Extractive Industries and Corruption: Investigating the Effectiveness of the EITI as a Scrutiny Mechanism

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Abstract

Anecdotal evidence and resource curse literature suggest that many countries have failed to exploit their natural resource wealth to finance the growth of their economies. Developing countries appear to be most affected. It is believed that poor governance, lack of transparency, poor accountability to their citizens, and corruption are the main culprits. In 2002, an international initiative sponsored by the UK government and backed by activist groups launched the extractive industries transparency initiative (EITI) with a view to mitigating the potential negative effects of resource wealth. The objective of this study is to investigate the effectiveness of this initiative that has gained much traction over the past decade as a scrutiny mechanism that fosters corruption control. In particular, this paper addresses two key questions: First, what are the observable factors that lead a country to voluntarily join the EITI? Second, do members of the EITI show greater improvement in corruption control relative to non-members? Our results indicate that poor countries and countries perceived as corrupt are more likely to join the EITI to signal their commitment to greater transparency and to improve their investment climate. Furthermore, the results suggest that corruption scores have so far not improved as a result of EITI membership using the control of corruption index developed by the World Bank.

1. Introduction

A number of developing countries heavily rely on natural resource revenues. However, in many instances, a reliance on the extractive industries has been associated with slow growth rates. Although natural resources per se do not lead to poor economic performance (Brunnschweiler and Bulte, 2008), many countries have failed to use the resource proceeds effectively as a source of sustainable financing for growth. It has been argued, though, that dependence on natural resources may have led to slower growth through poor institutions (Sala-i-Martin and Subramanian, 2003; Mehlum et al, 2006) and corruption (Leite and Weidmann, 1999). It is then probably not surprising that these countries have suffered resource revenue mismanagement, resulting in disappointing economic outcomes (Sala-i-Martin and Subramanian, 2003).

However, it is believed that natural resources can be turned into a blessing rather than a curse through functioning institutions, enhanced transparency and accountability in resource exploitation (Bannon and Collier, 2003). For instance, Botswana's growth "miracle" is often attributed to good governance and absence of corruption in the extractive sector. In this regard, Botswana and Sierra Leone are two polar opposite cases of diamond-rich countries that have experienced very different fates.

Collier and Venables (2010) argue that good governance[1] is even more important in resource management than in any other area of economic management because of the role of the state. They maintain that resource abundance affects the quality of governance through looting, which encourages corruption, a reduction in accountability and economic mismanagement. Furthermore, they suggest that improved governance can achieve reduced corruption through greater transparency and a more effective legal system. Consequently, greater public scrutiny as well as international commitment to transparency initiatives (Collier and Venables, 2010) could urge government officials and company representatives to abide by the law and comply with their contractual obligations (Rosenblum and Maples, 2009).

In a number of developing countries, resource exploitation contracts are opaque and often lack proper scrutiny. To corrupt officials, the lack of scrutiny is alluring because they are able to sell mineral or oil rights to their nations' assets under a veil of secrecy. Public scrutiny by the press and civil society is therefore believed to be a necessary condition for halting rapacious behaviour and gross misappropriation of public funds (D'Souza, 2009).

In the past 15 years or so, two major scrutiny mechanisms have been initiated with a view to reducing corruption and rent seeking through greater transparency. These are the Publish What You Pay (PWYP) campaign and, more prominently, the Extractive

Industries Transparency Initiative (EITI). The EITI aims to promote transparency and accountability in resource-rich countries by encouraging extractive companies to publish what they pay and governments to disclose their resource revenues so that these countries can fully benefit from their revenues and improve living standards (Ölcer 2009; EITI, 2009).

This paper is particularly concerned with analysing the effectiveness of a voluntary, "soft law" scrutiny mechanism such as the EITI in the control of corruption. Despite the growing interest in the EITI, there is a dearth of rigorous studies that have examined its role on governance outcomes. This is partly because the EITI, initiated in 2002, is still a fairly recent arrangement. This research contributes to understanding the effectiveness of the EITI as a scrutiny mechanism. In particular, this paper addresses two key questions: First, what observable factors are associated with EITI membership? Second, do members of the EITI show greater improvement in the control of corruption relative to non-members? In responding to these questions, the paper sheds some light on the determinants of EITI membership, and the effect of joining this club on controlling corruption. We jointly estimate the probability of joining the EITI and the change in corruption index since the initiation of the EITI using full information maximum likelihood (FIML). As a robustness exercise, we investigate the effectiveness of an alternative scrutiny mechanism, the PWYP campaign, to determine whether it has had some success in curbing grand corruption in host countries.

Our findings indicate that poorer countries, countries facing investment constraints, and those perceived as corrupt are more likely to join the EITI to signal their commitment to greater transparency in order to improve their investment climate. Furthermore, the results suggest that corruption scores have so far not improved as a result of EITI membership using the control of corruption index developed by the World Bank. This finding is robust to the inclusion of PWYP.

The rest of the paper is structured as follows: The establishment of EITI as a scrutiny mechanism is discussed in Section 2 followed by the data analysis in Section 3. Sections 4 and 5 provide the empirical analysis and conclusion, respectively.

2. The establishment of EITI as a scrutiny mechanism

It has often been argued that some officials in resource-rich developing countries use the lack of scrutiny to engage in embezzlement. Transparency is therefore considered a key defence against corruption. The EITI, a coalition of governments, extractive companies and civil society organizations, was established in 2002 as a voluntary scrutiny mechanism aimed at reducing the scope for "grand corruption" in the use of resource-based revenues through public reporting of companies' payments, and revenue earned by resource-rich nations. The principles agreed upon at the 2003 Lancaster House Conference in London to promote transparency in payments and revenues in the extractive sector, constitute the minimum requirement, and countries are encouraged to go beyond these requirements (EITI Source Book, 2005).[2] Ultimately, the success of the EITI will depend on its ability to enforce a set of voluntary standards that governments and companies have committed to, and to induce better governance practices and accountability in the extractive sector.

