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Does the Extractive Industries Transparency Initiative (EITI) Help Reduce Corruption in Latin America? Evidence from Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago

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List of Acronyms

CELAG	Centro Estratégico Latinoamericano de Geopolítica (Latin American Strategic Center of Geopolitics)
CSO	Civil Society Organizations
EITI	Extractive Industries Transparency Initiative
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German Corporation for International Cooperation GmbH)
ISS	Institute of Social Studies
IDB	Inter-American Development Bank
MSG	Multi-Stakeholder Group
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
SCM	Synthetic Control Methodology
V-Dem	Varieties of Democracy
WB	World Bank
WGI	Worldwide Governance Indicators

Abstract

Vast revenues coming from mineral resources encourage rent-seeking activities that hamper institutions and development. This phenomenon is captured in the 'resource curse' theory, meaning that mineral-rich countries perform worse in economic growth. Thus, the Extractive Industries Transparency Initiative (EITI), launched in 2002, was presented as an alternative to counter corruption through the disclosure of information and the involvement of different stakeholders in the extractive sector. Since then, the number of new EITI members increased progressively, as well as the studies to assess the initiative's validity. There are several evaluations performed on the whole sample of EITI countries and few on individual case studies. However, there remains scarce evidence of analyses on individual cases within the same region. In this regard, this study uses a Synthetic Control Methodology (SCM) to measure the EITI's impact on corruption in five Latin American countries: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. The method allows for seeing the EITI's effect in each stage of its implementation. The results of this research are mixed. In most cases, there is not a decrease in corruption. Instead, there is a marginal increase in corruption. Several reasons could explain these findings, such as political scandals of corruption, civil conflicts, or weak involvement of the civil society. Hence, the latter explanations would suggest that the EITI in Latin America has been unsuccessful. This evidence improves our comprehension of the evolution of corruption in developing countries after an intervention of this nature.

Relevance to Development Studies

Corruption is a major cause of poor performance in developing countries. Rent-seeking practices lead to the deviation of funds that would, otherwise, be assigned to activities that may foster development. Thus, the alternatives implemented to deter corruption, such as the EITI, play an important role in national development. The present study provides a view of the effect of this transparency scheme on corruption in Latin American countries.

Keywords
Extractive Industries Transparency Initiative, EITI, Corruption, Transparency, Governance, Resource Curse, Synthetic Control Methodology

Chapter 1
Introduction

1.1 Motivation and Relevance of the Proposed Research

Corruption is a social phenomenon defined in general terms as "the abuse of entrusted power for private gain" (Transparency International 2019). This problem of historical, structural and systemic nature has especially been perpetuated over time in developing countries, such as those of Latin America. Warf and Stewart (2016) mention that the colonial period defined the way that institutions work in Latin America. The colonizers of these countries created stratified societies and an extensive extractive model linked to the colonial rule. These factors made these countries dependent on their conquerors and a system of exchange of economic and political rights for loyalty. The result was a limited development of institutions that did not guarantee the rights of the whole population. The latter situation —the lack of independent legal institutions and the fragile rule of law— gave rise to clientelism and illicit economic activities, committed mostly by the disadvantaged *mestizos[1]*. In this sense, Latin American countries, mainly colonized by Spain and Portugal, inherited a favorable environment for rent-seeking practices. The colonial journey that has led to persistent corruption in Latin America is distinguished from other parts of the world. For instance, Africa was colonized by different powers and obtained independence almost one century later than Latin America (Warf and Stewart 2016). Thereby, Latin America has dealt with corrupt practices for such a long time that people have internalized them as part of their daily lives, even though they catalog corruption as undesirable and problematic. Hence, corruption is so deeply embedded in the daily language that people tend to agree with the phrase, "They are corrupt, but at least they work" (La Vanguardia 2018).

Corruption in different forms costs the states millions of dollars every year. According to the organization Global Financial Integrity (2015), Latin America annually lost about 3% of its GDP in illicit financial outflows between 2003 and 2012 (Vogl 2015). The main problems linked to corruption in the region involve money laundering in the Caribbean, drug cultivation and trafficking in the Andes, organized crime in Central America, financial irregularities in Brazil, and weak legal framework in Haiti (La Vanguardia 2018). Moreover, according to the Centro Estratégico Latinoamericano de Geopolítica (CELAG, Latin American Strategic Center of Geopolitics) (2018), corruption in Latin America is present in the forms of sending money to tax havens for tax evasion, using of public resources for private ends, capital outflows, bribery networks — from low ranking officials to presidents, and plundering of natural resources. This Strategic Center adds that those that have benefited from corruption and the flaws of 'third world culture' are the big businessmen.

The social perceptions about corruption are comparable among Latin American countries. *Figure 1* illustrates worldwide the Corruption Perception Index (CPI) from Transparency International in 2018, being the 'dark orange' color the representation of most corrupt

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[1] The rent-seeking environment was consolidated later with the independence of Latin American countries and the unstable political order. In that period the new independent states lost their third-party enforcement of rights which caused turmoil and violence, like the civil war in Mexico in 1810. Likewise, these new states did not even have well-defined borders, which provoked external conflicts with huge expenditures, around 77 percent of their budgets, see more in Prados De La Escosura (2005) and Bates et al. (2007). Afterward, this region experienced similar political regimes in analogous periods, from dictatorships, autocracies to populist right-wing governments (Rothstein and Uslaner 2012).

countries. Regarding this index, Latin America obtained, on average, 38 over 100 points (0 being the most corrupt and 100 the least corrupt). This is excepting Chile, Barbados, and Uruguay that perform better with 67, 68, and 70 points respectively. This region has lower levels of corruption compared, for example, to Sub-Saharan Africa's CPI of 32 over 100. Besides that, in 18 countries of Latin America, corruption is perceived as the third most important issue along with the 'political situation'. The first and second problems are the 'economic situation' and 'delinquency' correspondingly. In the specific cases of Colombia, Peru, and Brazil, corruption is ranked as the first concern (Corporacion Latinobarómetro 2018). Furthermore, common cases of corruption have been found that involve two or more countries from the region. One noticeable case was that of Odebrecht[2] that bribed and financed political campaigns in 12 Latin American countries, diverting millions of dollars through sophisticated payments. As a consequence, there are politicians in jail, hundreds of people have lost their jobs, and many corrupt people have received huge amounts of money (La Vanguardia 2018). These general events can also influence the perception of corruption across countries.

