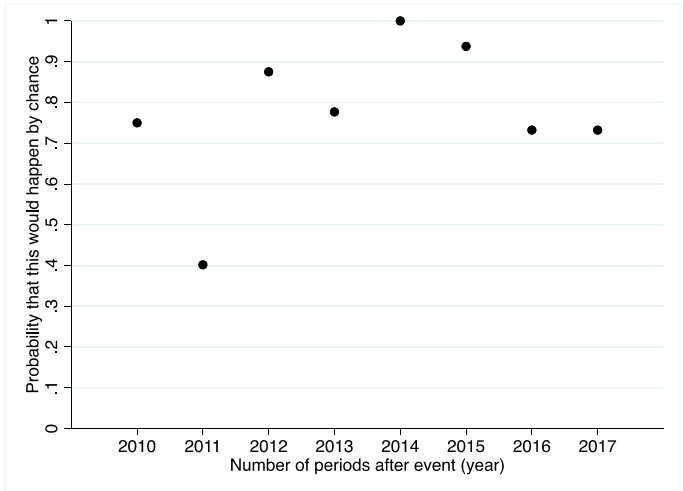
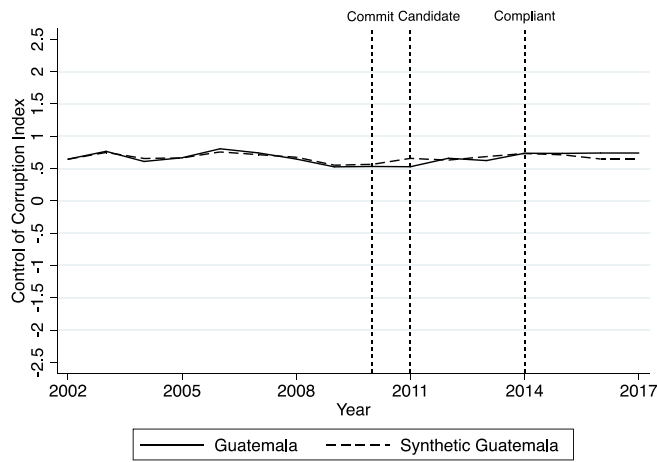


Fig. 10. Control of corruption index of Guatemala and adjusted P-Values.

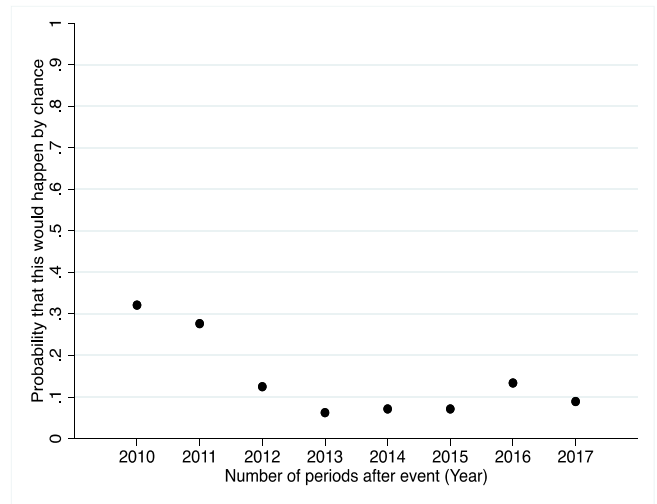
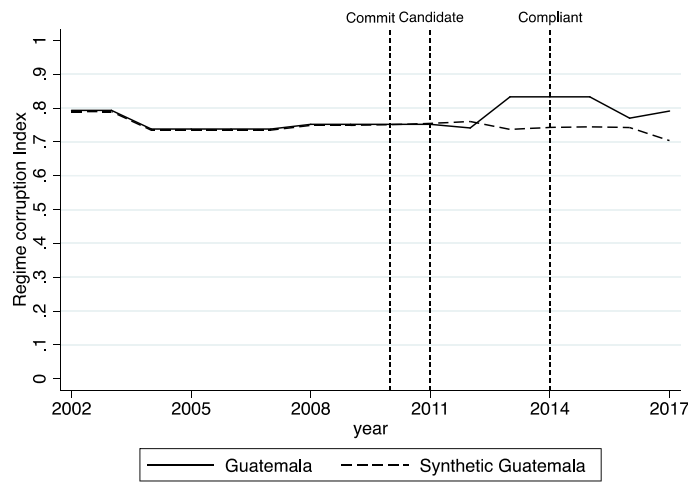


Fig. 11. Regime corruption index of Guatemala and adjusted P-Values.

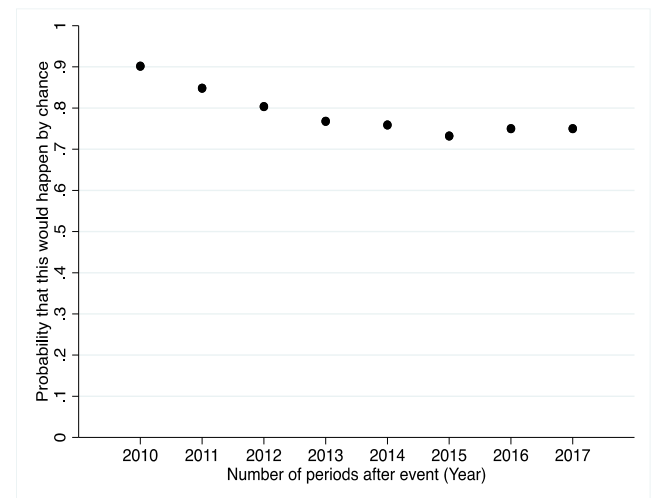
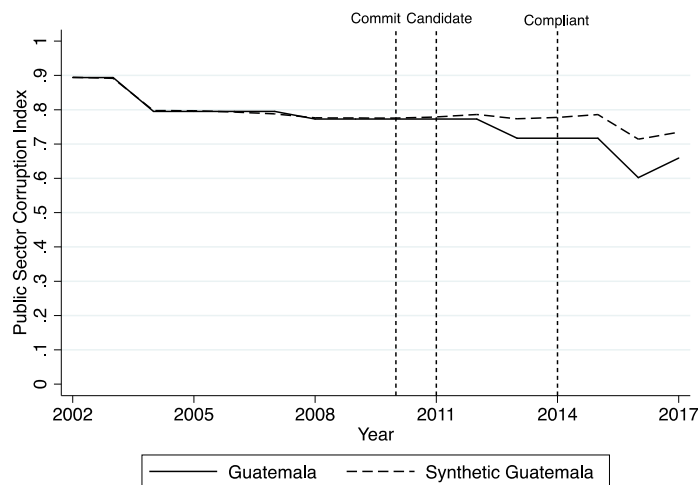


Fig. 12. Public sector corruption index of Guatemala and adjusted P-Values.