A resource-rich country has to meet a number of requirements before it can become a fully compliant EITI country. First, it needs to fulfil five sign-up conditions to the satisfaction of the EITI board to become a candidate. These five sign-up conditions are:1) government issuance of an unequivocal public statement of its intention to implement the EITI; 2) government commitment to work with civil society and companies towards the implementation of the EITI; 3) government appointment of a senior individual to lead the implementation of the EITI; 4) establishment of a multi-stakeholder group to oversee the implementation of the EITI; and 5) the multi-stakeholder group, in consultation with key EITI stakeholders, should agree and publish a work plan containing measurable targets, and a timetable for implementing and incorporating an assessment of capacity constraints.(See EITI, no date b)

Once candidature status is achieved, a country should undergo the validation process within two-and-a-half years to be considered compliant. The validation process is performed by an independent organization selected by the EITI International Secretariat. Not only does the validation process evaluate EITI implementation in consultation with stakeholders, but it also verifies the achievements with reference to EITI global standards, and identifies opportunities to strengthen the process.[3]

Among the 50 countries classified as resource rich by the IMF (2007), 36 were listed as EITI members at the end of 2012, of which 22 are candidate countries and 14 are compliant countries. There are tangible benefits in joining the initiative. Countries can expect to see an improvement in their investment prospects as a result of their commitment to greater transparency. Also, extractive companies are likely to enjoy greater stability,

which is vital for generating returns. Finally, civil society organizations will be better equipped to hold the government accountable in managing revenues on behalf of its citizens.

Nevertheless, the public reporting of revenues through the EITI constitutes merely a step towards improving the governance of the extractive industries value chain. According to Alba (2009), the exploitation of natural resource wealth for sustainable development requires five critical stages in a value chain. The first stage entails the efficient and effective award of contracts and licences by governments. Transparency in the award procedures, a clear legal, regulatory and contractual framework and well-defined institutional responsibilities are key in this regard. The second stage involves the effective and efficient regulation and monitoring of extractive industries projects. This could be achieved by defining institutional responsibilities clearly, building capacity for monitoring, and ensuring regulatory compliance. The third stage pertains the establishment of a transparent and efficient system of tax and royalty collection. This requires adequate administrative and auditing capacity, regular public reporting, and internationally accepted accounting and reporting standards and procedures. The fourth stage involves the transparent management and allocation of resources. This entails the establishment of a transparent saving mechanisms and a macro fiscal framework adapted to volatile and finite resources. The fifth and final stage of this extractive industries value chain is the efficient and well-designed implementation of sustainable development policies and projects. This could be accomplished through investment with special attention given to the sustainable development of producing regions.

The EITI has been successful in establishing an initiative that brings together civil society, companies and governments to improve transparency. Its recognition and credibility has increased over the years. It is supported by major international organizations such as the United Nations (UN), the European Union (EU), the Organisation for Economic Co-operation and Development (OECD) and the African Development Bank, as well as numerous global investment institutions(See EITI, no date h). The number of EITI members has increased notably since 2008. By December 2010, some 28 members were listed as candidate countries and five members were listed as compliant countries. Furthermore, by July 2011 over 60 EITI reports had been produced by 29 countries (EITI reports, 2011). Numerous countries have shown an interest in joining the EITI, including the USA, South Sudan and the Philippines. If the USA were to join the initiative, it would be, along with Norway, one of the few members from the developed world.[4] This would constitute remarkable progress that could inspire other developed nations to join the EITI. Furthermore, 50 of the world's largest oil, gas and mining companies have shown support for the EITI since 2008 (See EITI, no date g). Similarly, numerous civil society organizations are also involved with the EITI on an international level. These include, inter alia, PWYP, Global Witness, Oxfam, Transparency International and Revenue Watch Institute.[5]

PWYP is an alternative scrutiny mechanism that will also be investigated in this paper. It is constituted of civil society and non-governmental organizations aimed at promoting accountability in the extractive industries. It was founded in June 2002 to encourage companies to publish what they pay and governments to publish what they receive. Although most of the original members of PWYP were UK-based, there are

now over 650 members worldwide. Although the PWYP coalition supports the EITI, they differ in several respects. First, PWYP advocates mandatory disclosure of revenue using accounting standards and stock exchange listings. Conversely, the EITI promotes a voluntary approach to the disclosure of revenues (PWYP, 2013). Second, PWYP focuses on privately owned and listed companies while ignoring state-owned companies, although the latter tend to play an important role in the extractive industries. However, both the EITI and PWYP fall short of tackling the issue of government spending of natural resource proceeds (Goldwyn, 2004; Kolstad and Soreide, 2009; and Kolstad and Wiig, 2009).

Despite its increased popularity, the EITI suffers from numerous shortcomings. First, a large number of oil-producing countries, including some of the largest oil producers such as Saudi Arabia, Iran and Russia, have refused to join the initiative. Moreover, among the industrialized countries, only Norway has joined as a member (Rainbow Insight, 2009). Second, EITI members (countries and companies alike) typically disclose partial or scant revenue information, which allows at best for minimal transparency (Revenue Watch Index Report, 2010). In this light, the Revenue Watch Institute recommends a radical move towards full disclosure of standardized financial and contractual information (in a detailed and disaggregated manner) in order to achieve greater transparency. Thirdly, it is unclear whether the EITI's promotion of transparency through independent and rigorous audits brings about accountability when some audit recommendations are blatantly ignored despite serious irregularities (Keblusek, 2010). Keblusek (2010) discusses the case of Nigeria, where in-depth financial, physical and process audits for the period 1999–2004 revealed serious irregularities but no one was held to account. Finally, by focusing solely on transparency on the revenue side, the EITI ignores that patronage, one of the main avenues for corruption in resource-rich countries, relies on the lack of transparency associated with expenditure rather than revenue (Kolstad and Soreide, 2009; Kolstad and Wiig, 2009).

3. Data

This study investigates the effectiveness of the EITI as a scrutiny mechanism to control corruption. We do so by jointly estimating the probability of joining the EITI as the treatment, and the change in corruption index since the initiation of the EITI as the outcome equation. In addition, we investigate the effect of an alternative scrutiny mechanism, PWYP, on the control of corruption and the probability of PWYP organizations being set up in these countries.

Most of the EITI information that was useful for this study was collected from the EITI website (EITI, no date a) and the IMF (2007). Our sample includes 64 countries rich in hydrocarbon and mineral resources[6] (see Table B1 in Appendix B). Table B1 shows the status of countries, the dates they became candidate and/or compliant countries, their expected date of validation, number of reports, the dates that reports were published and the period covered. In addition, the perception of corruption at the establishment of the EITI initiative, and in 2010 (after numerous countries had joined) is also reported in Table B1.