Figure 1
Corruption Perception Index Map 2018
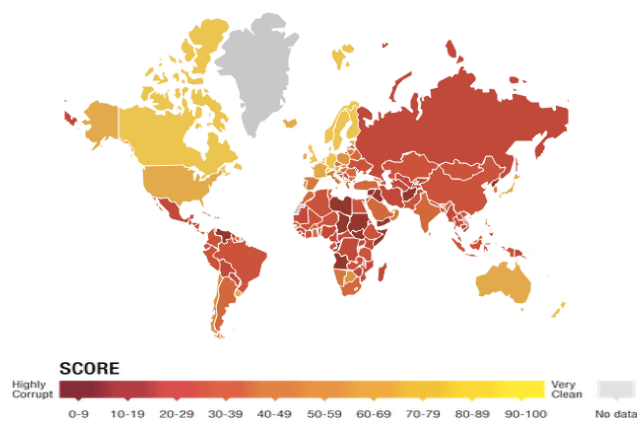
Source: Transparency International 2018.

Corruption is also linked to the abundance of natural resources. As the world's leading producer of metals and the second-largest producer of oil, Latin America is characterized by having plenty of natural resources. About 40% of the regional exports come from the extractive industries, which represent one of the main sources of the public revenue for economies rich in natural resources. For instance, Trinidad and Tobago's extractive sector is 32.2% of its GDP. Due to the high volume of financial transactions in the sector, it is highly vulnerable to corrupt practices that hamper economic and social development (Inter-American Development Bank (IDB) 2015). This argument is meticulously analyzed by the so-called 'resource curse' theory, which mainly states that having mineral resources has a negative impact on economic growth (Weszkalnys 2011). Some variants of this theory further described in this study, like the Dutch Disease theory, also try to explain how this curse occurs (Gunesch 2018: 76). One relevant aspect of this theory is the institutional analysis, where institutions in resource-rich countries can be obstructed by rent-seeking activities or corrupt practices, and instead, good institutions can be the means to prevent the resource curse. Ross (2014) emphasizes that oil wealth deteriorates the quality of institutions

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[2] Odebrecht is a Brazilian conglomerate of businesses related to engineering, construction, energy, chemicals and petrochemicals (Odebrecht 2019).

(effectiveness of government bureaucracy, controls on corruption, rule of law) and prevents the capacity of states to foster economic growth.

Other authors like Collier and Hoeffler (1998) and Collier et al. (2009) mention that mineral resource endowment might lead to violent conflict. Latin America is not an exception as it has a history of violent conflicts due to natural resources. One example is the Chaco War (1932-1935), where Bolivia and Paraguay fought for a region that supposedly had important oil reserves. Globally, oil resources tend to increase conflict in two ways: the first is governmental conflicts (rebel groups try to control the central government) and the second is secessionist conflicts (rebel groups pretend to establish an independent and sovereign state). Nevertheless, in Latin America there has never been a separatist conflict, becoming a 'secessionist-proof' region. This characteristic also distinguishes the region from the rest of the world (Ross 2014).

The Inter-American Development Bank (2015), The World Bank (2017), The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ, German Corporation for International Cooperation GmbH) (2016), and other organizations, recommend transparency as a tool to reduce the risks of corruption and ensure effective governance. According to them, Latin American countries must improve transparency in the administration of natural resources with well-managed and high-quality information. With proper management, the extractive sector can contribute to development through better infrastructure, financing of basic services, and technological innovation. In this regard, transparency[3] is key not only to prevent corruption but also to have an efficient social expenditure that would alleviate poverty and foster stability. Thus, these countries have to use transparency as an instrument of public policy, plus the adoption of international standards and comparison frames. This transparency mechanism as a solution to the resource curse is depicted in *Figure 2* (Inter-American Development Bank (IDB) 2015).

Figure 2
Transparency as a Solution to the Resource Curse
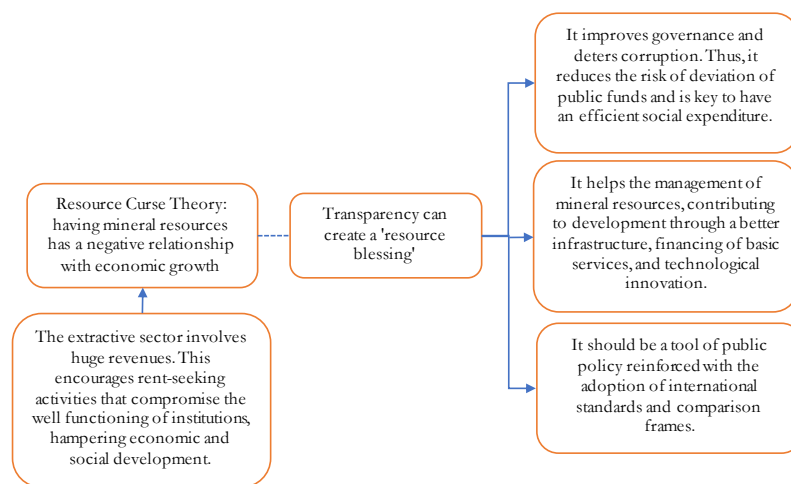
Source: Author's elaboration

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[3] According to the World Economic Forum (WEF, 2013), "transparency plays a twofold role in governance systems: it determines the quality of institutions and shapes the degree of trust and engagement by stakeholders. Still, transparency is only one component of the effort to improve governance. Many other factors help shape outputs from the extractive industries, and there is no single set of best practices that can address all of the challenges in the sector. The quality and outcomes of governance can and should be improved through measures appropriate to the specific context" (Vieyra and Masson 2014).

