February 16, 2016

U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

Re: Rulemaking for Section 1504 of the Dodd-Frank Wall Street Reform and Consumer
Protection Act

Dear Chair White and Commissioners:

I am writing to inform you about research that I have conducted on the merits of transparency and revenue disclosure in the extractive industries given its relevance to the implementation of Section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

I am an academic, trained in public policy and international development, with expertise on governance and the extractive industries in developing countries. I am a researcher at the University of Pittsburgh's Graduate School of Public and International Affairs and I have conducted empirical research on transparency and corruption in the extractive industries, corporate social responsibility in mining communities in Sub-Saharan Africa and the governance surrounding shale gas in South Africa and Botswana.

My research, which I attach below, reveals the economic benefits that accrue to countries as a result of increased revenue transparency in the extractives sector, as measured through country membership in the Extractive Industries Transparency Initiative (EITI). Given that increased transparency over natural resource payments is the primary objective of the EITI, I treat EITI membership as a proxy for resource sector transparency in a panel study of 186 countries from 1997 through 2014 to assess the impact of greater revenue transparency on a country's economic development.

My research finds a statistically significant association between revenue transparency and economic development. The economic benefits of transparency rise as countries' reliance on the extraction of natural resources increases. Based on my statistical model, for example, for a typical country that is 75% dependent on natural resource exports, promoting resource sector transparency by joining the EITI results in a more than $400 increase in GDP per capita compared to what would have been expected if it were not a member of the EITI. Using a second, more narrowly defined measure of resource dependence, resource rents, increased promotion of transparency results in an increase in GDP per capita of more than $800 for countries that are 75% dependent on resource rents compared to what would have been expected if they were not members of the EITI. Averaging across all countries that joined the EITI, I estimate that since its inception, this form of resource sector transparency has enabled an annual increase of between $7,600 and $8,400 to global GDP per capita (depending on the measure of resource dependence) compared to what would have happened without the increased promotion of transparency in member countries. Promoting transparency in this form is estimated to have boosted the total predicted GDP per capita for all member countries by 5.94% to 13.28%, again depending on the year and measure of resource dependence specified. For impoverished nations, such amounts can be a meaningful upturn in economic development. **In terms of global effects, the increased promotion of resource sector transparency is estimated to have increased total predicted global GDP by between $943,358,014,849 and $1,133,951,049,838, or about 1.4% of the total predicted global GDP for the time period under review.**

This quantification of the benefits of resource revenue transparency is highly relevant as the SEC works to issue a rule to implement Section 1504 of the Dodd-Frank Act. In particular, this research helps to address questions 71, 78, and 82 of the SEC's proposed rule issued on December 11, 2015. The findings of my research suggest that mandatory disclosure laws passed in the EU, Canada, Norway and US, are likely to lead to positive economic benefits for countries, which also has favorable implications for the firms (and

their investors) that operate inside their borders. Given that a sizable number of resource-rich countries have not joined the EITI or have had their memberships revoked or suspended, and that EITI implementation and reporting has been inconsistent across member countries, mandatory disclosure requirements like Section 1504 would deepen and expand the realized benefits of resource revenue transparency, including to a large number of countries not considered members of the EITI in this research.[1] **As such, the actual economic impacts of mandatory disclosure requirements could very likely exceed the estimates detailed in this analysis.**

Additionally, the finding that increased revenue transparency helps to significantly alleviate the negative economic effects of resource dependence has important implications beyond those quantified in my research. Positive economic growth has been shown to contribute to increased political stability, democracy and good governance. A wide body of scholarly literature finds that these improvements yield positive benefits for private sector investors. As such, increased revenue transparency in the extractives sector has the potential to promote the formation of more peaceful, predictable and prosperous operating environments for companies in all sectors, not just the extractives sector. It is important to note, therefore, that the benefits of revenue transparency outlined in the attached study may have considerable subsequent positive effects that, while difficult to quantify, are likely to be very large.

I ask that the Commission take this research into consideration when issuing final rules to implement Section 1504 of the Dodd-Frank Act.

I appreciate the opportunity to submit this comment and would be happy to provide further information or answer the questions of Commissioners or their staff.

Kind regards,

Caitlin C. Corrigan

University of Pittsburgh

Graduate School for Public and International Affairs

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[1] The findings in the attached study use a list of 42 EITI member countries derived from the EITI website. The International Monetary Fund (IMF) identifies an additional 35 resource-rich countries that are not included as EITI members in this study's analysis (see IMF 2012, p. 48-50). Adding Kuwait and South Sudan to that list increases that number to 37 countries (both countries meet the IMF's definition of resource-rich, i.e. have either natural resource revenue or exports of at least 20% of total fiscal revenue and exports, respectively). Of those 37 countries, 32 were not active EITI members as of February 11, 2016 (see Appendix D).

The Effects of Increased Revenue Transparency in the Extractives Sector on Economic Growth[2]

Caitlin C. Corrigan

The frequent observation that natural resource abundance tends to result in negative development outcomes for developing countries has led to an extensive literature on the "resource curse". Resource curse arguments revolve around the observed negative effects that resource abundance or dependence has on the economic development of countries (Collier, 2007; Sachs & Warner, 1995, 2001; Sala-i-Martin & Subramanian, 2003). However, strong institutions that promote effective resource management have been found to help alleviate this curse (Boschini, Pettersson, & Roine, 2007; Iimi, 2007; Mehlum, Moene, & Torvik, 2006; Robinson, Torvik, & Verdier, 2006).