## Honduras

Similar to Guatemala, Honduras is not particularly dependent on mining; extractive activity mainly consists of silver and gold production (which accounted for approximately 1% of GDP and 5% of export value in 2017, [World Mining Congress 2019](#)). However, informal mining is estimated to be three to four times larger in size, [EITI Honduras \(2019a\)](#). Corruption is rampant in Honduras (with the Control of Corruption Index varying between 0.5 and 1, see [Fig. 13](#)). According to the [Business Anti-Corruption Portal \(2016\)](#), corruption in the form of patronage networks, bribery and clientelism largely impedes the development of an attractive business investment environment. Anti-corruption frameworks largely remain on paper and extortion is a common behaviour among police officers and tax officials. In procurement processes, bribery is commonly required to obtain contracts and licenses ([Guardian 2015](#)).

Honduras officially expressed its commitment to the EITI scheme in 2012 motivated by its aspiration to attract foreign investment for its extractive industry. The country obtained candidate status a year later with support from the World Bank ([EITI Honduras 2019a](#)). Compliance has been deterred and delayed as a result of a number of flaws (identified in Honduras' EITI reports) in relation to its EITI work plan, payments of royalties to subnational bodies and the active involvement of the public in EITI processes ([EITI Honduras 2019a](#)). [Figs. 13–15](#) depict values for the Control of Corruption, the Regime Corruption and Public Sector Corruption indices. There is no statistically significant deviation in the post-intervention period for any of the corruption indices (and any deviations are of relatively small magnitude, e.g. close to 0.2 points for the Control of Corruption index).

## EITI reporting and transparency

A recurring problem identified since the onset of EITI participation is the limited participation of small mining firms (initially only 6 large firms participated out of the 35 registered, which however accounted for the largest part of production value – i.e. close to 95%; [EITI Honduras 2015, 2016, 2017, 2018](#)). Hydrocarbon and non-metallic mining firms only started participating after 2014 ([EITI Honduras 2016](#)). While this has been a good first attempt towards enhancing transparency in the sector by consolidating disaggregated data by the largest companies, little attention has been given to municipal-level information on revenue transfers and the utilisation of such funds ([EITI Honduras 2017, 2018; 2019b](#)). In addition, EITI reports emphasise the need for developing an efficient communication of EITI disclosures and findings to the wider public ([EITI Honduras 2017; 2019b](#)), as well as involving the subnational tax offices ([EITI Honduras 2019b](#)).

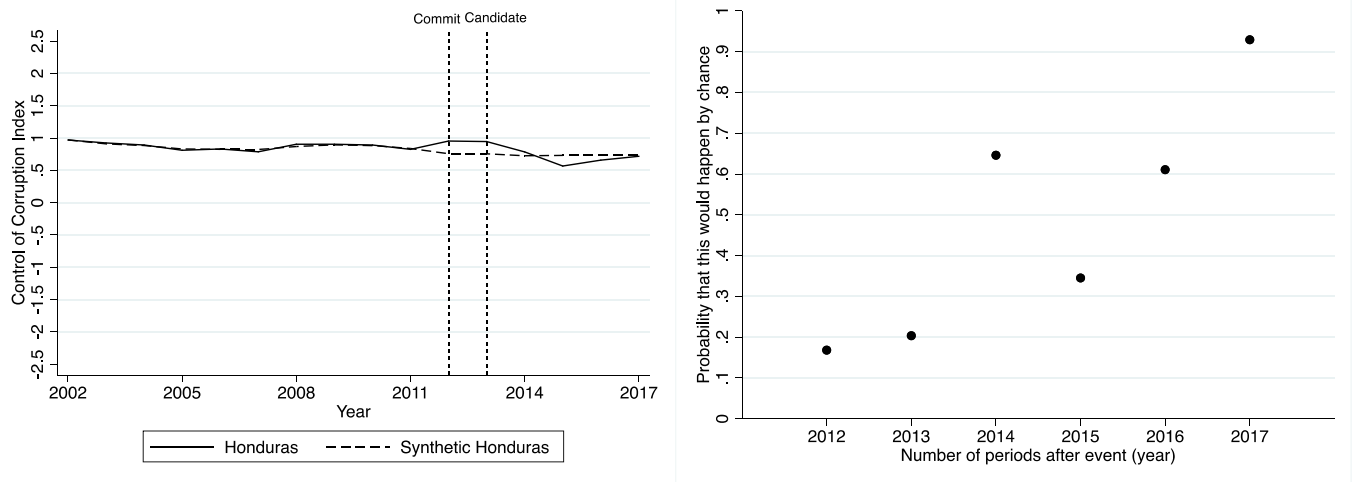


Fig. 13. Control of corruption index of Honduras and adjusted P-Values.