One international standard that was created to foster this kind of solution is the Extractive Industries Transparency Initiative (EITI). The establishment of this scheme was proclaimed by then UK Prime Minister, Tony Blair, in the World Summit on Sustainable Development in Johannesburg in September 2002. The principles of this global standard were agreed upon a conference in London in June 2003. This scheme "promotes the open and accountable management of oil, gas and mineral resources" (EITI, 2019). When a country joins the initiative, it commits to being transparent. The purpose of the global standard is to avoid corruption in the management of oil, gas, and mineral resources. This mechanism works through the disclosure of information in the value chain of the extractive industry. It encompasses governments, extractive companies from the mining, oil, and gas sectors, civil society groups, and international organizations from around the world. The participation of these stakeholders, especially civil society[4], leads to better accountability and broader reforms in the governance of the extractive sector (EITI, 2019).

Concepts like governance, transparency, and accountability represent what this initiative demands. Therefore, the states have to pass through strict controls and audits. This scheme also influences, to some extent, the usage of public funds to foster development. Therefore, this mechanism could help counter the resource curse by improving the administration of extractive industries, avoiding the deviation of funds, and influencing the increased quality of life for citizens in the member states. Hence, it is essential to assess the performance of this transparency initiative on corruption in Latin America. The countries of this region, in summary, share common characteristics, such as similar levels of development (most of them are upper middle income), perceptions of corruption, wealth in mineral resources, history and culture (Caiden 2003). These similarities allow for seeing how the EITI has worked in countries with comparable nature. Since, for example, a developed country with high performance in transparency would not contribute to the analysis of the reduction of corruption.

Concurring to the statutes of the EITI before 2016, countries had to pass through three stages to achieve their optimum level of transparency in the mineral resource sector. Those stages are 'commitment', 'candidate', and 'compliant'. In 2016, the EITI Secretariat adopted a different scheme of progression: 'to be assessed', 'inadequate progress', 'meaningful progress', and 'satisfactory progress'[5]. After the reform, all countries had to be re-assessed regarding the new categories. Hence, the statuses for every country changed. According to the EITI, these amendments were implemented to give more flexibility to country members[6]. This research paper will apply the definitions used before the reform of 2016. Having in

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[4] The civil society is included in activities related to "preparing for EITI sign-up; MSG meetings; CSO constituency side-meetings on EITI; producing EITI Reports; producing materials or conducting analysis on EITI Reports; expressing views related to EITI activities; and expressing views related to natural resource governance" (see more in https://eiti.org/document/eiti-protocol-participation-of-civil-society - EITI 2019)

[5] The stage 'to be assessed' is equivalent to 'commitment' and 'candidate'. 'Inadequate progress', 'meaningful progress' and 'satisfactory progress' are statuses obtained after 'to be assessed' or what was the 'candidate' rank previous to the reform. When a country has accomplished the majority of requirements, it acquires a 'meaningful progress' rank. Otherwise, countries receive an 'inadequate progress' rank. If the country fulfills all requirements, it reaches the rank of 'satisfactory progress', which is equivalent to being 'compliant' (EITI 2016).

[6] The terms of the EITI standard were modified in 2016 in order to expand the scope of intervention in the member countries and to consider the diversity of implementation. With the new rules it is possible to obtain information about exploration activities, licenses and contracts, beneficial owners, and revenue use. Moreover, the countries, in the management section, have to take measures to correct the issues as well as to strongly adopt the recommendations given to the EITI Reports. Hence, the EITI has evolved to cover the issues of the extractive industries value chain. Another, modification is regarding the progress of implementation and the stages. "Although the bar for achieving compliance has not changed, the assessment will to a greater extent take into account the diversity in implementing country membership, recognize efforts to go beyond the minimum requirements and incentivize continuous improvements in implementation" (EITI 2016).

mind that the study period applied for this research is between 2002 and 2017 (see *Chapter 4*), the changes introduced after 2016 would not make any difference in the EITI's impact evaluation.

Currently, fifty-two countries around the world have adopted this global standard. In Latin America, nine countries have joined the scheme. One has obtained 'satisfactory progress', three have 'meaningful progress', and five are in the stage of 'to be assessed'. From those nine countries, five which expressed commitment before 2015, will be part of this research paper. Peru committed to the scheme in 2005, Guatemala and Trinidad and Tobago in 2010, Honduras in 2012, and Colombia in 2013 (EITI 2016). The four countries omitted are Argentina, Dominican Republic, Guyana, and Mexico. Measuring the impact of this initiative in these four countries would be limited because of their recent inclusion in the EITI. As the study period is 2002 - 2017, one or two years are not enough to have significant results. Having longer periods will permit us to have a better understanding of how the initiative has worked.

Given the importance that this scheme has obtained around the world, many studies have emerged intending to assess its validity. There are mixed results reported in diverse quantitative and qualitative methodologies. These have focused on different dependent variables, such as corruption, economic development, and civil society participation among others. Those that have targeted the corruption variable suggest that, in some cases, the EITI membership reduces corruption, as in the study of Papyrakis et al. (2016). While, in other cases, corruption does not decrease, as in the study of Kasekende et al. (2016). Besides, some of these papers evaluate the EITI's effect across stages of the EITI membership. For example, Papyrakis et al. (2016) mention that there is a higher effect of reduction in corruption in the second stage 'candidate'. These studies and others are presented in the literature review. The current research paper also assesses the different stages of the EITI intervention by presenting graphs and statistics (p-values). Considering that it is a country case study, the methodology that best suits this research is the Synthetic Control Methodology (SCM), which allows us to obtain a synthetic control unit that resembles the unit of intervention. This method compared to others gives us some advantages. First, regarding the time-series analysis, it avoids extrapolation and drops off the subjectivity of the comparison unit selection. Second, compared to the difference-in-difference, it permits that the effects of unobserved variables on the outcome vary over time.