Transparency plays an important role in improving the quality of government institutions since it increases the ability of the public to scrutinize government actions and spending, thereby helping make governments more accountable to the needs and demands of their citizens. Scholarly research finds that revenue transparency generally enhances the quality of governance and institutions (Andreula, Chong, & Guillén, 2009; Isham, Pritchett, Woolcock, & Busby, 2004). Promotion of transparency is particularly important for resource rich countries, where the high availability of resource rents can allow governments to place less emphasis on collecting taxes from their citizens to raise revenue, thereby removing a key accountability link between citizens and their governments (Collier, 2006; Mcguirk, 2013; Ross, 2001). Efforts to promote transparency are, therefore, particularly important in these contexts and are usually aimed at improving the processes through which actors and institutions can effectively hold governments accountable (Mejía Acosta, 2013, 93).

With these factors in mind, this study represents an empirical analysis of the impact that increased resource revenue transparency has had in resource rich countries, using the Extractive Industries Transparency Initiative (EITI) as a proxy for resource revenue transparency. The EITI is an international initiative that advertises itself as "a global standard to promote open and accountable management of natural resources... seek(ing) to strengthen government and company systems, inform public debate and enhance trust (EITI, 2015d)." The EITI requires the production of comprehensive reports that include full government disclosure of extractive industry revenues and disclosure of all material payments to government by oil, gas and mining companies (EITI, 2015b). This study empirically examines whether participation in the EITI has had a positive effect on the economic development of countries highly dependent on their natural resources sectors, or, in other words, has in some way alleviated the economic component of the resource curse.

Pitlik, Frank and Firchow (2010, 178) describe the EITI as an attempt to impede the "practices of corruption with theft". The EITI is considered by all stakeholders – governments, companies and civil society – as an important mechanism for promoting greater revenue transparency by requiring that information about resource revenues be made widely available to the public, thereby making it possible for citizens to monitor and, if need be, challenge the handling of resource revenues by governments and companies.[3] The EITI contends that implementing countries offer more attractive business climates for investors and international financial institutions since EITI implementation signals a commitment to transparency and fosters increased accountability, good governance and economic and political stability (EITI, 2015a).[4] Therefore, member countries and their citizens should realize increased economic benefits from their extractive sectors, since

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[3] Some scholars have commented on the limitations of the EITI for fostering inclusiveness and accountability. A discussion of these limitations can be found in Corrigan (2014).
[4] Pitlik, Frank, & Firchow (2010) see participation by a government in the EITI as a "signal of willingness to reform" institutions.

private sector investment in the industry becomes more attractive and the revenues earned from the industry are used in a more accountable way.

Based on the above arguments, I derive the following hypothesis with respect to the effects of membership in the EITI. The hypothesis reflects the expectation that differences in economic development between countries that participate in the EITI and those that do not participate will be relatively greater when the natural resources sector is dominant.

> _Hypothesis: Depending on the size of a country's natural resource sector, EITI membership will improve **economic development** both over time within member countries and compared to non-member countries._

A large body of scholarly research has attempted to explain the economic mechanisms underlying the resource curse in hopes of finding ways to combat it. This analysis contributes to that literature by assessing the impacts of a specific mechanism, EITI membership, to better understand the extent to which increased transparency and accountability may help address the negative economic component of the resource curse.

Study Design:

This study focuses on 186 countries (See _Appendix B: Country List_)[5] that are observed for 18 years (1997-2014). This panel study design was used to compare the economic development of EITI member and non-member countries while also comparing within the countries before and after EITI membership was secured. This approach has the advantage of being able to control for unobserved non-time varying differences between countries and global conditions associated with time periods by using fixed effects models (Yaffee, 2003). Using the panel data, several Ordinary Least Square (OLS) regression models were estimated with a dependent variable measuring economic development (GDP per capita or _GDPPC_). All variables used are described along with their sources in _Appendix A: Variables_.

The estimated statistical model allows for the examination of the interaction between the two main independent variables, EITI Membership (_EITI_) and the dependence on natural resources within the country (_RES_). The equation appears as follows:

$$\text{GDPPC}_{it} = \beta_0 + \beta_1 \text{RES}_{it} + \beta_2 \text{EITI}_{it} + \beta_3 \text{RES}_{it} \text{ x } \text{EITI}_{it} + \beta_4 Z_{it} + \varepsilon$$

Where:

GDPPC_{it} = the dependent variable for economic development for country i at time t.

RES_{it} = the independent variable for resource dependence for country i at time t

EITI_{it} = the independent variable for EITI membership (1=member, 0=non-member) for country i at time t

Z_{it} = a vector of control variables for country i at time t

ε = Error—random, normally distributed, and independent

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[5] This list of countries is based on an adapted list from the World Bank's World Development Indicators. Some microstates, protectorates and other countries that lacked most of the needed data were removed from the list. Additionally, several EITI member states that were delisted or suspended for significant lengths of time were removed from the data set, as discussed in more detail below. Due to missing data within the remaining country list, only about 150 countries appear in the analysis. Missing data is a common and often complicated problem for time series cross section data (Honaker & King, 2010), particularly when concerning developing countries that lack the capacity to gather reliable data. Therefore, missing data stands as a limitation of this analysis.