Several measures of perception of corruption exist in the literature. The two most popular measures are the corruption perception index (CPI) published by Transparency International and the control of corruption index (CCI) developed by D. Kaufmann's team at the World Bank (Kaufmann, Kraay and Zoido-Lobatón, 2002; and Kaufmann, Kraay and Mastruzzi, 2010). According to the Transparency International (2010) measure, a country is perceived to be most corrupt if it has a CPI of 1, and least corrupt with a CPI of 10. Although the index was available for most countries in 2010, only 29 countries in our sample had indexes available for 2002. Therefore, we concentrate on the World Bank control of corruption index (CCI) measure, which incidentally is strongly correlated with the CPI index in 2002 (0.92) and 2010 (0.97). The CCI index is a perception-based measure of the extent to which public office is exercised for private gain, including petty corruption, grand corruption and state capture. It ranges from -2.5 (most corrupt) to 2.5 (least corrupt), and has a standard normal distribution. For ease of interpreting the results, we rescaled the index to between 0 and 1 and reversed the order so that 0 indicates lower corruption and 1 higher corruption. For example, Norway – the only developed country that joined the initiative – is perceived as the least corrupt country in the sample. In our sample, it appears to be an atypical country, and as a result is treated as an outlier and excluded from the empirical analysis.

In addition, openness, investment, and real GDP per capita (PPP) were taken from Penn World Table 7.0 (2011). The source for bilateral aid commitment data was from the OECD (2012), while the information on federal states came from the Forum of

Federations (2012). A score for freedom of the press was obtained from Freedom House. The data relating to countries hosting organizations engaged in the PWYP campaign were collected from the PWYP website (2013). Details of the definition and source of variables can be found in Table B2 (Appendix B). Detailed summary statistics for this analysis are depicted in Tables 1 and 2 for EITI and PWYP countries, respectively.

The summary statistics in Table 1 indicate that EITI members had a lower share of investment than non-members in 2002. For example, countries such as the Ivory Coast and Nigeria that are EITI members recorded the lowest investment shares. Although Chad, also an EITI member, had the highest investment share in the sample (due to the exploitation of newly discovered oil in the early 2000s), most countries with the highest investment share were non-EITI members: Botswana, Saudi Arabia, Ecuador and Bahrain, to name but a few. This could suggest that countries that have an investment constraint may have an incentive to join the EITI to signal to investors their commitment to improving transparency and the investment climate.

The majority of EITI members are developing middle-income countries, with the exception of Norway. EITI members tend to be the least developed countries (e.g., Democratic Republic of Congo, Niger and Mozambique) while those countries with the highest GDP per capita have been reluctant to join (e.g., Qatar, Brunei Darussalam and the United Arab Emirates). In addition, EITI members had higher aid commitments, on average, in 2002 than non-members, as shown in Table 1. For example, Mozambique, Afghanistan and Sierra Leone had the most aid commitments while Libya, Namibia and the United Arab Emirates had none.

Another measure that could have an impact on the decision to join the initiative is press freedom. Freedom of the press measures the degree to which a country allows free flow of information (Freedom House, 2013). On average, EITI members seemed to enjoy greater press freedom with an average score of 44 compared with 41 for non-members (see Table 1).[7]

On average, both EITI and non-EITI member countries are perceived as becoming increasingly corrupt between 2002 and 2010, according to the index developed by Kaufmann et al (2010). However, the perceived deterioration in corruption is not as pronounced for EITI members when compared with non-member countries (see Figure 1). This could suggest that although EITI membership had not led to lower corruption levels, it seems to have led to a slower increase in corruption. Similarly, the perception of the deterioration in corruption is also less pronounced in countries that host PWYP organizations in comparison with those without PWYP, as depicted in Figure 2. The summary statistics for PWYP are close to those of the EITI, as indicated in Table 2. We therefore continue by focusing on a detailed analysis of the data for EITI countries.

Table 1: Summary statistics of EITI and non-EITI countries[8]

	EITI members					Non-members				
	Obs.	Mean	Std.Dev.	Min	Max	Obs.	Mean	Std.Dev.	Min	Max
Initial CCI	33	0.65	0.09	0.5	0.8	30	0.54	0.17	0.2	0.8
CCI 2010	33	0.66	0.08	0.5	0.8	30	0.57	0.18	0.2	0.8
Change CCI 2002-10	33	0.02	0.07	-0.1	0.2	30	0.02	0.08	-0.2	0.2
Initial investment	33	17.24	8.83	-12.1	40.0	30	23.14	7.82	11.3	44.6
EITI membership	33	1.00	0.00	1.0	1.0	30	0.00	0.00	0.0	0.0
Initial GDP/cap	33	7.32	0.97	5.3	9.7	30	8.89	1.08	7.0	11.2
Initial openness	33	73.57	29.92	30.0	144.0	30	83.73	35.81	32.9	156.6
Oil dummy	33	0.42	0.50	0.0	1.0	30	0.77	0.43	0.0	1.0
British dummy	33	0.27	0.45	0.0	1.0	30	0.33	0.48	0.0	1.0
Federal states	33	0.06	0.24	0.0	1.0	30	0.23	0.43	0.0	1.0
Press freedom	31	43.97	18.09	4.0	77.0	30	40.83	23.24	9.0	81.0
Aid commitment	30	7.08	8.82	0.1	40.1	23	2.63	5.16	0.0	23.3

Table 2: Summary statistics of PWYP and non-PWYP presence in countries[9]

	EITI members					Non-members				
	Obs.	Mean	Std.Dev.	Min	Max	Obs.	Mean	Std.Dev.	Min	Max
Initial CCI	37	0.65	0.09	0.5	0.8	26	0.52	0.16	0.2	0.8
CCI 2010	37	0.67	0.08	0.5	0.8	26	0.54	0.18	0.2	0.8
Change CCI 2002-10	37	0.01	0.07	-0.1	0.2	26	0.02	0.08	-0.2	0.2
Initial investment	37	17.49	8.68	-12.1	40.0	26	23.68	7.79	13.5	44.6
EITI membership	37	1.00	0.00	1.0	1.0	26	0.00	0.00	0.0	0.0
Initial GDP/cap	37	7.58	1.07	5.3	9.7	26	8.77	1.26	6.6	11.2
Initial openness	37	75.05	32.74	30.0	156.6	26	83.19	33.38	32.9	148.2
Oil dummy	37	0.51	0.51	0.0	1.0	26	0.69	0.47	0.0	1.0
British dummy	37	0.19	0.40	0.0	1.0	26	0.46	0.51	0.0	1.0
Federal states	37	0.05	0.23	0.0	1.0	26	0.27	0.45	0.0	1.0
Press freedom	35	44.91	18.35	12.0	75.0	26	39.08	23.38	4.0	81.0
Aid commitment	33	6.70	8.55	0.0	40.1	20	2.60	5.39	0.0	23.3