1.2 Research objective

The main objective of the present research is to evaluate the impact of the Extractive Industries Transparency Initiative on corruption perception in Latin American countries across the different stages of its implementation. This study applies the Synthetic Control Methodology for the cases of Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. As this methodology is applied individually to those five Latin American countries, it is possible to compare the different results obtained, not only in the initial year of the EITI intervention but also in the following stages. This paper will look further into potential causes of the behavior of the treated unit compared to its counterfactual. Moreover, different levels of corruption will be analyzed with the methodology, which could give us a disaggregated view of perceptions of corruption for each country, explained in detail in the data section.

1.3 Contribution to the Literature

The contribution of this study to the literature is twofold. First in terms of methodological aspects and second related to the geographical location. Different quantitative methodologies have been applied to test the effectiveness of the EITI in countries that opt for it, such as cross-country panel regressions and propensity score matching. Most studies have focused on the whole sample of country members, having limited research on individual case studies. Contrary to panel data analyses that present average effects across the whole sample of member states, the Synthetic Control Methodology (SCM) allows us to zoom in and look at the effects for each specific country. In this regard, the SCM (also used in the paper of Zambia from Villar and Papyrakis 2017) favors the contribution to the scarce individual case studies. As explained above, this methodology is a relevant tool because it corrects the limitations of time series regressions and difference-in-difference methods (Abadie et al, 2015). Furthermore, by applying the SCM, we can assess the success or failure of the EITI in the different stages of its implementation. The synthetic unit modeled with the contribution of specific country predictor variables will give us a further view of the EITI's impact on three corruption outcome variables (see *Chapter 3* for more methodology specifications). Concerning the location, there are no empirical studies conducted in Latin American countries, except that of Etter (2012) in Peru with lack of inferential tests. Moreover, there are no papers that have concentrated on cases of the same region. The present research does this to take advantage of the common characteristics often present in countries that belong to the same region. Having a look at the cases of Latin American countries that share common variables could give us a broader view of the validity of this global standard. Hence, this study will also contribute to the literature by analyzing individual cases that have not been studied before within a specific region.

1.4 Research Outline

Having a general understanding of the background of this research, the following chapters will explain concepts and theories in-depth, plus the results obtained after applying the empirical method. *Chapter 2* encompasses the literature review which is divided into five sections. The first talks about the resource curse in mineral resource-rich countries. The second presents the resource curse and its relation with the institutional variables. The third has a deeper description of the EITI. The fourth includes the most important studies that have been done related to the EITI, and the last section contains information about the studies that determine the prone variables to join the EITI. *Chapter 3* describes the Synthetic Control Methodology that has been chosen to perform this research and the explanation of why this is used in this case. *Chapter 4* presents the details of the data used for each country including, years selected, predictor and outcome variables. *Chapter 5* illustrates and describes the results obtained for the five countries that are the objects of this study, as well as the discussion of the similarities and disparities found among them. Finally, *Chapter 6* contains the concluding products of this research.

Chapter 2
Literature Review

The EITI targets the improvement of transparency in the mineral resource sector which, as expressed in the document of Vieyra and Masson (2014), brings better governance, reduction of corruption, efficiency in the management of the revenues, and prevents the resource curse. Hence, this chapter, divided into five sections, explores more exhaustively concepts related to the functioning of the EITI. The first section looks at the resource curse theory and its variants with respect to non-institutional variables. The second section explicitly focuses on the institutional aspects of the resource curse. The third section contains the explanation of the EITI with its limitations. The fourth section has relevant studies related to the validation of the EITI in the country members. Finally, the fifth section gathers the literature concentrated on the determinants of joining this initiative.

2.1 The 'Resource Curse' of Mineral-Rich Countries

There is a vast literature related to the 'resource curse'. This term was coined by Professor Richard Auty in 1993 in his book *Sustaining Development in Mineral Economies: The Resource Curse Thesis* (Auty 1993). A core meaning of this term is that having mineral resources (like oil, gas and other minerals) has a negative relationship with economic growth. The resource curse articulates past and present events to predict the future like economic development. Also, this theory addresses the failure of economic —including political and social— systems, which have tried to be explained by several studies (Weszkalnys 2011). The resource curse philosophy has mainly been applied in economic and political spheres, considered a tool to analyze more macro than micro-events.

Some approaches to the mineral resources' effects have been developed over time. In the 50s and 60s, various macro-economic studies argued that resource endowment could bring positive economic impacts in the long term. This is because the countries would invest in social and technological areas, innovation, development, and alleviation of external debt, being more a blessing than a curse (Lewis 2013; Innis 1956; Rostow 1960; and Watkins 1963). However, lately, this hypothesis became the exception instead of the rule (Collier 2008). Other studies pinpointed the fact that the trade sector of mineral-rich countries worsens over time. That is, the income from mineral resources decreases compared to the countries that export high value-added products, except in times of mineral commodities booms. Thus, primary resource-dependent countries need to export more minerals to balance a certain level of imported manufactured commodities (Gilberthorpe and Papyrakis 2014: 383).