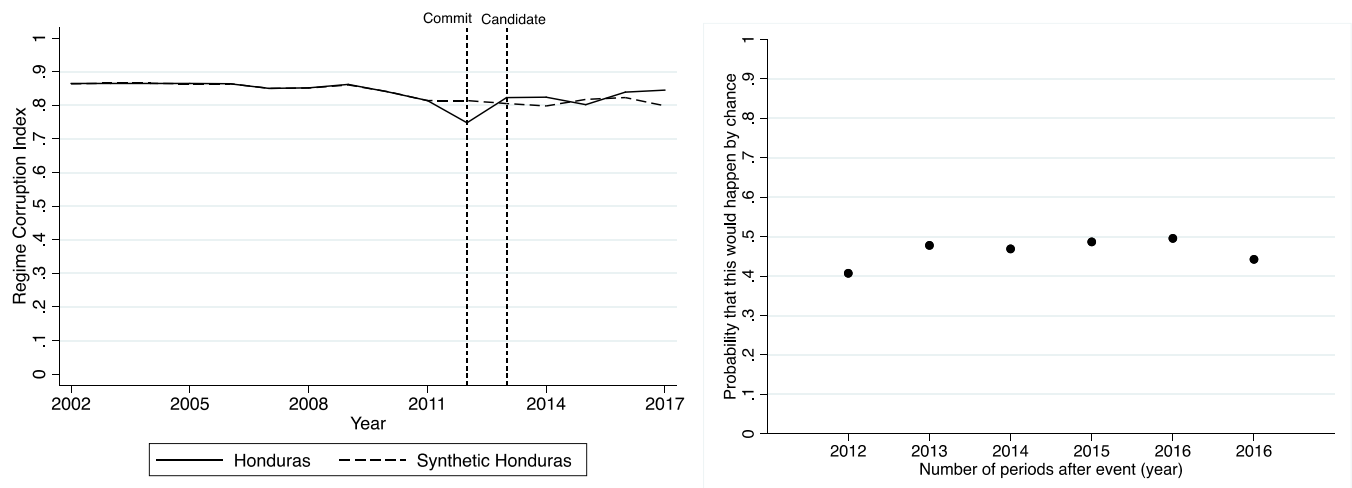


Fig. 14. Regime corruption index of Honduras and adjusted P-Values.

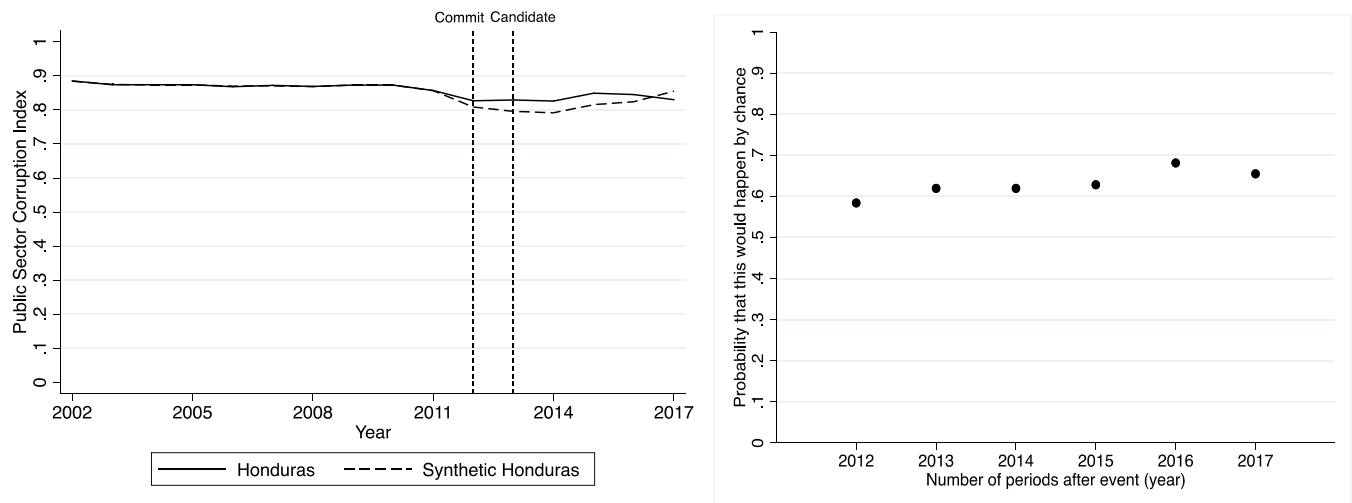


Fig. 15. Public sector corruption index of Honduras and adjusted P-Values.