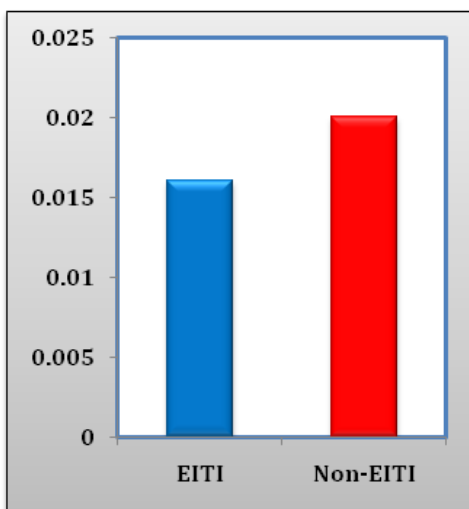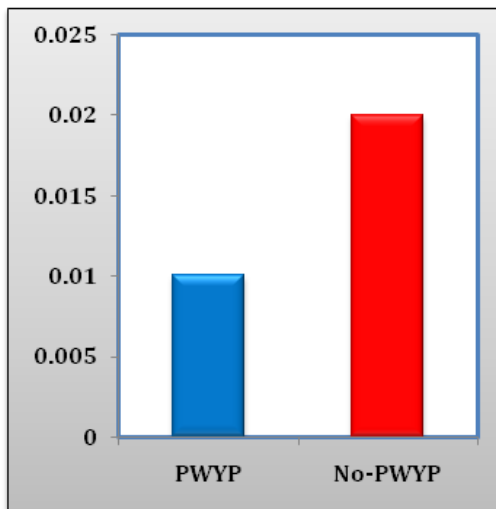**Figure 1: Deterioration in control of Corruption Index for EITI and non-EITI between 2002 and 2010**

Figure 2: Deterioration in control of Corruption Index for PWYP and non-PWYP between 2002 and 2010

4. Empirical analysis

The belief that greater transparency in funds paid and received by resource-rich countries will result in greater public scrutiny and, eventually, in reduced corruption is what primarily motivates initiatives such as the EITI and the PWYP campaign. This paper addresses two key questions: First, what are the observable factors associated with being a member of the EITI? Second, do members of the EITI show greater improvement in the control of corruption relative to non-members? In addition, we investigate whether an alternative scrutiny mechanism such as PWYP leads to a perception that there is a decline in corruption.

Empirical model

We start by estimating the effect of the EITI on corruption using ordinary least squares (OLS). However, as countries voluntarily join the EITI, there is a selection effect that could lead to biased and inconsistent OLS estimates. Therefore, we use a full information maximum likelihood (FIML) estimation to investigate the factors associated with EITI membership and the effect of membership on corruption. We investigate these two relationships by estimating jointly the probability of joining the EITI as a treatment, and the change in corruption index since the initiation of the EITI as an outcome equation. The initial level of investment is used as an exclusion restriction; it is correlated with the EITI, but uncorrelated with the error term of the outcome equation. The reason for this choice is based on the fact that countries that have lower investment or an investment constraint are more likely to join the initiative to signal their willingness to create a more transparent investment climate to attract external sources of finance. However, initial investment is not expected to affect future changes in foreign investors' perception of corruption, although evidence of the causal effect of corruption on investment has been documented (see, for example, Campos et al, 1999; and Asiedu and Freeman, 2009). The joint estimation procedure used in this analysis provides a maximum likelihood estimator that is both consistent and efficient, as opposed to a two-step procedure that would generate consistent estimates with inconsistent standard errors (Sarr et al, 2011). Furthermore, this procedure allows for correlation between the two error terms, which are assumed to be jointly normally distributed. The outcome and treatment equations are expressed as follows:

$$\Delta(Corruption\ index)_i = \beta_0 + \beta_1 EITI_i + \beta_2 Z_i + \varepsilon_i \tag{1}$$

$$EITI_i = \begin{array}{l} 1 \; if \; EITI_i^\star > 0 \\ 0 \; Otherwise \end{array} \tag{2}$$

$$EITI_i^\star = \alpha_0 + \alpha_1 Initial \; Corruption_i + \alpha_2 oildum_i + \alpha_3 invest_i \\ + \alpha_4 aid_i + \alpha_5 press_i + \alpha_6 lrgdpcapita_i + \eta_i$$

Equation 1 depicts the outcome equation with the change in control of corruption index between 2002 and 2010 as the dependent variable. EITI is the treatment variable, is the error term and are the control variables. The coefficient on the treatment variable is the parameter of interest. Its sign and significance informs us about the contribution of EITI membership to changes in perceived corruption levels. EITI is, in turn, the dependent observable variable in the treatment equation. The determinants of EITI membership include initial corruption, oil dummy, initial investment, aid commitment, press freedom and the log of real GDP per capita PPP.

Determinants of EITI membership

The determinants of EITI were chosen based on the existing literature. Whether a country chooses to join such a voluntary initiative hinges on the perceived net benefit it expects to reap. Because the EITI is imposing itself as an international standard on transparency and good governance (Kolstad and Wiig, 2009), a number of resource-rich countries perceived as corrupt may decide to join the initiative to improve their reputation in the international community (David-Barrett and Okamura, 2012). These reasons can be varied: It may be a strategic move, but it may also be that governments that are committed to reducing corruption or that seek to change the unjust perception about their countries would be willing to join the EITI. For example, Singh and Bourguoin (2013) argue that one of the reasons why President Olusegun Obasanjo committed Nigeria to become an EITI member was to improve the country's reputation for high corruption, especially following the Sani Abacha years. Based on this, we hypothesize that initial corruption is positively associated with EITI membership, implying that countries with higher initial corruption levels are more likely to join the initiative.