Measures and Data:

Independent Variables

Membership in the EITI is the primary independent variable of interest in this study. The initiative was announced in 2002 and three countries declared intention to join in 2003. Gradually, other countries joined and there are currently 49 implementing countries. Since 2010, however, several countries have had their membership suspended or revoked. If the time period of suspension occurred over more than one year or full delisting took place, the countries were dropped from the study as they do not fully fit into the member or non-member categories.[6] Thus, in the final reporting year (2014), 42 countries were considered EITI members (See *Appendix C: EITI Countries* for a list of members and entry years)

A data set for EITI membership was constructed solely for the purposes of an earlier analysis of the EITI (Corrigan, 2014) and has been updated for this analysis. The variable for EITI membership (*EITI*) was defined as the point at which a country expressed its intention to join the EITI. A dummy variable was constructed for all countries from 1997 to 2014, assigning each country a "0" for each year in which they were not an EITI "member" or a "1" for each year in which they were a "member". Since the EITI application for candidacy requires countries to announce a clear commitment to becoming an EITI member, establish a multi-stakeholder group (MSG) through which the government commits to work with civil society and companies and maintain a work plan for implementation (EITI, 2015c), the *EITI* variable indicates either the accomplishment of all three requirements or a publically recorded intention by the country in question to pursue all three requirements. The advantage of this specification is that it allows for a longer time span to assess membership effects. It is predicated on the credible assumption that even before being accepted as a candidate country, demonstrated intention implies a willingness to change transparency policies and work towards EITI membership requirements. Although the *EITI* indicator takes the preparation process or the "intention" to join into account to an extent, it cannot fully capture all polices or plans toward increasing transparency and accountability. Some caution, therefore, should be taken in interpreting the results as based heavily on the exact timing of the membership variable. Implementation is not an overnight process, but something that occurs over many years. Because of this, EITI membership cannot be viewed as a "treatment" in the traditional statistical sense. However, an extra control indicator that measures if a country was an EITI member in the previous two years is also included in an effort to account for this lag and capture the time it takes for full implementation.

The second independent variable is a proxy for the size or dominance of the natural resources sector in a country. This is of key interest given the vast scholarly literature that finds that dependence on natural resources above a certain threshold can have a negative effect on countries under certain circumstances. The main measure of the dominance of the natural resources sector used in this study is *primary resource exports (PRES)*. It is calculated as the total primary exports divided by total merchandise exports in a given country in a given year.[7] The data were taken from the United Nations Conference on Trade and Development (UNCTAD). An alternative measure is defined as, *natural resource rents* (*RENTS*). Total natural resources rents are measured as the percent of the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents and forest rents in GDP (data from the World Bank). Rents are the difference between the value of resource production at world prices and their total costs of production. The log is taken of this variable to deal with non-normality. The use of rents instead of exports has the advantage of not being distorted by the fact that more developed countries tend to use more of their resources domestically

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[6] With the exception of Yemen, all of these suspended or delisted countries (removed from the analysis) are in Africa: the Central African Republic, the Democratic Republic of the Congo, Equatorial Guinea, Gabon, Guinea, Madagascar and San Tome and Principe.

[7] Although the EITI mainly focuses on nations with oil and mineral resources, countries such as Liberia have chosen to include the timber industry within their EITI compliance as well, thus looking at all primary commodities can be valuable.

(Alexeev & Conrad, 2009). However, the rents data are not as complete as the primary export data, hence models using both measures are examined.

Dependent and Control Variables

The dependent variable for the study is each country's level of economic development as measured by *GDP per capita (GDPPC).* The data on GDP per capita were obtained from the World Bank's World Development Indicators. The log of GDP per capita is taken to address the non-normality of this variable.

Additionally, several control variables are included in the study. The data sources and definitions of the control variables are listed in *Appendix A*. The control variables were selected because they have been consistently used in statistically based studies of the resource curse and are known to be related to the dependent variable (Boschini et al., 2007; Iimi, 2007; Mehlum et al., 2006; Sachs & Warner, 1995). They are included in the statistical models in order to reduce the chances of omitted variable bias. The log is taken of the majority of these variables as well to deal with non-normality.

Models and Results:

An earlier study (Corrigan (2014) that looked at the impact of EITI membership through 2009 found that EITI membership was associated with a statistically significant reduction in the negative effects of resource dependence on economic development (measured in GDP per capita). This section updates those results through 2014 and improves upon the past study by testing additional and more rigorous model specifications for the panel data. Table 1 presents the models using primary exports (*PRES)* as the proxy for resource dependence. Table 2 presents the same models using natural resource rents as a percent of GDP (*RENTS*) to represent level of resource dependence.

All of the models shown in Tables 1 and 2 include several control variables and employ a two year lag of EITI membership to capture the time it takes for implementation. The control variables include an indicator for investment measured as gross capital formation as a percentage of GDP, an indicator for government consumption as a percentage of GDP, an indicator for level of democracy taken from the Polity IV project, a population level indicator and an indicator for openness measured as the percentage of imports and exports in GDP. The interaction effect for EITI and resource dependence is represented as a product of the two variables (*PRES*EITI* or *RENTS*EITI* respectively).