## References

- Aaronson, S.A., 2011. Limited partnership: business, government, civil society, and the public in the Extractive Industries Transparency Initiative (EITI). *Publ. Adm. Dev.* 31 (1), 50–63. <https://doi.org/10.1002/pad.588>.
- Abadie, A., Gardeazabal, J., 2003. The economic costs of conflict: a case study of the Basque country. *Am. Econ. Rev.* 93 (1), 113–132. <https://doi.org/10.1257/000282803321455188>.
- Abadie, A., Diamond, A., Hainmueller, J., 2010. Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. *J. Am. Stat. Assoc.* 105 (490), 493–505. <https://doi.org/10.1198/jasa.2009.ap08746>.
- Ades, A., Di Tella, R., 1999. Rents, competition, and corruption. *Am. Econ. Rev.* 89 (4), 982–993. <https://pubs.aeaweb.org/doi/pdf/10.1257/aer.89.4.982>.
- Adhikari, B., Alm, J., 2016. Evaluating the economic effects of flat tax reforms using synthetic control methods. *South. Econ. J.* 83 (2), 437–463. <https://doi.org/10.1002/soej.12152>.
- Ali, A.M., Isse, H.S., 2003. Determinants of economic corruption: a cross-country comparison. *Cato J.* 22, 449. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/catoj22&div=34&id=&page=>.
- Van Alstine, J., 2017. Critical reflections on 15 years of the extractive industries transparency initiative (EITI). *The Ext. Ind. Soc.* 4 (4), 766–770. <https://doi.org/10.1016/j.exis.2017.10.010>.
- Ando, M., 2015. Dreams of urbanization: quantitative case studies on the local impacts of nuclear power facilities using the synthetic control method. *J. Urban Econ.* 85 (2), 68–85. <https://doi.org/10.1016/j.jue.2014.10.005>.
- Ansari, D., 2016. Resource curse contagion in the case of Yemen. *Res. Pol.* 49 (4), 444–454. <https://doi.org/10.1016/j.resourpol.2016.08.001>.
- Arezki, R., Brückner, M., 2011. Oil rents, corruption and state stability: evidence from panel data regressions. *Eur. Econ. Rev.* 55 (7), 955–963. <https://doi.org/10.1016/j.eurocorev.2011.03.004>.
- Arisi, D., González, A.C., 2014. Transparency in the management of revenues from the extractive industries: the case of Colombia. In: Veyra, J.C., Masson, M. (Eds.), *Transparent Governance in an Age of Abundance. Experiences from the Extractive Industries in Latin America and the Caribbean*. Inter-American Development Bank, Washington D.C., pp. 277–316.
- Ata, A.Y., Arvas, M.A., 2011. Determinants of economic corruption: a cross-country data analysis. *Int. J. Bus. Soc. Sci.* 2 (13), 161–169. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.463.1061&rep=rep1&type=pdf>.
- Bauhoff, S., 2014. The effect of school district nutrition policies on dietary intake and overweight: a synthetic control approach. *Econ. Hum. Biol.* 12, 45–55. <https://doi.org/10.1016/j.ehb.2013.06.001>.
- BBC News, 2014. Colombian Leader 'outraged' by Army Corruption Claims. Retrieved. [www.bbc.com/news/world-latin-america-26220187bbc](http://www.bbc.com/news/world-latin-america-26220187bbc). (Accessed 16 December 2014).
- Bebbington, A., Arond, E., Dammert, J., 2017. Explaining diverse national responses to the Extractive Industries Transparency Initiative in the Andes: what sort of politics matters? *Ext. Ind. and Soc.* 4 (4), 833–841. <https://doi.org/10.1016/j.exis.2016.11.005>.
- Bilgel, F., Karahasan, C.B., 2019. Thirty years of conflict and economic growth in Turkey: a synthetic control approach. *Defence Peace Econ.* 30 (5), 609–631. <https://doi.org/10.1080/10242694.2017.1389582>.
- Boehm, F., Lambsdorff, J.G., 2009. A new institutional economics perspective on corruption and anti-corruption. *Rev. Econ. Inst.* 11 (21), 1–28. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1535550](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1535550).
- Brunetti, A., Weder, B., 2003. A free press is bad news for corruption. *J. Publ. Econ.* 87 (7–8), 1801–1824. [https://doi.org/10.1016/S0047-2727\(01\)00186-4](https://doi.org/10.1016/S0047-2727(01)00186-4).
- Bueno, M., Valente, M., 2019. The effects of pricing waste generation: a synthetic control approach. *J. Environ. Econ. Manag.* 96, 274–285. <https://doi.org/10.1016/j.jeeem.2019.06.004>.
- Business Anti-Corruption Portal NY, 2016. Honduras corruption report. [www.ganintegrity.com/portal/country-profiles/honduras/](http://www.ganintegrity.com/portal/country-profiles/honduras/) accessed 24 August 2019.
- Chamon, M., Garcia, M., Souza, L., 2017. FX interventions in Brazil: a synthetic control approach. *J. Int. Econ.* 108, 157–168. <https://doi.org/10.1016/j.jinteco.2017.05.005>.
- Cole, M., Elliott, R., Liu, B., 2020. The impact of the Wuhan Covid-19 lockdown on air pollution and health: a machine learning and augmented synthetic control approach. *Environ. Resour. Econ.* 76, 553–580. <https://doi.org/10.1007/s10640-020-00483-4>.
- Corporación Latinobarómetro, 2018. Informe 2018 (report 2018), Santiago, Chile. <http://www.latinobarometro.org/lat.jsp>. (Accessed 9 August 2019).
- Corrigan, C.C., 2014. Breaking the resource curse: transparency in the natural resource sector and the extractive industries transparency initiative. *Res. Pol.* 40, 17–30. <https://doi.org/10.1016/j.resourpol.2013.10.003>.
- Corrigan, C.C., 2017. The Effects of increased revenue transparency in the extractives sector: the case of the Extractive Industries Transparency Initiative. *The Ext. Ind. and Soc.* 4 (4), 779–787. <https://doi.org/10.1016/j.exis.2017.03.004>.
- De Cuello Blanco, 2012. La corrupción en el Perú: últimos veinte años (The corruption in Peru: last twenty years). <http://www.psf.org.pe/decuelloblanco2012/?p=621>. (Accessed 20 September 2019).
- Darwin, C.R., 1990. *The Voyage of the Beagle, 1839*. Harvard Classics, P. F. Collier & Son, New York, NY.
- David-Barrett, Okamura, K., 2016. Norm diffusion and reputation: the rise of the extractive industries transparency initiative. *Governance* 29 (2), 227–246. <https://doi.org/10.1111/gove.12163>.
- Drayton, J., 2015. Political Corruption in Trinidad and Tobago: How Does the Integrity Commission Measure up? Paper presented at the International Research Society for Public Management (IRSPM) Regional Conference, Jamaica.
- EITI, 2012. Tajikistan's President: EITI Will Improve Governance of Our Natural Resources. Oslo, Norway. <https://eiti.org/news/tajikistans-president-eiti-will-improve-governance-of-our-natural-resources>. (Accessed 5 October 2020).
- EITI, 2016. The EITI Standard Requirements 2016. Oslo, Norway. <https://eiti.org/document/eiti-standard-requirements-2016>. (Accessed 5 June 2019).
- EITI, 2017. CPI and EITI – Changes on the Horizon. Oslo, Norway. <https://eiti.org/blog/cpi-eiti-changes-on-horizon>. (Accessed 4 October 2020).
- EITI, 2018a. EITI Countries Continue the Climb up the CPI. Oslo, Norway. <https://eiti.org/blog/eiti-countries-continue-climb-up-cpi>. (Accessed 3 October 2020).
- EITI, 2018b. 2018 EITI Progress Report. Oslo, Norway. [https://eiti.org/files/documents/eiti\\_progress\\_report\\_2018.pdf](https://eiti.org/files/documents/eiti_progress_report_2018.pdf). (Accessed 5 October 2020).
- EITI, 2019. About the Extractive Industries Transparency Initiative (EITI). EITI Secretariat. Oslo, Norway. <https://eiti.org>. (Accessed 19 March 2019).
- EITI Colombia, 2015. EITI Colombia Report 2013. <https://eiti.org/document/2013-columbia-eiti-report>. (Accessed 15 July 2020).
- EITI Colombia, 2016. EITI Colombia Report 2014–2015. [https://eiti.org/files/document/s/columbia\\_2015\\_eiti\\_report.pdf](https://eiti.org/files/document/s/columbia_2015_eiti_report.pdf). (Accessed 15 July 2020).
- EITI Colombia, 2017. Independent Administrator Report for EITI Colombia 2016. [https://eiti.org/files/documents/columbia\\_ia\\_ey\\_summary\\_report\\_2016.pdf](https://eiti.org/files/documents/columbia_ia_ey_summary_report_2016.pdf). (Accessed 1 July 2020).