Countries also join the EITI with the hope of reaping some real benefits such as future aid or debt forgiveness (David-Barrett and Okamura, 2012). For example, it is alleged that the Republic of Congo acceded to the World Bank's pressure to have its oil sector audited – which paved the way for EITI membership – primarily to have its application for debt relief under the Heavily Indebted Poor Country Initiative (HIPC) approved (Singh and Bourguoin, 2013). Ölcer (2009) echoes a similar story for Cameroon. Countries that are heavily dependent on aid or expect more aid in the future could have a higher incentive to join the EITI to signal to their donors that they are taking the necessary steps to promote transparency. As the data indicate in Table 1, EITI member countries had more bilateral aid commitments at the time the EITI was set up compared with non-members. Therefore, aid commitment is expected to be positively associated with EITI membership and statistically significant. Of course, joining the EITI is unlikely to be the only reason for the difference in aid commitment.

Countries could have an incentive to join the global standard to attract more investment. According to the EITI and Ölcer (2009), some of the benefits of membership

include better credit ratings and an improved investment climate. For instance, joining the EITI was considered by the political leadership in Azerbaijan as a necessary condition to attract investment in the petroleum sector (Singh and Bourguoin, 2013). Therefore, countries may have an incentive to join with the hope of increasing investment that could lead to higher growth in the future. Hence, poorer countries are expected to have a higher incentive to join the initiative to attract better investment and economic growth. Therefore, investment and income are expected to be negatively associated with the initiative.

Determinants of changes in corruption

Our outcome equation is a standard corruption equation augmented with the effect of EITI membership. One of the most robust finding in the literature is that income level tends to be negatively associated with high corruption. According to Madani and Licetti (2010), wealthier countries are associated with lower levels of corruption because of the more efficient and transparent regulations and good institutions. Furthermore, Ades and Di Tella (1999) found that an increase in GDP per capita is positively associated with a decline in corruption. Therefore, GDP per capita is expected to be statistically significant and negatively associated with corruption.

In addition, openness to foreign trade was found to help reduce corruption, according to Larrain and Tavares (2007). However, Treisman (2000) found this to be true but only by a very small magnitude. By contrast, Combes and Saadi-Sedik (2006) argue that for non-renewable resources such as oil and minerals, openness to trade is more prone to corruption due to the rents generated. Therefore, since this study only analyses countries rich in oil and minerals, openness to trade is expected to be positively associated with corruption.

Similarly, colonial heritage might influence the levels of corruption. Specifically, former British colonies have been found to have lower levels of corruption (La Porta et al, 1999; and Treisman, 2000). Hence, former British colonies in this study are expected to be associated with lower corruption levels.

The system of government could also affect the perceived level of corruption. Treisman (2000) finds that once the level of economic development was controlled for, federal states are perceived to be more corrupt than unitary states. Similarly, Kunicová and Rose-Ackerman (2005) find that federal states tend to be more corrupt. Therefore, federal states are expected to be associated with higher corruption levels than unitary states.

Results

The results for both the EITI and PWYP are reported in Tables 3 and 4, respectively. In column 1, the impact of EITI membership is first estimated using OLS. In the subsequent columns, we perform the joint estimation of the determinants of EITI membership and the impact of EITI membership on changes in corruption perception.

The treatment equation (EITI membership) starts with a very simple specification where we control for initial corruption (2002), the oil dummy, and initial investment (column 2, Table 3). We find that initial corruption is statistically significant at the 1 per cent level and positively related to EITI membership. This indicates that countries

perceived to be more corrupt in 2002 were more likely to join the initiative to send a strong signal that they are willing to increase transparency and eventually curb corruption. These findings are similar to those presented by David-Barrett and Okamura (2012), and Keblusek (2010).

Table 3: Impact of EITI membership on corruption perception

	(1) OLS	(2) FIML	(3) FIML	(4) FIML
EITI membership	0.015 (0.019)	0.070** (0.032)	0.067** (0.031)	0.060** (0.024)
Initial corruption (2002)	-0.408*** (0.093)	-0.486*** (0.087)	-0.471*** (0.089)	-0.437*** (0.093)
Initial level of GDP per capita PPP	-0.025* (0.014)	-0.023* (0.012)	-0.022* (0.012)	-0.015 (0.013)
Initial level of openness	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Oil Dummy	0.007 (0.021)	0.028 (0.022)	0.024 (0.023)	0.014 (0.024)
British colonial heritage dummy	-0.069*** (0.020)	-0.066*** (0.020)	-0.065*** (0.020)	-0.066*** (0.019)
Federal states	0.074*** (0.024)	0.071*** (0.023)	0.070*** (0.023)	0.070*** (0.022)
Press freedom	-0.001** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Bilateral aid commitment	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Treatment results: Determinants of EITI membership				
Initial corruption (2002)		4.323*** (1.301)	3.512** (1.694)	2.008 (2.115)
Oil dummy		-1.138*** (0.386)	-0.960** (0.473)	-0.410 (0.568)
Initial investment		-0.040* (0.023)	-0.050* (0.028)	-0.051** (0.022)
Bilateral aid commitment			0.031 (0.035)	-0.028 (0.033)
Press freedom				0.009 (0.011)
Initial level of GDP per capita PPP				-0.593* (0.327)
Observations	52	63	53	52
Log pseudo-likelihood		53.210	58.912	60.314
Error terms correlation		-0.661*** (0.174)	-0.645*** (0.169)	-0.569*** (0.145)

Robust standard errors in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

We also find evidence that oil-producing countries are less likely to join the initiative. This finding accords with Pitlik et al (2010) who show that OPEC countries are less likely to join the EITI. A closer look at the data suggests that Norway and Nigeria are the only major oil producers to have joined the EITI. Neither the North African and Middle Eastern countries, Russia nor Venezuela have expressed interest in being part of this initiative. This might be a concern for the effectiveness of the EITI, as major players that once suffered low or negative growth during the period 1970 to 2000 prefer to opt out. It might have been expected that oil-producing countries would join the initiative to send a signal to investors. However, there might be reasons that can explain the status quo. One possibility is that oil-rich countries are reluctant to be submitted to external and public scrutiny and would rather continue to operate in a non-transparent environment. Another possibility is that these countries simply do not consider that they need an external agency such as the EITI to attract investment in oil extraction.

The investment constraint is as expected, negative and significant. This suggests that countries with greater investment levels in 2002 (and therefore less constrained in terms of investment) are less likely to join the EITI. Countries with lower investment, by contrast, are more likely to join the initiative to signal their commitment to transparency. Aid commitment is controlled for in column 3 and the result is insignificant, yet has the correct positive sign. It remains insignificant even with the addition of GDP in column 4.