For Table 1, Model 1 models the panel data using random effects. Year dummies (not shown) have been included to control time specific shocks and the model uses robust standard errors clustered around country indicators. The results show that the effect of EITI membership on GDP per capita, dependent on resource dependence (*PRES*EITI)*, is positive and significant at the .05 alpha level. The coefficient is strong enough to overcome the negative effects of resource dependence on GDP (-0.06 + 0.32 = 0.26). Model 2 employs fixed effects, often used with panel data to control for unobserved heterogeneity, and the results remain essentially unchanged. Model 3 employs a one year lag of the dependent variable in addition to using fixed effects.[8] Lagged dependent variables can also help deal with autocorrelation and omitted variable bias problems, but may be preferable to fixed effects alone if indicators are largely time invariant (Angrist & Pischke, 2009; Keele & Kelly, 2006). As would be expected, much of the change in GDP per capita is dependent on prior GDP per capita. However, by including this variable, we can begin to get at what significantly effects GDP per capita beyond past levels. The interaction term is significant in Model 3 and the coefficient is again strong enough to counteract the negative effects of resource dependence on GDP per capita. Models 4 and 5 repeat Models 1 and 2, but with a block bootstrap method to address potential

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[8] I use a command developed to deal with the problem of employing lagged dependent variables in panel data with fixed or random effects (Kripfganz, 2015, similar to that developed by Arellano & Bond, 1991) as many scholars have commented on this problem (Allison, 2015; Nickell, 1981). The command automatically uses fixed effects. The rest of the model is kept the same as Models 1 and 2.

bias in standard errors sometimes associated with panel data (Bertrand, Duflo, & Mullainathan, 2004). The interaction effect (*PRES*EITI*) remains significant in this robustness check.

Table 2 repeats the same series of models presented in Table 1 but changes the resources indicator from percent primary exports to natural resource rents as a percent of GDP (*RENTS*). Resource rents addresses the concern that larger countries tend to consume more domestically (Alexeev & Conrad, 2009), keeping in mind the limitations of this indicator mentioned above. The results are similar to those presented in Table 1 and the coefficients are large enough to overcome the negative effects of resource dependence, although the interaction term become significant at the .10, rather than .05, alpha level in several of the models.

In other results, not shown, all of the models also included a dummy variable for OECD countries. This controls for the influence that the three countries that tend to be outliers as EITI members (United States, United Kingdom and Norway) may have on the results. The models results were essentially unchanged.

Table 1: Moderating effect of EITI Membership on Resource Exports and GDP per capita

EITI Membership Effect on (log) GDP Per Capita

Models	(1) random effects	(2) fixed effects	(3) lagged GDPPC	(4) bootstrap random effects	(5) bootstrap fixed effects
EITI	-0.20 (-2.19)*	-0.21 (2.30)*	-0.01 (-1.07)	-0.20 (-2.09)*	-0.21 (-2.31)*
PRES	-0.06 (-0.78)	-0.06 (-0.77)	-0.02(-1.65) [+]	-0.06 (-0.80)	-0.06 (-0.80)
PRES*EITI	**0.32 (2.28)***	**0.34 (2.44)***	**0.03(2.18)***	**0.32 (2.17)***	**0.34 (2.47)***
Log(INVEST)	0.09 (2.80)**	0.09 (3.11)**	0.02 (6.58)**	0.09 (2.80)**	0.09 (2.99)**
Log(GOVT_CONSUME)	-0.03 (-0.44)	-0.03 (-0.57)	-0.00 (-0.62)	-0.03 (-0.46)	-0.03 (-0.57)
POL2	-0.00 (-0.63)	-0.00 (-0.70)	0.00 (1.65)	-0.00 (-0.62)	-0.00 (-0.67)
Log(POP)	-0.51 (-5.01)**	-0.66 (-5.25)**	0.02 (1.42)	-0.51 (-4.88)**	-0.66 (-5.03)**
Log(OPEN)	-0.06 (-1.21)	-0.06 (-1.32)	0.01 (2.70)**	-0.06 (-1.25)	-0.06 (-1.23)
EITI (lag 2)	0.07 (1.99)*	0.07 (2.14)*	0.00 (0.06)	0.07 (1.97)*	0.07 (2.21)*
Log GDPPC (lag 1)			0.98 (130.49)**		

Countries included in Model 1, Table 1: 150
Z/T-Statistic in parenthesis ([+]< 0.10, *<0.05, **<0.01 significance)
Robust clustered standard errors (or block bootstraps where indicated)
Year dummies used in all models

Table 2: Moderating effect of EITI Membership on Resource Rents and GDP per capita