- EITI Colombia, 2018a. Validation Report Colombia, Cowater Sogema Independent Validator. [https://eiti.org/files/documents/eng\\_-\\_validation\\_report\\_country\\_colombia\\_final\\_1.pdf](https://eiti.org/files/documents/eng_-_validation_report_country_colombia_final_1.pdf). (Accessed 15 July 2020).
- EITI Colombia, 2018b. Validation of Colombia. Report on initial data collection and stakeholder consultation. [https://eiti.org/files/documents/colombia\\_validation\\_initial\\_assessment\\_4\\_may\\_2018.pdf](https://eiti.org/files/documents/colombia_validation_initial_assessment_4_may_2018.pdf). (Accessed 15 July 2020).
- EITI Colombia, 2019. Colombia's Profile. EITI Secretariat. Oslo, Norway. <https://eiti.org/colombia>. (Accessed 20 August 2019).
- EITI Colombia, 2013a. Final report of conciliation of the extractive industries transparency initiative in Guatemala (EITI-GUA) for the years 2010 and 2011. [https://eiti.org/files/documents/2010-2011\\_guatemala\\_eiti\\_report\\_es.pdf](https://eiti.org/files/documents/2010-2011_guatemala_eiti_report_es.pdf). (Accessed 26 July 2020).
- EITI Colombia, 2013b. Guatemala EITI Validation Report 2013. [https://eiti.org/files/documents/2013\\_guatemala\\_validation\\_report\\_en.pdf](https://eiti.org/files/documents/2013_guatemala_validation_report_en.pdf). (Accessed 26 July 2020).
- EITI Colombia, 2014. Second National EITI-GUA Conciliation Report, Years 2012 - 2013 of the Independent Administrator. [https://eiti.org/files/documents/2012-2013\\_guatemala\\_eiti\\_report\\_es.pdf](https://eiti.org/files/documents/2012-2013_guatemala_eiti_report_es.pdf). (Accessed 26 July 2020).
- EITI Guatemala, 2016. Third national conciliation report EITI Guatemala, years 2014 - 2015. [https://eiti.org/files/documents/informe\\_eiti\\_gt\\_2014\\_-\\_2015\\_-\\_reporte\\_final\\_240117\\_0.pdf](https://eiti.org/files/documents/informe_eiti_gt_2014_-_2015_-_reporte_final_240117_0.pdf). (Accessed 26 July 2020).
- EITI Guatemala, 2019. Guatemala's Profile. EITI Secretariat. Oslo, Norway. <https://eiti.org/guatemala>. (Accessed 22 August 2019).
- EITI Honduras, 2015. Honduras EITI Report 2012-2013. <https://eiti.org/document/20122013-honduras-eiti-report>. (Accessed 31 July 2020).
- EITI Honduras, 2016. Reconciliation Report of the Extractive Industries Transparency Initiative for Honduras (EITI-HN) Period 2014. <https://eiti.org/files/documents/eiti-hn-2014.pdf>. (Accessed 31 July 2020).
- EITI Honduras, 2017. Validation Report of Honduras by Adam Smith International Independent Validator. [https://eiti.org/files/documents/honduras\\_final\\_validation\\_report\\_asi\\_260717.pdf](https://eiti.org/files/documents/honduras_final_validation_report_asi_260717.pdf). (Accessed 31 July 2020).
- EITI Honduras, 2018. Final Report EITI Honduras 2015-2016. [https://eiti.org/files/documents/informe\\_final\\_-\\_eiti\\_hn\\_2015-2016\\_29-junio-2018.pdf](https://eiti.org/files/documents/informe_final_-_eiti_hn_2015-2016_29-junio-2018.pdf). (Accessed 31 July 2020).
- EITI Honduras, 2019a. Honduras' Profile. EITI Secretariat. Oslo, Norway. <https://eiti.org/honduras>. (Accessed 24 August 2019).
- EITI Honduras, 2019b. Final Report EITI Honduras 2017-2018. [https://eiti.org/files/documents/iv\\_informe\\_de\\_conciliacion\\_eiti\\_hn\\_2017-2018\\_v\\_7\\_febrero\\_eiti\\_hn\\_.pdf](https://eiti.org/files/documents/iv_informe_de_conciliacion_eiti_hn_2017-2018_v_7_febrero_eiti_hn_.pdf). (Accessed 31 July 2020).
- EITI Peru, 2009. Peru National Reconciliation Study 2004-2007. <https://eiti.org/document/20042007-peru-eiti-report>. (Accessed 13 July 2020).
- EITI Peru, 2014. Third national reconciliation study of the extractive industries transparency initiative (EITI) in Peru (2011 - 2012) - final version consultancy for the EITI Peru multi-sector working committee. <https://eiti.org/document/20112012-peru-eiti-report-0>. (Accessed 13 July 2020).
- EITI Peru, 2016a. Peru, Moquegua 2012-2013 sub-national EITI report. Report prepared for the EITI Peru permanent multisectoral commission. in coordination with the EITI Moquegua Regional Commission. <https://eiti.org/document/peru-moquegua-20122013-subnational-eiti-report>. (Accessed 13 July 2020).
- EITI Peru, 2016b. Peru, Piura 2012-2013 sub-national EITI report. Report prepared for the EITI Peru permanent multisectoral commission. in coordination with the EITI Moquegua Regional Commission. <https://eiti.org/document/peru-piura-20122013-subnational-eiti-report>. (Accessed 13 July 2020).
- EITI Peru, 2016c. Validation of Peru Report on Initial Data Collection and Stakeholder Consultation by the EITI International Secretariat. [https://eiti.org/files/documents/peru\\_international\\_secretariat\\_initial\\_assessment\\_final\\_as\\_of\\_15\\_sept\\_2016\\_1.pdf](https://eiti.org/files/documents/peru_international_secretariat_initial_assessment_final_as_of_15_sept_2016_1.pdf). (Accessed 13 July 2020).
- EITI Peru, 2019. Peru's Profile. EITI Secretariat. Oslo, Norway. <https://eiti.org/peru>. (Accessed 24 August 2019).
- EITI Trinidad and Tobago, 2013a. Trinidad and Tobago Extractive Industries Transparency Initiative ("TTEITI") Report. October 1st 2010 - September 30th 2011. [https://eiti.org/files/documents/fy2010-2011\\_trinidad\\_and\\_tobago\\_eiti\\_report.pdf](https://eiti.org/files/documents/fy2010-2011_trinidad_and_tobago_eiti_report.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2013b. Trinidad and Tobago EITI Annual Activity Report 2013. [https://eiti.org/files/documents/2013\\_trinidad-and-tobago-annual-activity-report.pdf](https://eiti.org/files/documents/2013_trinidad-and-tobago-annual-activity-report.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2014a. Validation of the Extractive Industries Transparency Initiative - the Republic of Trinidad and Tobago. Oslo 15th May, 2014. [https://eiti.org/files/documents/2014\\_trinidad\\_and\\_tobago\\_validation\\_report\\_and\\_covering\\_letter.pdf](https://eiti.org/files/documents/2014_trinidad_and_tobago_validation_report_and_covering_letter.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2014b. Trinidad and Tobago EITI Report 2012. [https://eiti.org/files/documents/fy2011-2012\\_trinidad\\_and\\_tobago\\_eiti\\_report.pdf](https://eiti.org/files/documents/fy2011-2012_trinidad_and_tobago_eiti_report.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2015. Trinidad and Tobago EITI Report 2013. [https://eiti.org/files/documents/fy2012-2013\\_trinidad\\_and\\_tobago\\_eiti\\_report.pdf](https://eiti.org/files/documents/fy2012-2013_trinidad_and_tobago_eiti_report.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2016. Trinidad and Tobago EITI Report 2014 and 2015. [https://eiti.org/files/documents/tt-eiti-report-2014-2015f-rev21nov16-web\\_0.pdf](https://eiti.org/files/documents/tt-eiti-report-2014-2015f-rev21nov16-web_0.pdf). (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2018. Trinidad and Tobago EITI Report 2016. <https://eiti.org/files/documents/tteiti-report-2016-brief.pdf>. (Accessed 20 July 2020).