After controlling for GDP per capita, only the coefficients of GDP and investment remain significant, while all other variables in column 4 become insignificant. This suggests that the previous significance of the other variables may have been due to their correlation with income levels. As expected, wealthier countries are less likely to join the initiative. In addition, they tend to have lower levels of corruption, hence less motivation for joining the initiative.

We now analyse the effect of EITI membership on changes in corruption perception. The OLS results in column 1 indicate that there is no significant relationship between EITI membership and corruption perception. However, once we control for possible correlation between the error terms of the two equations, the maximum likelihood estimation suggests that EITI is positive and statistically significant in columns 2, 3 and 4. This implies that EITI membership is associated with a deterioration in the corruption score.

The effects of most control variables in the outcome equation are in line with the corruption literature except for the oil dummy and bilateral aid, which were insignificant. Openness and federal states are associated with increased corruption. In addition, initial corruption is associated with less deterioration in corruption. In other words, countries with higher initial corruption scores tend to have a slower deterioration of corruption. The real GDP per capita, British dummy, and press freedom are associated with a reduced change in corruption. Finally, the error term of the EITI membership equation is correlated with the error term of the corruption equation in all the specifications. This implies that a joint estimation of the membership and corruption equations is required to generate unbiased estimates.

For the purpose of robustness, Table 4 presents the joint estimation of the impact of the PWYP campaign on corruption and the determinants of PWYP presence in resource-rich countries. The results from the treatment equation are similar to those depicted by EITI in Table 3, except for the press freedom and GDP. Unlike EITI, press freedom seems to

matter, as countries that enjoy greater press freedom are more likely to establish PWYP campaigns. However, a country's income does not seem to have a major influence on PWYP campaigns.

Except for the OLS, all the models indicate that PWYP has a positive and significant effect on changes in corruption. In other words, as in the case of the EITI, we find no evidence of improved corruption scores as a result of a PWYP campaign. The GDP per capita, openness, British dummy and federal states, and press freedom are in line with the literature. However, the oil dummy and bilateral aid are insignificant.

Table 4: Impact of PWYP on corruption perception

	(1) OLS	(2) FIML	(3) FIML	(4) FIML
PWYP presence	0.018	0.070***	0.072***	0.077**
	(0.019)	(0.022)	(0.026)	(0.031)
Initial corruption (2002)	-0.432***	-0.522***	-0.504***	-0.538***
	(0.095)	(0.091)	(0.090)	(0.097)
Initial level of GDP per capita PPP	-0.027**	-0.026**	-0.024**	-0.025**
	(0.012)	(0.011)	(0.011)	(0.012)
Initial level of openness	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Oil dummy	0.007	0.020	0.015	0.012
	(0.021)	(0.021)	(0.022)	(0.023)
British colonial heritage dummy	-0.065***	-0.062***	-0.060***	-0.060***
	(0.022)	(0.020)	(0.021)	(0.021)
Federal states	0.076***	0.070***	0.069***	0.071***
	(0.025)	(0.023)	(0.023)	(0.022)
Press freedom	-0.001***	-0.001***	-0.001***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.001)
Bilateral aid commitment	-0.001	-0.001	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Treatment results: Determinants of PWYP presence				
Initial corruption (2002)		4.775***	3.744**	5.421***
		(1.189)	(1.488)	(1.808)
Oil dummy		-0.636*	-0.379	-0.254
		(0.382)	(0.478)	(0.548)
Initial investment		-0.050**	-0.058**	-0.048**
		(0.022)	(0.025)	(0.022)
Bilateral aid commitment			0.045	0.010
			(0.043)	(0.057)
Press freedom				0.023*
				(0.012)
Initial level of GDP per capita PPP				-0.097
				(0.327)

Table 4 Continued

	(1) OLS	(2) FIML	(3) FIML	(4) FIML
Observations	52	63	53	52
Log pseudo-likelihood		53.956	59.084	61.162
Error terms correlation		-0.640***	-0.668***	-0.703***
		(0.118)	(0.136)	(0.158)

Robust standard errors in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Discussion

Although it has become commonplace in policy discourse to expect that greater transparency will lead to reduced corruption through improved governance (Kolstad and Soreide, 2009), this study suggests that this optimism might be misplaced. Our findings indicate that transparency alone (proxied by increased disclosure of resource revenue) may not be sufficient to reduce perceived corruption. Real improvements may require that the public be able to hold governments accountable for the decisions they make (Klitgaard, 1991). This paper, similar to Kolstad and Wiig (2009) and Kolstad and Soreide (2009) suggests that the EITI alone may not provide this sort of accountability. In this regard, our study is in contrast with David-Barrett and Okamura (2012), who find no evidence that joining the EITI reduces perceived levels of corruption. In their view, implementing the EITI involves much more than just transparency. In particular, the establishment of a multi-stakeholder group (MSG), according to them, is a critical factor that increases accountability (David-Barrett and Okamura, 2012).

However, there may be reasons to believe that the EITI may fall short of bringing about accountability in addition to greater transparency. Indeed, the EITI requires a great deal from civil society organizations, which are often weak in many resource-rich countries. Transparency is most effective in generating accountability where an organized civil society is able to freely access and critically assess complex and technical information made available by government and companies in the extractive sector, scrutinize their decisions, and hold leaders responsible for the decisions made. Although the EITI constitutes an improvement to the regime of opacity that has characterized the extractive industries, whether the conditions that ensure greater accountability are in place in most resource-rich nations remains an open question (Kolstad and Wiig, 2009).

Finally, inconsistencies in the implementation of the EITI highlighted by observers may have contributed to the lack of improvement in perception of corruption about EITI countries. International NGOs such as Human Rights Watch or Global Witness have deplored the fact that although the EITI Board has shown responsibility by expelling serial offenders such as Equatorial Guinea (Human Rights Watch, 2010), it sends mixed messages by failing to sanction countries (including the Republic of Congo, the Democratic Republic of Congo, Nigeria, and Peru) that are plagued by human rights abuses and corruption. This would suggest that a country could satisfy the minimal requirements to become a member of the EITI club, while the governance of its resource sector experiences no substantive improvement.