EITI Membership Effect on (log) GDP Per Capita

Models	(1) random effects	(2) fixed effects	(3) lagged GDPPC	(4) bootstrap random effects	(5) bootstrap fixed effects
EITI	-0.15 (-1.52)	-0.15 (-1.58)	-0.01 (-1.24)	-0.15 (-1.49)	-0.15 (-1.51)
LogRents	-0.00 (-0.06)	0.00 (0.13)	0.00 (0.85)	-0.00 (-0.05)	0.00 (0.10)
LogRents*EITI	**0.07 (1.73)** [+]	**0.07 (1.88)** [+]	**0.01 (2.32)***	**0.07 (1.75)** [+]	**0.07 (1.82)** [+]
Log(INVEST)	0.08 (2.59)**	0.09 (2.89)**	0.02 (6.03)**	0.08 (2.31)*	0.09 (2.89)**
Log(GOVT_CONSUME)	-0.02 (-0.38)	-0.03 (-0.50)	-0.00 (-0.72)	-0.02 (-0.40)	-0.03 (-0.50)
POL2	-0.00 (-0.51)	-0.00 (-0.60)	0.00 (1.24)	-0.00 (-0.55)	-0.00 (-0.62)
Log(POP)	-0.51 (-5.09)**	-0.67 (-5.37)**	0.01 (0.88)	-0.51 (-5.08)**	-0.67 (-5.00)**
Log(OPEN)	-0.07 (-1.33)	-0.07 (-1.45)	0.01 (2.62)*	-0.07 (-1.30)	-0.07 (-1.42)
EITI (lag 2)	0.06 (1.80) [+]	0.06 (1.94) [+]	0.00 (0.09)	0.06 (1.81) [+]	0.06 (1.94) *
Log GDPPC (lag 1)			0.98 (124.28)**		

Country included in Model 1, Table 2: 148
*Z/T-Statistic in parenthesis ([+] < 0.10, *<0.05, **<0.01 significance)*
Robust clustered standard errors (or block bootstraps where indicated)
*Year dummies used in all models*

Summary of Findings and Conclusions:

The results above consistently show that resource revenue transparency has a positive effect on economic development through its offsetting of the negative economic influence of resource dependence. To further exemplify the interaction between the promotion of resource sector transparency through the EITI and resource dependence, the effect of membership on GDP per capita was calculated for a typical country (meaning using the mean for all control variables) at varying levels of resource dependence. Figures 1 and 2 display these results.

As both figures illustrate, the positive influence of the promotion of resource sector transparency increases as resource dependence increases. At very low levels of resource exports dependence (Figure 1), transparency efforts in line with the EITI actually may lower income compared to a non-EITI member. This makes sense since countries with low resource dependence would be bearing the costs of implementing an initiative while receiving relatively few benefits. However, as resource dependence increases, so too do the economic benefits. For resource export dependence (*PRES*), these benefits become evident when a typical country has around a 40% dependence on resource exports. For a typical country that is 50% dependent on resource exports, the realized economic impact is a $110 increase in GDP per capita compared to a non-EITI member country. At 75% dependence, the positive effect jumps to a $402 increase in GDP per capita for EITI members compared to non-members.

Figure 1: Effect of EITI Membership on Income at Varying Levels of Resource Export Dependence
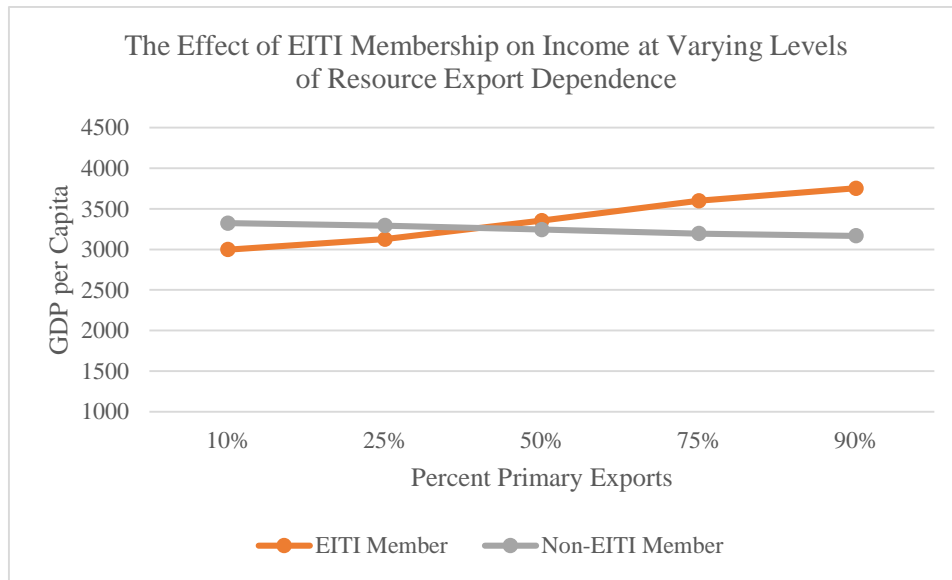
Figure 2: The Effect of EITI Membership on Income at Varying Levels of Resource Rent Dependence
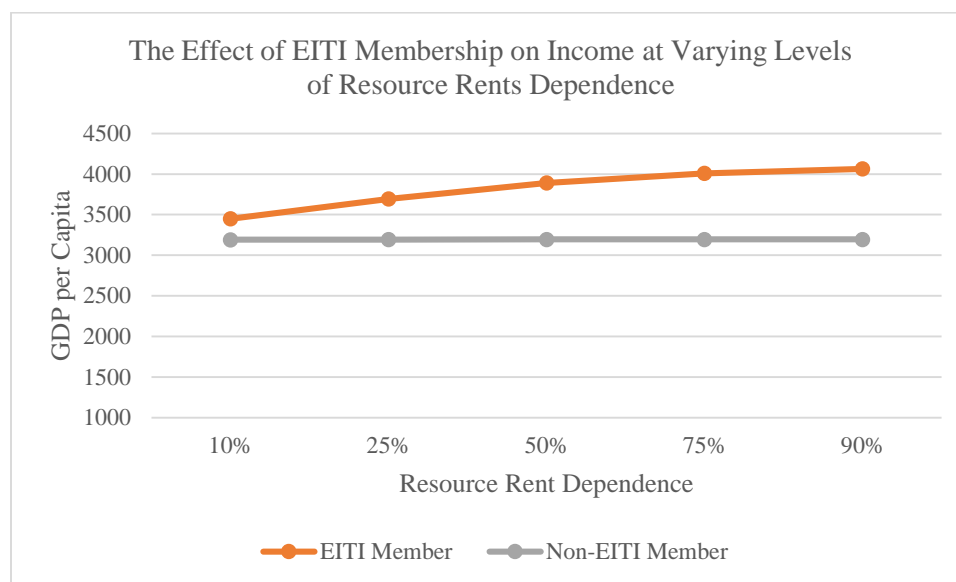
When looking at economic dependence on resource rents (*RENTS*) (Figure 2), while increased transparency efforts have positive effects even at low levels, these effects are magnified as dependence increases. At 50% rents dependence, a country increases its GDP per capita by approximately $696 compared to if it were not an EITI member; at the level of 75% dependence, the realized economic gain increases to $814.