- EITI Trinidad and Tobago, 2019. Trinidad and Tobago's Profile. <https://eiti.org/trinidad-tobago>. (Accessed 25 August 2019).
- Elbahnasawy, N.G., Revier, C.F., 2012. The determinants of corruption: cross-country-panel-data analysis. *Develop. Econ.* 50 (4), 311-333. <https://doi.org/10.1111/j.1746-1049.2012.00177.x>.
- Etter, L., 2012. Can transparency reduce corruption? -Evidence from firms in Peru and Mali on the impact of the Extractive Industries Transparency Initiative (EITI) on corruption. Presented at: the doing business conference at Georgetown University, Washington DC, February 20-21 2012. Available at: <https://repository.library.georgetown.edu/handle/10822/557839>. (Accessed 8 August 2019).
- Faiola, A., 2018. The Corruption Scandal Started in Brazil. Now It's Wreaking Havoc in Peru. [https://www.washingtonpost.com/gdpr-consent/?destination=%2Fworld%2Fthe-americas%2Fthe-corruption-scandal-started-in-brazil-now-its-wreaking-havoc-in-peru%2F2018%2F01%2F23%2F09bca4ca-fad2-11e7-9b5d-bbf0da31214d\\_story.html%3F](https://www.washingtonpost.com/gdpr-consent/?destination=%2Fworld%2Fthe-americas%2Fthe-corruption-scandal-started-in-brazil-now-its-wreaking-havoc-in-peru%2F2018%2F01%2F23%2F09bca4ca-fad2-11e7-9b5d-bbf0da31214d_story.html%3F). (Accessed 30 September 2019).
- Fenton Villar, P., 2020. The extractive industries transparency initiative (EITI) and trust in politicians. *Res. Pol.* 68, 1-13. <https://doi.org/10.1016/j.resourpol.2020.101713>.
- Fenton Villar, P., Papyrakis, E., 2017. Evaluating the impact of the extractive industries transparency initiative (EITI) on corruption in Zambia. *Ext. Ind. Soc.* 4 (4), 795-805. <https://doi.org/10.1016/j.exis.2017.01.009>.
- Figaredo, C., 2018. Tackling Corruption in Peru (2010-2018). Centre for public impact, London, UK. <https://www.centreforpublicimpact.org/case-study/tackling-corruption-peru>. (Accessed 25 August 2019).
- Galiani, S., Quistorff, B., 2016. The synth runner package: utilities to automate synthetic control estimation using. *State J.* 17 (4), 834-849. <https://doi.org/10.1177/1536867X1801700404>.
- German Corporation for International Cooperation (Giz), 2016. Trade in Raw Materials: Public Database Promotes Transparency. [www.giz.de/en/workingwithgiz/37661.html](http://www.giz.de/en/workingwithgiz/37661.html). (Accessed 20 August 2019).
- Gestión, 2017. Investigaciones por corrupción en Perú se disparan en los últimos años, según Defensoría (Investigations for corruption in Peru soar in recent years, according to the 'Defensoría. <https://gestion.pe/peru/politica/investigaciones-corrupcion-peru-disparan-ultimos-anos-defensoria-134806-noticia/?ref=gesr>. (Accessed 20 September 2019).
- Gharehgozli, O., 2017. An estimation of the economic cost of recent sanctions on Iran using the synthetic control method. *Econ. Lett.* 157 (C), 141-144. <https://doi.org/10.1016/j.econlet.2017.06.008>.
- Gillies, A., Heuty, A., 2011. Does transparency work? The challenges of measurement and effectiveness in resource-rich countries. *Yale J. Int. Aff.* 6 (2), 25-42. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/yajljoina6&div=33&id=&page=>.
- Global Witness, 2016. The EITI and Global Witness. <https://www.globalwitness.org/id/reports/eiti-and-global-witness/>. accessed 7 July 2019.
- Grier, K., Maynard, N., 2016. The economic consequences of Hugo Chavez: a synthetic control analysis. *J. Econ. Behav. Organ.* 125 (C), 1-12. <https://doi.org/10.1016/j.jebo.2015.12.011>.
- Guardian, 2012. The Saga of Udecott and Calder Hart. <http://www.guardian.co.uk/article-6.2.416593.b663e934c5>. (Accessed 29 September 2019).
- Guardian, 2015. Protesters across Honduras Take on Alleged Social Security Embezzlement. <http://www.theguardian.com/world/2015/jun/01/honduras-protests-social-security-embezzlement>. (Accessed 25 August 2019).
- Guardian, 2018. US\$100 M More Needed for GTL Plant. <http://www.guardian.co.uk/news/us100-m-more-needed-for-gtl-plant-6.2.673935.045fe3e0cf>. (Accessed 29 September 2019).
- Guyana Times, 2018. Learn from Our Mistakes - Trinidad Warns Guyana on Oil Industry. <https://guyanatimesgy.com/learn-from-our-mistakes-trinidad-warns-guyana-on-oil-industry-2/>. (Accessed 29 September 2019).
- Hoinathy, R., Janszky, B., 2017. The extractive industries transparency initiative (EITI): the latest attempt at governing the extractive industries in Chad. *The Ext. Indus. And Soc.* 4 (4), 825-832. <https://doi.org/10.1016/j.exis.2017.11.004>.
- IDB, 2015. Estudio BID urge mayor transparencia en las industrias extractivas (IDB study urges greater transparency in extractive industries. <https://www.iadb.org/es/noticias/comunicados-de-prensa/2015-06-18/estudio-urge-transparencia-para-industria-s-extractivas%2C11181.html>. (Accessed 20 August 2019).
- Jain, A.K., 2001. Corruption: a review. *J. Econ. Surv.* 15 (1), 71-121. <https://doi.org/10.1111/1467-6419.00133>.
- Kasekende, E., Abuka, C., Sarr, M., 2016. Extractive industries and corruption: investigating the effectiveness of EITI as a scrutiny mechanism. *Res. Pol.* 48, 117-128. <https://doi.org/10.1016/j.resourpol.2016.03.002>.
- Klein, A., 2017. Pioneering extractive sector transparency. A PWYP perspective on 15 years of EITI. *The Extract. Ind. Soc.* 4 (4), 771-774. <https://doi.org/10.1016/j.exis.2017.10.008>.
- Kolstad, I., Wiig, A., 2009. Is transparency the key to reducing corruption in resource-rich countries? *World Dev.* 37 (3), 521-532. <https://doi.org/10.1016/j.worlddev.2008.07.002>.
- Kreif, N., Grieve, R., Hangartner, D., Turner, A.J., Nikolova, S., Sutton, M., 2016. Examination of the synthetic control method for evaluating health policies with multiple treated units. *Health Econ.* 25 (12), 1514-1528. <https://doi.org/10.1198/jasa.2009.ap08746>.
- Leite, C., Weidmann, J., 2002. Does mother nature corrupt? Natural resources, corruption and economic growth. In: Abed, G., Gupta, S. (Eds.), *Governance, Corruption, and Economic Performance*. International Monetary Fund, Washington, DC, pp. 156-169.
- Lujala, P., 2018. An analysis of the extractive industry transparency initiative implementation process. *World Dev.* 107, 358-381. <https://doi.org/10.1016/j.worlddev.2018.02.030>.
- Lujala, P., Rustad, S.A., Le Billon, P., 2017. Has the EITI been successful? Reviewing evaluations of the extractive industries transparency initiative. *U4 Bri.* 2017 (5), 1-6. <http://hdl.handle.net/11250/2475408>.