More recently, in 1977 a variant of the resource curse was introduced. This is the 'Dutch Disease', which name is because of the findings of Groningen natural gas field in the 'North Sea of the Netherlands' north-eastern coast and due to the impact that it had in the Dutch economy (currency appreciation, loss of competitiveness of other exportable products, decline of manufacture sector, and unemployment), see Gunesch (2018: 76). Indeed, its effects can be divided into three, the first one is the 'Resource Movement Effect' where production factors (capital and labor) move from manufacturing towards the primary sector given the changes in relative marginal productivities. The second one is the 'Spending Effect' that refers to the positive income shock of mineral resources that leads to higher demand and spending by the public and private sector, causing inflationary pressures. Consequently,

salaries increase and the competitiveness of the non-primary sector reduces (Corden 1984). That is in detriment to manufacturing and, thus, the economic growth (Murshed 2018; Murshed and Serino 2011). The third one 'Export-Import Competition Theory' mentions that the rise of exports appreciates the currency, which then causes exports to be more expensive and imports cheaper, affecting the country's trade balance (Espinoza et al. 2013). Nevertheless, the outcome of the 'Dutch Disease' is attributed to its roots in the learning-by-doing and spill-over effects on the economy (Tovik 2001).

Other arguments of how the resource curse affects countries are related to the reduction of savings and investment rates in the long-run. Papyrakis and Gerlagh (2006) mention that this is because capital accumulation is less imperative for sustaining future income levels. Collier et al. (2009) support this statement with their study where they found that countries with higher levels of mineral resources have negative genuine saving rates. Furthermore, Gylfason and Zoega (2006) highlight that mineral countries, which have been through population growth, resource depletion drags, rent-seeking, Dutch disease, and neglect of education, are more prone to reduce savings and investment. On the other hand, the resource curse is explained by the rise in debt since the mineral resources serve as collateral, causing later debt crises (debt overhang), see Manzano and Rigobon (2001). Another fact is the volatility of international prices of mineral resources. These countries can have control over the internal production of their primary commodities, but they cannot control their price volatility in the global markets, which is unpredictable. This provokes a profound instability in the economy because they are natural resource-dependent with a lack of product diversification, affecting investment and growth (Van der Ploeg and Poelhekke 2009). All of those theories have tried to clarify the negative relationship between mineral resources and long-term economic growth (periods of 3 or 4 decades), see Gilberthorpe and Papyrakis (2014: 384) and Gunesch (2018: 82).

Further aspects associated with the resource curse are democracy, conflict, and other social variables. Democracy has been considered a mediating variable that leads or not to the resource curse. For instance, in the absence of democracy or cases of autocratic regimes during mineral price booms, there is a tendency to spend more, causing macroeconomic uncertainty (Gilberthorpe and Papyrakis 2014: 385). Moreover, democracy has also been studied as an outcome variable product of increased mineral dependence. For example, Ross (2001), with his empirical research, concludes that governments with mineral wealth can control and manipulate the different sectors like media corporations to prevent democratic aspirations. Regarding the conflict variable, it is suggested that the presence of mineral resources might lead to violent conflict because of an unequal distribution of those resources (Collier and Hoeffler 1998; Collier et al. 2009). Nevertheless, as explained by Gilberthorpe and Papyrakis (2014), the influence of mineral resources on conflict (as well as its duration and severity) depends on diverse variables such as the location, the type of the resource, and heterogeneity of the countries or regions. Besides that, other studies have found a negative correlation between mineral resource and education, gender inequality, and health. The negative effect on education variables is explained by the 'Resource Movement Effect'; when the production factors move to the primary sector, the investment in human capital decreases and so on education. Meanwhile, gender inequality deterioration is justified by the limited access of women to employment in the petroleum sector. Likewise, the health decline (e.g. proxied by child mortality and HIV) is the result of poor governance and less investment in a deadly disease like HIV (Gylfason 2001; Papyrakis and Gerlagh 2004; Ross 2007; Daniele 2011; de Soysa and Gizelis 2013).

Finally, there is an emerging literature to understand localized social, political, and economic conditions (Weszkalnys 2011). Some studies have concentrated on the effects of the resource curse at the regional and micro level. For example, Zhang et al. (2008) showed the differences in growth among coastal and inland regions. In the same line, Yuxiang and Chen (2011) found that mineral-rich regions in China have a slower speed of financial development (a proxy of the ratio of bank loans to GDP). Another analysis is provided by Papyrakis and Raveh (2014), where they found that mineral regions in Canada had inflationary pressures causing a decrease in competitiveness. Regarding the micro-level studies, dominated mainly by anthropologists, they try to show the effects of mineral resources at the community level, individuals and cultural matters. They highlight the negative impacts on poverty, gender equity, and social fragmentation (Hilson 2010, 2012; Macintyre 2003). Gilberthorpe and Papyrakis (2014) accordingly express that the problems can arise, for example, in indigenous communities where people have to adapt their culture to extractive activities with west customs and procedures. The different cultures and the lack of compatibility can hamper the ability of communities to transform the resource curse into a resource blessing. Moreover, they mention that the difference in the way of organizing the market economy (mineral-driven) and the subsistence one (rural-based) could explain if communities benefit or not from extractive industries. The imposition of capitalist principles like individualism, solitary, hierarchy, among others, opposed to the indigenous beliefs, can lead to violent and non-violent conflict, which is the base of the resource curse (Papyrakis 2016: 11). Lastly, at this level the concerns of sustainability are shown. The extractive corporation uses this latter term to legitimize and justify their activities where local communities reside, damaging people's living conditions. Thus, these communities are vulnerable and powerless to the capitalist discourse (Gilberthorpe 2013).