It is also of interest to use the statistical model to estimate the aggregate effects on GDP per capita of membership in the years since the EITI began. The potential magnitude of the benefit of the EITI, or increased transparency, is illustrated below (Table 3). The aggregate difference that the promotion of revenue transparency is predicted to make on GDP per capita increases as membership in the EITI also increases. However, the proportion of the difference in total of GDP per capita for participating countries remains steadier. The effect of membership makes up 5.94% to 13.28% of the total predicted GDP per capita for all member countries depending on the year and measure of resource dependence specified. For impoverished nations, this can be a meaningful upturn in economic development. Natural resource transparency is estimated to have increased overall GDP per capita on average between $7,642 and $8,428 per year, depending again on the measure of resource dependence specified. If we multiply the expected differences in GDP per capita due to joining the EITI by the respective population estimates for each year and member country, the increased promotion of resource sector transparency is estimated to have increased total GDP by between $943,358,014,849 and $1,133,951,049,838 since the EITI's inception, or about 1.4% of the total predicted world GDP for that time period.

Table 3: Predicted Aggregate Effects of EITI Membership[9]

Year	Included EITI members (No.)	Export Dependence		Rents Dependence	
		Predicted difference in GDPPC ($)	Aggregate effect on predicted GDPPC (%)	Predicted difference in GDPPC ($)	Aggregate effect on predicted GDPPC (%)
2003	3	626	9.35	649	9.67
2004	5	1,093	5.94	1,520	8.03
2005	10	3,035	8.10	3,320	9.57
2006	12	4,515	8.80	5,631	11.93
2007	18	6,723	8.21	8,976	11.85
2008	22	7,042	7.27	10,115	11.22
2009	25	7,272	7.05	10,016	9.46
2010	28	10,788	9.47	12,958	12.08
2011	28	11,085	9.40	14,182	13.28
2012	32	13,586	10.01	13,511	11.00
2013	32	13,379	9.88	11,831	9.63
2014	28	12,638	9.94		
Total GDPPC		91,783		92,709	
Average Yearly GDPPC		7,649	8.62	8,428	10.70
Total GDP[10]		1,133,951,049,838	1.48 (world)	943,358,014,849	1.38 (world)

Because the extractive industries have often been associated with negative economic and social outcomes, the finding that increased revenue transparency helps to significantly alleviate the negative economic effects of resource dependence has important implications for policymakers, particularly in countries that are considering implementing or already have implemented mandatory revenue payment disclosure rules. If revenue transparency alleviates some of the negative economic aspects of the resource curse, as the findings in this study suggest, there are numerous positive ramifications, not only for resource-rich countries and their citizens,[11] but for multinational corporations operating in resource-rich countries. The latter are likely to benefit from the more attractive business climates that economic growth and improved governance engenders, including expanded investment opportunities, an increase in citizen purchasing power and decreased business risk (Ahlquist, 2006; Bénassy Quéré, Coupet, & Mayer, 2005; Busse & Hefeker, 2007; Jensen, 2003, 2008; Li & Resnick, 2003; Liu, Burridge, & Sinclair, 2002; Schneider & Frey, 1985).

Promotion of revenue transparency via other mechanisms beyond the EITI, including mandatory disclosure laws such as those passed in Canada, the EU, Norway and the US, has the potential to translate natural

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[9] These calculations are based on the Model 2 (using fixed effects) from Table 1 and Table 2. The predicted difference in GDP per capita was calculated by summing the GDP per capitas predicted by the model for the actual EITI members (without missing data) in each year and then subtracting the summed GDP per capita predictions of the counterfactual scenario where the same countries had not joined the EITI. The effect (the difference between the two predictions) was then calculated as a percentage of the total predicted GDP per capita for all EITI members in each year (aggregate columns). Each country's year of joining the EITI appears in Appendix C. Amounts have been rounded to the nearest dollar.