- Moisé, G.M., 2020. Corruption in the oil sector: a systematic review and critique of the literature. *The Extractive Industries and Society* 7 (1), 217–236. <https://doi.org/10.1016/j.exis.2020.01.002>.
- Movimiento Mesoamericano contra el Modelo Extractivo Minero, 2014. La Minería en Guatemala: Derechos en Peligro (Mining in Guatemala: rights in danger), M4, Meso-American Movement against the Mining Extractive Model. <https://movimientom4.org/2014/10/la-mineria-en-guatemala-derechos-en-peligro>. (Accessed 20 September 2019).
- Öge, K., 2016. Which transparency matters? Compliance with anti-Corruption efforts in extractive industries. *Res. Pol.* 49, 41–50. <https://doi.org/10.1016/j.resourpol.2016.04.001>.
- Öge, K., 2017. Transparent autocracies: the Extractive Industries Transparency Initiative (EITI) and civil society in authoritarian states. *The Extract. Indus. Soc.* 4 (4), 816–824. <https://doi.org/10.1016/j.exis.2016.12.010>.
- Organisation for Economic Co-operation and Development (OECD), 2016. Corruption in the Extractive Value Chain: Typology of Risks, Mitigation Measures and Incentives. <http://www.oecd.org/dev/Corruption-in-the-extractive-value-chain.pdf>. (Accessed 20 September 2019).
- Orogun, P.S., 2010. Resource control, revenue allocation and petroleum politics in Nigeria: the Niger delta question. *Géo* 75 (5), 459–507. <https://doi.org/10.1007/s10708-009-9320-7>.
- Orta-Martínez, M., Pellegrini, L., Arsel, M., 2018. “The squeaky wheel gets the grease”? The conflict imperative and the slow fight against environmental injustice in northern Peruvian Amazon. *Econ. Soc.* 23 (3) <https://doi.org/10.2307/26799131>.
- Paler, L., 2013. Keeping the public purse: an experiment in windfalls, taxes, and the incentives to restrain government. *Am. Polit. Sci. Rev.* 107 (4), 706–725. <http://www.jstor.org/stable/43654030>.
- Papayrakis, E., Pellegrini, L., 2019. The resource curse in Latin America. *Oxf. Resear. Ency. Of Pol.* <https://doi.org/10.1093/acrefore/9780190228637.013.1522>.
- Papayrakis, E., Rieger, M., Gilberthorpe, E., 2017. Corruption and the extractive industries transparency initiative. *J. Dev. Stud.* 53 (2), 295–309. <https://doi.org/10.1080/00220388.2016.1160065>.
- Park, H., 2003. Determinants of corruption: a cross-national analysis. *Multinat. Bus. Rev.* 11 (2), 29–48. <https://doi.org/10.1108/1525383X200300010>.
- Pellegrini, L., 2011. *Corruption, Development and the Environment*. Springer, New York.
- Pellegrini, L., Gerlagh, R., 2008. Causes of corruption: a survey of cross-country analyses and extended results. *Econ. Govern.* 9 (1), 245–263. [https://doi.org/10.1007/978-94-007-0599-9\\_3](https://doi.org/10.1007/978-94-007-0599-9_3).
- Persson, T., Tabellini, G., Trebbi, F., 2003. Electoral rules and corruption. *J. Eur. Econ. Assoc.* 1 (4), 958–989. <https://doi.org/10.1162/15424760322493203>.
- Poncian, J., Kigodi, H.M., 2018. Transparency initiatives and Tanzania’s extractive industry governance. *Devel. St. Res.* 5 (1), 106–121. <https://doi.org/10.1080/21665095.2018.1486219>.
- Quispe, A., Cárdenas, J., Torrico, G., 2018. Southern, Antamina, Doe Run y otras mineras en el ojo de la sunat por festival de gastos para burlar impuestos (Southern, Antamina, Doe Run and other mining companies in the eye of the Sunat for a festival of expenses to circumvent taxes). <https://www.connuestroperu.com/actualidad/59582-southern-antamina-doe-run-y-otras-mineras-en-el-ojo-de-la-sunat-por-festival-de-gastos-para-burlar-impuestos>. (Accessed 30 September 2019).
- Ravart, A., Ufer, A., 2010. Toward Strengthened EITI Reporting: Summary Report and Recommendations. In: *World Bank Working Paper 54300 Extractive Industries for Development Series #14*. World Bank, Washington, DC.
- Reporteros, I.D.L., 2016. Los contratos de Odebrecht en Perú (The contracts of Odebrecht in Peru). <https://idreporteros.atavist.com/contratos-odebrecht-peru>. (Accessed 30 September 2019).
- Robinson, J.A., Torvik, R., 2005. White elephants. *J. Publ. Econ.* 89 (2–3), 197–210. <https://doi.org/10.1016/j.jpubeco.2004.05.004>.
- Roesel, F., 2017. Do mergers of large local governments reduce expenditures? – evidence from Germany using the synthetic control method. *Eur. J. Polit. Econ.* 50, 22–36. <https://doi.org/10.1016/j.ejpoleco.2017.10.002>.