2.2 The 'Resource Curse' and its Institutional Dimension

The resource curse has been evolving over time and nowadays it has several dimensions as explained in the previous section. An important focus of this theory, closer correlated with this research topic, is the relationship with the institutional dimension, which involves government efficiency, rule of law, accountability, corruption, among others. Some studies claim that the extractive industries impede the development of good institutional framework. This happens because the rents obtained from mineral resources are an incentive to the rent-seeking activity. The rent-seeking term, first used by Krueger (1974), refers to the "the allocation of resources on political lobbying to rise one's share of existing wealth without generating any value added to the economy". This rent-seeking behavior can take place at different levels. That is, politicians can manipulate and distort policies to obtain direct returns from the extractive activity (Orogun 2010 and Ross 2001). Meanwhile, firms pay bribes to local officials to gain access to mineral sites (Villar and Papyrakis 2016: 798). Also, the public demands for more transfers (i.e. higher wages, lump-sum transfers, reduced taxes). In such an environment, competition becomes endemic and 'legitimized', people demand bribes also at a lower level (Boschini et al. 2007; Lane and Tornell 1999; Torvik 2002). Consequently, rent-seeking causes funds deviation at expenses of the whole population's wealth, affecting institutions. Albeit, rent-seeking in the extractive sector can have its limitations based, for example, on the opportunity costs in the economy like the gains from different economic activities or on the concentration of mineral resources (Wick and Bulte 2006; Dejardin 2011). Indeed, the mineral rents can cause inefficiency in allocating public funds with low-quality bureaucracy and politicians, short-run policies due to the volatility of mineral prices,

insufficient controls of transparency and rule of law. Hence, they harm institutions and impede good governance (Karl 1997; Kolstad and Wiig 2009; Stevens and Dietsche 2008).

Institutions can also be affected by authoritarian regimes that try to curb accountability. For that, these regimes channel the mineral revenue to strengthen their supremacy to remain in the power (Andersen and Ross 2014; Aslaksen 2010; Tsui 2011), counting more on mineral rents than in tax revenues because this latter makes them more accountable to citizens (McFerson 2010; Ross 2001, 2009). Then, these authoritarian regimes would allocate their returns from the extractive activity to internal security, media censorship, or free information restriction with the purpose to hide corrupt practices. There are some facts like nationalization where the governments control the enterprises and the extent of mineral resources that mediate democratic accountability (Ross 2001; Dutta and Roy 2009; Egorov et al. 2009; Williams 2011). Other studies emphasize that politicians prolong their stay in power with the help of the rents and are less accountable due to generous supplies to the population. For instance, Paler (2013) found in an experiment with 1863 towns that mineral resources can diminish the accountability of politicians because of citizens' reduced pressure (Gilberthorpe and Papyrakis 2014: 386).

On the other hand, good institutions (low corruption, efficient bureaucracy, secure property right, among others) can also have a mediating role to hamper resource curse (Boschini et al. 2007; Kolstad 2009; Mehlum et al. 2006; Sarmidi et al. 2014). In other words, strong institutions in resource-rich countries prevent that extractive industries compete illegally for the rents. Low corruption and good governance improve controls and, thus, leads to desirable economic growth (El Ansashy and Katsaiti 2013). Good institutions can revert the expected negative outcome of the 'resource curse' into a 'resource blessing', not only at the macro-level but also at the micro-level. The former level can be reached by the right productive investment in promoting growth and guaranteeing macroeconomic stability, and the latter level by ensuring equity through the correct use of public funds, targeting the vulnerable and affected communities (Gilberthorpe and Papyrakis 2014: 384). Moreover, a good institutional framework maximizes social welfare and sets up the environment to attract investment and to ease commercial success (Calder and Culverwell 2005). For example, strong financial institutions that can deal with unexpected fluctuations in resource income, transparency, and physical access to the international markets lessen the negative externalities of the price volatility of the primary sector (Van der Ploeg and Poelhekke 2009).

2.3 The EITI mechanism

"Resource-rich countries with satisfactory standards of governance and corruption control, complemented by good corporate governance practices, demonstrate better growth, and development results" (Vieyra and Masson 2014). This definition implies that the good governance of natural resources can prevent the resource curse, which translates into development and growth. The resource curse theory brings about the paradox of having mineral resources and not generating the expected growth. This uncovers the flaws of the governance systems to manage the wealth that boost countries' economies (Vieyra and Masson 2014). Pegg (2006) argues that the extractive sector has to be well managed with transparency and efficiency to foster economic growth and to reduce poverty. Transparency can expose the weakness and malfunctioning of institutional systems that rule the extractive industries, which encourage a better behavior of stakeholders of the sector, as well as the correction of the

failures detected[7]. Hence, based on the hypothesis that transparency and better governance in the extractive sector leads to development, new laws, voluntary and binding standards, protocols, guidelines, and benchmarking and reporting schemes have emerged through the last decades (Vieyra and Masson 2014).

Within the standards created under the presented premises[8], we can distinguish the Extractive Industries Transparency Initiative (EITI), to which countries adhere voluntarily to increase transparency, to cope with their problems of corruption, and to improve governance in the extractive sector. If we compare the EITI with the other initiatives, it involves the commitment of the governments, while the other standards support organizations or private mineral firms to promote transparency. For example, Publish What You Pay (PWYP) is a network that works with specific organizations within a country and not directly with the government (Van Alstine 2017). Thus, the EITI allows us to perform this study at the country level. It is important to highlight that these initiatives aim at the development of social relationships. That is, social actors that have traditionally been excluded (media, nongovernmental organizations (NGOs), private investment funds, and indigenous communities) in the management of the mineral resources, now interact to shape rules, norms, and policies in the sector (Vieyra and Masson 2014). This has driven the public and private sector, with the collaboration of diverse partakers, to instrument reforms that improve the regulatory and institutional frameworks —such as transparency and citizen participation. Otherwise, the absence of the inclusion of these stakeholders can hamper the legitimacy of decision making and investment, as well as security and sustainability (Vieyra and Masson 2014). Accordingly, the EITI contributes to preventing an 'institutional resource curse' by strengthening the accountability system of the government and the companies and informing the civil society (Papyrakis et al. 2016).