[10] Total effect on GDP was calculated by multiplying the differences in GDP per capita by the actual population for the respective countries for the respective years. According to the World Bank's World Development Indicators, both the indicators for GDP per capita and the total population use midyear estimates of the population as per their definition (World Bank, 2015).

[11] Positive economic growth has been linked to increased political stability, democracy and good governance (Barro, 1999; Boix & Stokes, 2003; Collier, Hoeffler, & Rohner, 2009; Lipset, 1959; Treisman, 2007).

resource wealth into long-term prosperity for resource-rich countries and the businesses that invest in them. Given that a number of resource-rich countries have not joined (or have been removed from) the EITI, mandatory disclosure requirements that promote transparency would expand the realized benefits of transparency to a greater number of countries than those included in this research.[12] In addition, EITI implementation in member countries has been sometimes uneven and incomplete (EITI Implimentation Committee, 2015; Rucker, 2015). As such, the actual economic impacts of mandatory disclosure requirements would very likely exceed the estimates detailed in this analysis.

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[12] The International Monetary Fund (IMF) identifies an additional 35 resource-rich countries that are not included as EITI members in this study's analysis (see IMF 2012, p. 48-50). Adding Kuwait and South Sudan to that list increases that number to 37 countries (both countries meet the IMF's definition of resource-rich, i.e. have either natural resource revenue or exports of at least 20% of total fiscal revenue and exports, respectively). Of those 37 countries, 32 were not active EITI members as of February 11, 2016 (see Appendix D).

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Appendix A: Variables

Purpose and Source	Code	Description
Dependent Variables		
Economic Indicator 1997-2014 - World Bank	GDPPC	Gross Domestic Product per capita (constant 2005 US$) is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. World Bank national accounts data and OECD National Accounts data files. (World Bank, 2015)
Membership Variables		
EITI Data 2003-Oct 2015 - Reported by EITI	EITI	Intention: Extractive Industries Transparency Initiative Dummy Variable for Membership (0=non-member, 1=member) - 1 if started intent for membership anytime in year, 0 if not considered a member at any time in year.
Resource Indicators		
Resource Indicator 1997-2014 - UNCTAD Statistics	PRES	Measure of dependence on exports on primary exports (primary exports/total merchandise exports) – Merchandise Primary Commodities (SITC 0 + 1 + 2 + 3 + 4 + 68) (Trade matrix by product groups, exports in thousands of dollars, annual, 1997-2014) / Merchandise All Products (Trade matrix by product groups, exports in thousands of dollars, annual, 1997-2014). (United Nations Conference on Trade and Development, 2015)
Resources Indicator 1997-2013 - World Bank	RENTS	Measure of dependence on natural resource rents in term of percentage of GDP. Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents and forest rents. Rents are the difference between the value resource production at world prices and their total costs of production (minerals included in the calculation are tin, gold, lead, zinc, iron, copper, nickel, silver, bauxite and phosphate). (World Bank, 2015)
Controls		
1997-2014 World Bank	OPEN	Measure of openness – EXPORTS (% of GDP) + IMPORT (% of GDP). *Exports* of goods and services (% of GDP) represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees and other services, such as communication, construction, financial, information, business, personal and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments (World Bank national accounts data and OECD National Accounts data files). *Imports* of goods and services (% of GDP) represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees and other services, such as communication,

		construction, financial, information, business, personal and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments (World Bank national accounts data and OECD National Accounts data files). (World Bank, 2015)
1997-2014 Polity IV Project	POL2	Measure of level of democracy from -10 to 10. Combined Polity Score: Computed by subtracting AUTOC from DEMOC; normal range polity scores are imputed for coded "-77" and "-88" special polity conditions, polities coded "-66" on the POLITY variable are left blank. (Marshall, Gurr, & Jaggers, 2015)
1997-2014 World Bank	GOVT_ CONSUME	General government final consumption expenditure (% of GDP) (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation (World Bank national accounts data and OECD National Accounts data files). (World Bank, 2015)
1997-2014 World Bank	POP	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship, except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. The values shown are midyear estimates ((1) United Nations Population Division. World Population Prospects, (2) United Nations Statistical Division. Population and Vital Statistics Report (various years), (3) Census reports and other statistical publications from national statistical offices, (4) Eurostat: Demographic Statistics, (5) Secretariat of the Pacific Community: Statistics and Demography Programme and (6) U.S. Census Bureau: International Database). (World Bank, 2015)
1997-2014 World Bank	INVEST	Measure of gross fixed capital formation (% of GDP) (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains and so on); plant, machinery and equipment purchases; and the construction of roads, railways and the like, including schools, offices, hospitals, private residential dwellings and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation (World Bank national accounts data and OECD National Accounts data files). (World Bank, 2015)

Appendix B: Countries Included in Study:

Afghanistan	Canada	Ghana
Albania	Cape Verde	Greece
Algeria	Chad	Greenland
Andorra	Chile	Grenada
Angola	China	Guatemala
Antigua and Barbuda	Colombia	Guinea-Bissau
Argentina	Comoros	Guyana
Armenia	Congo, Rep.	Haiti
Aruba	Costa Rica	Honduras
Australia	Cote d'Ivoire	Hong Kong, China
Austria	Croatia	Hungary
Azerbaijan	Cuba	Iceland
Bahamas, The	Cyprus	India
Bahrain	Czech Republic	Indonesia
Bangladesh	Denmark	Iran, Islamic Rep.
Barbados	Djibouti	Iraq
Belarus	Dominica	Ireland
Belgium	Dominican Republic	Israel
Belize	Ecuador	Italy
Benin	Egypt, Arab Rep.	Jamaica
Bermuda	El Salvador	Japan
Bhutan	Eritrea	Jordan
Bolivia	Estonia	Kazakhstan
Bosnia and Herzegovina	Ethiopia	Kenya
Botswana	Faeroe Islands	Kiribati
Brazil	Fiji	Korea, Rep.
Brunei Darussalam	Finland	Kuwait
Bulgaria	France	Kyrgyz Republic
Burkina Faso	French Polynesia	Lao PDR
Burundi	Gambia, The	Latvia
Cambodia	Georgia	Lebanon
Cameroon	Germany	Lesotho

Liberia

Libya

Lithuania

Luxembourg

Macao, China

Macedonia, FYR

Malawi

Malaysia

Maldives

Mali

Malta

Marshall Islands

Mauritania

Mauritius

Mexico

Micronesia, Fed. Sts.

Moldova

Mongolia

Morocco

Mozambique

Myanmar

Namibia

Nepal

Netherlands

New Caledonia

New Zealand

Nicaragua

Niger

Nigeria

Norway

Oman

Pakistan

Palau

Panama

Papua New Guinea

Paraguay

Peru

Philippines

Poland

Portugal

Qatar

Romania

Russian Federation

Rwanda

Samoa

Saudi Arabia

Senegal

Serbia

Seychelles

Sierra Leone

Singapore

Slovak Republic

Slovenia

Solomon Islands

South Africa

South Sudan

Spain

Sri Lanka

St. Kitts and Nevis

St. Lucia

St. Vincent and the Grenadines

Sudan

Suriname

Swaziland

Sweden

Switzerland

Syrian Arab Republic

Tajikistan

Tanzania

Thailand

Timor-Leste

Togo

Tonga

Trinidad and Tobago

Tunisia

Turkey

Turkmenistan

Uganda

Ukraine

United Arab Emirates

United Kingdom

United States

Uruguay

Uzbekistan

Vanuatu

Venezuela, RB

Vietnam

West Bank and Gaza

Zambia

Zimbabwe

Appendix C: EITI Member Countries

Country (included in data set)	Year Intention to Join was Announced
Afghanistan	2009
Albania	2008
Azerbaijan	2003
Burkina Faso	2007
Cameroon	2005
Chad	2007
Colombia	2013
Congo, Rep.	2004
Cote d'Ivoire	2007
Ethiopia	2009
Ghana	2003
Guatemala	2010
Honduras	2012
Indonesia	2008
Iraq	2009
Kazakhstan	2005
Kyrgyz Republic	2004
Liberia	2007
Mali	2006
Mauritania	2005
Mongolia	2006
Mozambique	2008
Myanmar	2012
Niger	2005
Nigeria	2003
Norway	2007
Papua New Guinea	2013
Peru	2005
Philippines	2012
Senegal	2012
Seychelles	2013
Sierra Leone	2007
Solomon Islands	2011
Tajikistan	2012
Tanzania	2008
Timor-Leste	2007
Togo	2009
Trinidad and Tobago	2010
Ukraine	2009
United Kingdom	2014
United States	2011
Zambia	2008

Delisted and Suspended Countries up to 2014 (not included in data set)		
Country	**Intention Announced**	**Delisted/Suspended**
Central African Republic	2007	Since 2013
Democratic Republic of the Congo	2005	2013-2014
Equatorial Guinea	2007	Never completed
Gabon	2004	Since 2013
Guinea	2005	2009-2011
Madagascar	2008	2011-2014
San Tome and Principe	2004 and 2011	2010-2011
Yemen	2007	2011-2012 2013/14/15

Appendix D: Resource-Rich Countries that are not Currently Active EITI Members[13] [14]

Algeria
Angola
Bahrain
Bolivia
Botswana
Brunei Darussalam
Central African Republic*
Chile
Ecuador
Equatorial Guinea**
Gabon**
Guyana
Iran
Kuwait
Lao PDR
Libya
Mexico
Oman
Qatar
Russian Federation
Saudi Arabia
South Sudan
Sudan
Suriname
Syrian Arab Republic
Turkmenistan
Uganda
United Arab Emirates
Uzbekistan
Venezuela
Vietnam
Yemen*

* denotes country that has joined EITI but whose membership is currently suspended.

**denotes a country that was an EITI candidate, but never completed membership.

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[13] List compiled by author using data from IMF (2012, p. 48-50) and www.eiti.org/countries, accessed January 25, 2016.

[14] Because of their varied status as EITI members, the countries with asterisks were not included in the analysis at all.