- Ross, M., 2015. What have we learned about the resource curse? *Annu. Rev. Polit. Sci.* 18 (2), 239–259. <https://doi.org/10.1146/annurev-polisci-052213-040359>.
- Serra, D., 2006. Empirical determinants of corruption: a sensitivity analysis. *Publ. Choice* 126 (1–2), 225–256. <https://doi.org/10.1007/s11127-006-0286-4>.
- Shabbir, G., Anwar, M., 2007. Determinants of corruption in developing countries. *Pakistan Dev. Rev.* 46 (4), 751–764. <https://www.jstor.org/stable/41261194>.
- Sookoo, N., 2017. Exploring the link between corruption and the rule of law in five Caribbean countries. In: Izarali, R. (Ed.), *Crime, Violence, and Security in the Caribbean*. Routledge, New York.
- Sovacool, B.K., Andrews, N., 2015. Does transparency matter? Evaluating the governance impacts of the extractive industries transparency initiative (EITI) in Azerbaijan and Liberia. *Res. Pol.* 45, 183–192. <https://doi.org/10.1016/j.resourpol.2015.04.003>.
- Sovacool, B.K., Walter, G., Van de Graaf, T., Andrews, N., 2016. Energy governance, transnational rules, and the resource curse: exploring the effectiveness of the Extractive Industries Transparency Initiative (EITI). *World Dev.* 83, 179–192. <https://doi.org/10.1016/j.worlddev.2016.01.021>.
- Treisman, D., 2000. The causes of corruption: a cross-national study. *J. Publ. Econ.* 76 (3), 399–457. <https://doi.org/10.1016/j.worlddev.2016.01.021>.
- Tsui, K.K., 2010. More oil, less democracy: evidence from worldwide crude oil discoveries. *Econ. J.* (551), 89–115. <https://doi.org/10.1111/j.1468-0297.2009.02327.x>.
- Tyburski, M., Egan, P., Schneider, A., 2020. Deep determinants of corruption? A subnational analysis of resource curse dynamics in American States. *Polit. Res. Q.* 73 (1), 111–125. <https://doi.org/10.1177/1065912919878264>.
- V-Dem, 2019. Varieties of Democracy, Data on Corruption. <https://www.v-dem.net>.
- La Vanguardia, 2018. La corrupción en América Latina (The corruption in Latin America). <https://www.lavanguardia.com/vida/20180315/441537259315/la-corrupcion-en-america-latina.html>. (Accessed 3 July 2019).
- Vergne, C., 2009. Democracy, elections and allocation of public expenditures in developing countries. *Eur. J. Polit. Econ.* 25 (1), 63–77. <https://doi.org/10.1016/j.ejpoleco.2008.09.003>.
- Vieyra, J., Masson, M., 2014. Transparent Governance in an Age of Abundance: Experiences from the Extractive Industries in Latin America and the Caribbean. <https://publications.iadb.org/en/transparent-governance-age-abundance-experience-s-extractive-industries-latin-america-and-caribbean>. (Accessed 20 August 2019).
- Vokes, R., 2012. The politics of oil in Uganda. *Afr. Aff.* 111 (443), 303–314. <https://doi.org/10.1093/afaf/ads017>.
- Warf, B., 2019. *Global Corruption from a Geographic Perspective*. Springer, Cham, Switzerland.
- Warf, B., Stewart, S., 2016. Latin American corruption in geographic perspective. *J. Lat. Am. Geogr.* 15 (1), 133–155. <https://www.jstor.org/stable/43964653>.
- WDI, 2019. World Development Indicators, Data on Socio-Economic Variables. <http://data.topics.worldbank.org/world-development-indicators>. (Accessed 15 June 2019).
- WGI, 2019. World Governance Indicators, Data on Governance. <https://info.worldbank.org/governance/wgi/#home>.
- Williams, A., 2011. Shining a light on the resource curse: an empirical analysis of the relationship between natural resources, transparency, and economic growth. *World Dev.* 39 (4), 490–505. <https://doi.org/10.1016/j.worlddev.2010.08.015>.
- Williams, A., Siddique, A., 2008. The use (and abuse) of governance indicators in economics: a review. *Econ. Govern.* 9, 131–175. <https://doi.org/10.1007/s10101-006-0025-9>.
- World Bank, 2017. Transparency, Anti-corruption and Sustainable Development: Is Progress Possible? [www.worldbank.org/en/events/2017/09/18/transparency-anti-corruption-and-sustainable-development-is-progress-possible](http://www.worldbank.org/en/events/2017/09/18/transparency-anti-corruption-and-sustainable-development-is-progress-possible). (Accessed 20 August 2019).
- World Economic Forum, 2017. World Economic Forum Global Competitiveness Report. <https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018>. (Accessed 25 August 2019).
- World Mining Congress, 2019. World Mining Data. <http://www.wmc.org.pl>. (Accessed 20 August 2019).