Countries that join this initiative have to pay USD 10.000 per year as a contribution to the services given by the EITI. Additionally, each member has to find the funds to accomplish the activities and costs generated in the implementation process (from USD100.000 to several million per annum, depending on the plan drawn up by each country). Some countries can obtain financial support from international development organizations like the World Bank. By the EITI's side, it is funded by international organizations, some major donor countries, extractive industries, and the contribution of the implementing countries (EITI 2016). The mechanism of this initiative consists basically of the disclosure of information on the payments done by the government as well as by the extractive companies. Although this scheme might not cover all governance failure, it can potentially contribute to improve transparency and reduce corruption to some extent. The countries that declare commitment further give a signal that they would make efforts to have better institutions. This because not

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[7] Some studies back the transparency hypothesis or focus on the measures to prevent the resource curse. Gunesch (2018: 91,92), for example, suggests some alternatives to drive correctly the economy in resource-rich countries. The socio-political solutions he mentions as principals are strengthening the domestic institutions and democratic checks and balances. Meanwhile, the main socioeconomic solutions he suggests are good governance and wealth distribution, as well as public sector investment for private sector growth. Other secondary solutions or derived from them are: careful macroeconomic management, renewable energy investment, foreign development aid addressed to export promotion and diversification. Papyrakis (2017: 13) also indicates that economic diversification, investment, and equitable distribution could prevent the resource curse.

[8] Other initiatives have also been identified. One is Publish What You Pay (PWYP), which is a global network with the purpose that nations benefit from natural resources wealth by promoting voluntary transparency. Others are the Extractive Industries Review of the World Bank (2001–2003) and the Mining Minerals and Sustainable Development project (2000–2002) of the International Council on Mining and Metals. Both seek "to align the sector with the goals of sustainable development and achieve greater transparency of information in the extractives value chain" (Van Alstine 2017: 767).

only the government has the obligation to provide the information relative to the amount of contract but also the companies show the same financial information. Thus, it is possible to see other contestants' cash flows and tax liabilities. The civil society, in turn, can access the published information through the multi-stakeholder platform, which improves accountability (Papyrakis et al. 2016).

Moreover, the countries that have decided to implement this initiative in its national territory must go through different stages to obtain the status of 'compliant', which is the highest or optimal step in the process (EITI 2016). In the first stage, the government has to express commitment to the EITI through a public document that guaranties its implementation. Then, a multi-stakeholder (MSG) group made up of the government, the companies, and the civil society has to be established. Each party can nominate its representatives, for example, there are some cases where the civil society has done it by the caucus. From them, one individual has to be the chairman, elected by the government. This group has the obligation to set a plan for the disclosure of the information and improving transparency. After the accomplishment of these requirements, the country through the MSG applies to the EITI Board to obtain its status of 'candidate' (the period to become candidate varies from country to country, for instance, Colombia and Guatemala took one year, Peru two years, and other countries like Ethiopia took 5 years). Since then, the country has to satisfy several EITI requirements such as: good functioning of the multi-stakeholder group (it has to execute the plan timely and to ensure the collaboration of the government, the companies, and the civil society), disclosure of information of the mineral sector (legal and institutional framework, allocation of contracts and licenses), provision of exploration and production information, release of financial flows (taxes, revenues, payments), revenue allocations, social and economic spending, and presentation of the information along with civil society dialogues. The progress made by the country is later reviewed by the EITI Board that decides if the country has accomplished the requirements or have to modify something to become 'compliant' (third stage), see Papyrakis et al. (2016). The whole process can take from 2.5 up to 7 years (since they become candidates), depending on the progress of each country (for more detailed information about the process, requirements, and periods see www.eiti.org). *Figure 3* schematically shows this process (EITI 2019).

Figure 3
Flow of the EITI implementation process

First stage 'Commitment'	Second stage 'Candidate'	Third stage 'Compliant'
- The government has to express public 'commitment' - To form a multi-stakeholder (MSG) group made up of the government, the companies, and the civil society . -To set a plan for the disclosure of the information - To apply to the EITI Board to obtain its status of 'candidate'.	- To guarantee good functioning of the multi-stakeholder group - To disclose the information of the mineral sector - To provide the exploration and production information - To release the financial flows, revenue allocations, social and economic spending, and proves of civil society	- The EITI Board reviews if the progress of the country is relevant or it has to modify something in order to obtain the compliance status. - To keep disclosing information and an active participation of the stakeholders, as well as the plataform of information updated.

Source: Author's elaboration

The limitation of this initiative is that corruption can also be present in the various stages of the process. For instance, Kolstad and Wiig (2009) mention that the multi-stakeholder group engaged in the validation process can themselves fall in the temptation of rent-seeking

and patronage. The value chain of the extractive industries, as well as the process of procurement and public spending, can also be an open door to corrupt practices (Papyrakis et al. 2016). Other researchers say that EITI-member states and the private sector would not disclose complete and consistent information (Dykstra 2011; Gillies and Heuty 2011; Ravat and Ufer 2010). According to Lujala et al. (2017), this global standard is also limited to corruption perception because it encompasses just one sector of the whole country's corruption. Therefore, its effects can be arguable.

Moreover, Global Witness (2016) and Aaronson (2011) claim that the contribution from civil society can be restricted during the process. Similar, Dykstra (2011) and Van Alstine (2017) highlight that civil society stakeholders in implementing countries are intimidated, hampering their independence. Lujala et al. (2017) state that the role of civil society can have little effect if it is not strong in the country of intervention. Aaronson (2011) adds that the initiative is a limited partnership because the governments, civil society, and companies are unaware or have dissimilar visions about the EITI, which would affect to counter corruption. Therefore, Klein (2017) mentions the relevance of the disclosure of information to citizens and local communities. In some cases, the format in which the information is provided is not properly presented or is in another language that some locals do not understand. Thus, the international standard fails as an accountability mechanism (Klein 2017).