5. Conclusion

The main objective of the study was to investigate the effectiveness of the EITI, whose main goal is to strengthen governance through greater transparency and accountability. This paper examined whether the adoption of EITI by resource-rich economies resulted in a reduced perception of corruption relative to non-members. In addition, an alternative scrutiny mechanism, PWYP, was examined to determine whether it had an impact on the change in corruption perceptions.

Our results indicate that countries join the EITI to send a signal that they are committed to greater transparency and improving their investment climate. We have also shown that countries with higher corruption levels, lower GDP per capita and non-oil-producing countries are more likely to join the initiative. This suggests that these countries join with the expectation of reaping some benefits from membership.

Although the EITI appears to have been successful in promoting transparency based on the increase in the number of reports and the number of countries that have recently joined the initiative, we find no evidence of improved corruption scores as a result of EITI membership. These findings suggest that the EITI may still need to put in place more effective measures to become a successful initiative in promoting transparency and accountability in order to reduce corruption. Some of these measures are more stringent rules around transparency and accountability for countries and companies. In this regard, although the EITI is probably the first step towards promoting transparency and accountability, it requires further measures such as the disclosure of detailed and disaggregated information, or greater emphasis on the expenditure of the proceeds from resource rents to tackle patronage. Interestingly, for other scrutiny mechanisms such as PWYP, we also find no improvement in corruption scores as a result of PWYP.

It would be interesting to study the relationship between the EITI and growth in further research. Although it has been argued in the literature that through greater transparency and lower levels of corruption, resource-rich countries are more likely to avoid the resource curse as the EITI's goal is to promote transparency, it would be of great importance to investigate whether EITI membership enables resource-rich countries to avoid the so-called resource curse. Another fruitful avenue of research would be to undertake country case studies to explore the legal, regulatory and administrative climate in order to assess the degree to which basic freedoms relevant to effective EITI implementation can be made effective.

Notes

1   According to the UNDP (1997), the core characteristics of good governance are participation, rule of law, transparency, responsiveness, consensus orientation, equity, effectiveness and efficiency, accountability and strategic vision.

2   The EITI principles and EITI criteria as listed on the EITI website can be found in Appendix A (See EITI, no date d).

3   See EITI validation details at http://eiti.org/Validation (EITI , no date c)

4   Note that as of March 2014, the USA became a candidate country and the UK joined around October 2014.

5   See EITI. (no date, f.). Civil Society. Retrieved January 2011 from EITI: http://eiti.org/supporters/civilsociety

6   "A country is considered rich in hydrocarbons and/or mineral resources on the basis of the following criteria: (i) an average share of hydrocarbon and/or mineral fiscal revenues in total fiscal revenue of at least 25 per cent during the period 2000–2003 or (ii) an average share of hydrocarbon and/or mineral export proceeds in total export proceeds of at least 25 per cent during the period 2000–2003."See IMF (2007) for details.

7   We rescaled this measure to 0 (worst) and 100 (best).

8   Norway was treated as an outlier and excluded from this sample

9   Norway was treated as an outlier and excluded from this sample.

10   See EITI (no date, e) benefits on http://eiti.org/eiti/benefits

11   Retrieved from the EITI website.

12   Retrieved from the EITI website.

13   All resource-rich countries used in the analysis, including both EITI and non-EITI members.

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Appendix A: EITI principles and criteria

I. The EITI principles[11]

We share a belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts.

1. We affirm that management of natural resource wealth for the benefit of a country's citizens is in the domain of sovereign governments to be exercised in the interests of their national development.
2. We recognize that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
3. We recognize that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
4. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
5. We recognize that achievement of greater transparency must be set in the context of respect for contracts and laws.
6. We recognize the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
7. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
8. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business.
9. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
10. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country.
11. In seeking solutions, we believe that all stakeholders have important and relevant contributions to make – including governments and their agencies, extractive industry companies, service companies, multilateral organizations, financial organizations, investors, and non-governmental organizations.

II.   The EITI criteria[12]

1. Regular publication of all material oil, gas and mining payments by companies to governments ("payments") and all material revenues received by governments from oil, gas and mining companies ("revenues") to a wide audience in a publicly accessible, comprehensive and comprehensible manner.
2. Where such audits do not already exist, payments and revenues are the subject of a credible, independent audit, applying international auditing standards.
3. Payments and revenues are reconciled by a credible, independent administrator, applying international auditing standards and with publication of the administrator's opinion regarding that reconciliation including discrepancies, should any be identified.
4. This approach is extended to all companies including state-owned enterprises.
5. Civil society is actively engaged as a participant in the design, monitoring and evaluation of this process and contributes towards public debate.
6. A public, financially sustainable work plan for all the above is developed by the host government, with assistance from the international financial institutions where required, including measurable targets, a timetable for implementation, and an assessment of potential capacity constraints.

Appendix B

Table B1: EITI status of sampled countries

Countries[13]	Status	Candidate date	Compliant date	Expected validation	Fiscal periods disclosed	Published in	Covering years	CCI 2002 rescaled	CCI 2010 rescaled
1 Afghanistan	Candidate	10-Feb-10		9-Aug-12	2	2012	March 2008 – March 2010	0.79	0.82
2 Albania	Candidate	16-May-09		25-Apr-13	1	2011	2009	0.67	0.59
3 Algeria	Not a member							0.69	0.60
4 Angola	Not a member							0.73	0.77
5 Azerbaijan	Compliant	27-Sep-07	16-Feb-09		9	2011	2003-2010	0.71	0.73
6 Bahrain	Not a member							0.35	0.45
7 Bolivia	Not a member							0.69	0.60
8 Botswana	Not a member							0.38	0.31
9 Brunei Darussalam	Not a member							0.44	0.33
10 Burkina Faso	Candidate	1-Jul-05		25-Apr-13	3	2011	2008-2009	0.50	0.57
11 Cameroon	Candidate	27-Sep-07		15-Aug-13	9	2010	2006-2008	0.72	0.70
12 Central African Republic	Compliant	21-Nov-08	1-Mar-11		4	2010	2007-2009	0.72	0.66
13 Chad	Candidate	16-Apr-10		15-Oct-12	0			0.69	0.76
14 Chile	Not a member							0.19	0.20
15 Colombia	Not a member							0.55	0.58
16 Congo, Republic of	Candidate	22-Feb-08		9-Dec-12	7	2011	2010	0.67	0.73
17 Democratic Republic of Congo	Candidate	22-Feb-08		1-Mar-13	3	2010	2009	0.75	0.78
18 Ecuador	Not a member							0.70	0.68
19 Equatorial Guinea	Not a member							0.77	0.80
20 Gabon	Candidate	27-Sep-07		9-Dec-12	3	2008	2006	0.58	0.65
21 Ghana	Compliant	27-Sep-07	19-Oct-10		6	2011	2009	0.56	0.48
22 Guatemala	Candidate	1-Mar-11		28-Aug-13	0			0.60	0.61
23 Guinea	Candidate	27-Sep-07		31-Aug-12	1	2007	2010	0.60	0.74
24 Indonesia	Candidate	19-Oct-10		18-Apr-13	0			0.73	0.65

Table B1 Continued

	Countries	Status	Candidate date	Compliant date	Expected validation	Fiscal periods disclosed	Published in	Covering years	CCI 2002 rescaled	CCI 2010 rescaled
25	Iran	Not a member							0.55	0.68
26	Iraq	Candidate	10-Feb-10		9-Aug-12	1	2011	2009	0.76	0.76
27	Ivory Coast	Candidate	12-May-08	25-Apr-13		5	2010	2006-2007	0.66	0.73
28	Jordan	Not a member							0.52	0.49
29	Kazakhstan	Candidate	27-Sep-09		15-Aug-13	5	2011	2009	0.71	0.70
30	Kuwait	Not a member							0.26	0.43
31	Kyrgyz Republic	Compliant	27-Sep-09	1-Mar-11		6	2011	2009	0.67	0.71
32	Liberia	Compliant	27-Sep-07	14-Oct-09		3	2011	Jul 2009-Jun 2010	0.74	0.60
33	Libya	Not a member							0.69	0.75
34	Madagascar	Suspended	22-Feb-08	30-Mar-11		4	2010	2007-10	0.49	0.55
35	Mali	Compliant	27-Sep-07	29-Aug-11		4	2011	2009	0.60	0.64
36	Mauritania	Compliant	27-Sep-07	15-Feb-12		5	2011	2009	0.45	0.64
37	Mexico	Not a member							0.54	0.57
38	Mongolia	Compliant	27-Sep-07	19-Oct-10		5	2011	2010	0.50	0.64
39	Mozambique	Candidate	2009		15-Feb-13	2	2011	2009	0.59	0.58
40	Namibia	Not a member							0.51	0.45
41	Niger	Compliant	27-Sep-07	1-Mar-11		5	2011	2007 -2009	0.71	0.63
42	Nigeria	Compliant	27-Sep-07	1-Mar-11		10	2011	2006-2008	0.76	0.70
43	Norway	Compliant	11-Feb-09	1-Mar-11		3	2010	2010	0.05	0.09
44	Oman	Not a member							0.33	0.43
45	Papua New Guinea	Not a member							0.68	0.73
46	Peru	Compliant	Sep-07	15-Feb-12		7	2012	2008-2010	0.56	0.55
47	Qatar	Not a member							0.36	0.20
48	Russia	Not a member							0.68	0.71
49	São Tomé and Principe	Not a member							0.56	0.58
50	Saudi Arabia	Not a member							0.49	0.47
51	Sierra Leone	Candidate	22-Feb-08		9-Dec-12	2	2010	2006-2007	0.65	0.65
52	South Africa	Not a member							0.42	0.48

Table B1 Continued

Countries	Status	Candidate date	Compliant date	Expected validation	Fiscal periods disclosed	Published in	Covering years	CCI 2002 rescaled	CCI 2010 rescaled
53 Sudan	Not a member							0.71	0.77
54 Syria	Not a member							0.55	0.71
55 Tanzania	Candidate	16-Feb-09		15-Feb-13	2	2011	Jul 2008-Jun 2010	0.69	0.60
56 Timor-Leste	Compliant	22-Feb-08	1-Jul-10		2	2011	2009	0.60	0.69
57 Togo	Candidate	19-Oct-10		18-Apr-13	1	2012	2010	0.65	0.69
58 Trinidad and Tobago	Candidate	1-Mar-11		28-Aug-13	0			0.54	0.57
59 Turkmenistan	Not a member							0.74	0.79
60 United Arab Emirates	Not a member							0.25	0.30
61 Uzbekistan	Not a member							0.70	0.76
62 Venezuela	Not a member							0.71	0.75
63 Vietnam	Not a member							0.61	0.62
64 Yemen	Compliant	27-Sep-07	1-Mar-11		3	2010	2006-08	0.69	0.73
65 Zambia	Candidate	15-Sep-09	15-Feb-13		2	2011	2009	0.69	0.61

Source: EITI (2012) and EITI report (2011). For the non-member countries, IMF (2007); for the control of corruption, Kaufmann et al (2010).

Table B2: Variable description

Variable	Description	Source
British dummy	Dummy variable that takes a value of 1 for former British Colonies and zero otherwise	Treisman (2000) and CIA World Factbook (2011)
Difference in CCI between 2002 and 2010	Difference between the control of corruption index between 2002 and 2010	Kaufmann et al (2010)
EITI membership	Dummy variable that takes a value of 1 for member countries and zero otherwise	EITI website
Initial level of openness	Total trade as percentage of GDP 2002	Penn World Table 7.0 (2011)
PWYP presence	Dummy variable that takes a value of 1 if a country has civil society organisations that are members of PWYP and 0 otherwise	PWYP website
Federal states	Dummy variable that takes 1 for "federal states" and 0 otherwise	Forum of Federations (2012)
Bilateral aid commitment	Bilateral ODA commitment as share of GDP 2002	OECD (2012)
Initial CCI	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests. Ranges from -2.5 (weak) to 2.5 (strong) and rescaled to 0 (least corrupt) and 1 (most corrupt)	Kaufmann et al (2010)
Press freedom	Freedom of the press measures the degree to which a country allows free flow of news and information. Scores range from 0 (best) to 100 (worst) and rescaled to 0 (worst) and 100 (best).	Freedom House (2013)
Initial investment	Investment share of PPP converted GDP per capita at 2005 constant prices in 2002	Penn World Table 8.0 (2013)
Initial GDP per capita	Log of real GDP per capita PPP in 2002	Penn World Table 7.0 (2011)
Oil dummy	Dummy variable that takes a value of 1 for oil-producing countries and 0 otherwise	EITI website and IMF (2007)