2.4 Studies on EITI's Effects on Institutions

Several types of researches have been produced with the purpose to assess the validity of the EITI, which are closely related to this empirical investigation. Usually, the evaluations have concentrated on estimating the EITI's average effect on the whole participant countries, and few on individual case studies. *Appendix 1* has a summary of the studies that are described hereafter in this section.

Regarding the studies implemented on the whole sample of EITI members, it is possible to find that of Corrigan (2014). Her study, using a pooled cross-sectional panel analysis, found that corruption (although small magnitude, but statistically significant) can reduce in the stage of 'commitment' when governments start to perform actions to become candidates. Thus, the willingness to increase transparency affects corruption. Nevertheless, the author mentions that the study is inconclusive given that it does not rely on long periods of the EITI implementation. Hence, she suggests conducting further studies in the coming years. In the same line, Papyrakis et al. (2016) test the EITI's impact on corruption in the different stages of implementation by using a cross-country panel regression. They conclude suggesting that countries that participate in this scheme tend to shield themselves against corruption propensity, especially in the second stage when they become candidates. In this stage, the countries make the greatest effort to get the compliance status where they have to accomplish timely the disclosure of information and financial flows of the mineral sector. Thus, their effort to fight against corruption in this stage is stronger.

Kasekende et al. (2016) use a Full Information Maximum Likelihood (FIML) methodology to avoid selection bias present in the model of Corrigan (2014) and previous studies (EITI members are not randomly selected). The FIML estimates jointly the selection process (i.e. joining the EITI and corruption outcome), which permits the correlation between the error term and the outcomes. With this method, they found that there is no indication that corruption dropped after adopting the EITI (a small increase in corruption, statistically significant). Therefore, they advise performing more case studies to see the individual effect of

why the EITI implementation might or not work. Based on their findings, they claim that the EITI alone is not enough to bring accountability and to counter corruption. For example, they mention that civil society organizations should be more involved in the process.

Furthermore, another study that contributes to this literature with no impact on corruption is that of Ogë (2016). He performed an analysis on the EITI members to see the change in transparency and corruption. By doing so, he uses interrupted time series and panel data fixed-effects analysis. His study suggests that corruption did not change (no statistically significant) in the period of study. Nevertheless, the HRV[9] index of transparency improved overall. Given the complexity of the mineral resource value chain, this analysis advises that the EITI (disclosure of information) is not enough to tackle corruption. It would be necessary to implement broader measures from the parliaments and independent auditing bodies (Dykstra 2011), as well as more inclusion of non-governmental organizations (Ogë 2016). The finding of Ogë (2016) about corruption is also confirmed later by Corrigan (2017). By correcting her previous study (2014) and using panel data country fixed effects and several Ordinary Least Square (OLS) regressions, she does not find evidence of improvements in control of corruption (no statistically significant result).

Sovacool et al. (2016) do not find an impact on governance variables either, including corruption. They analyzed 16 countries that achieved the EITI's compliant status. By using a non-parametric test (like the Wilcoxon rank-sum test) and regression analysis with the World Bank data, they infer that EITI countries do not perform better on governance metrics (hypothesis supported by 86.1% of their tests). Thus, they do not outperform other countries. In other words, the results suggest that the effects of the EITI scheme on governance variables are not better during 'candidate' and 'compliant' stages than the pre-EITI period. This could be explained by the potential weakness of the EITI due to limited mandate, its voluntary nature, stakeholder resistance, and dependence on strong civil society. Moreover, they warn that the method is limited because of non-random assignation of units to treatment and control groups. Therefore, the method is quasi-experimental and the interpretations are correlative between EITI indicators and governance variables. Hence, further researches on the EITI's impact have to be conducted with more variables, longer periods of the EITI implementation, and individual case studies.

Individual case studies give us further information to counter or to support the results obtained in the analyses implemented in whole EITI members. One key study for the performance of this research paper is that of Zambia. Villar and Papyrakis (2017), by using a case-comparison approach named Synthetic Control Method (SCM), present a rigorous quantitative analysis to assess the impact of the EITI in Zambia's corruption. The results, based on data from World Bank Indicators and Transparency International, provide evidence of reduction of corruption, especially in previous stages to obtain the candidacy and compliance status (different to Papyrakis et al. (2016) where there is more evidence in the second stage). In these latter two phases, the results are statistically significant, although these are of small magnitude. They suggest replicating the model in other country members with the purpose to contribute to the literature of individual case studies.

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[9] HRV is an index that uses data from the World Bank in order to capture transparency in the countries. This highlights governments' tendencies to disclose information. That is, governments that release more data are likely to have higher HRV scores. "The HRV index is a measure of a government's capacity and intent to disclose even if it does not quite capture institutional and media related aspects of transparency. Moreover, this index unlike many indices of governance it is not based on subjective views of experts, but rather on objective criteria" (Ogë 2016).

Moreover, in previous studies, this SCM has also been used. The case study corresponds to Etter (2012) who used counterfactual analyses, i.e. the SCM and the Entropy Balancing[10] to determine the impact of the EITI on Mali and Peru. They used pre-processing techniques to give weights to the non-EITI control group, which would be the counterfactual unit. The advantage of the SCM is that it controls for the homogeneity between the pre-EITI synthetic group and the treated unit. This helps to differentiate if unobserved characteristics would confound the estimated weighting given to the synthetic group. In this research, Etter (2012) suggests that the introduction of the EITI has a positive impact on the reduction of corruption in Peru, but no effect on Mali (no statistically significant). The failure of this study is that it did not analyze the statistical significance of the SCM results, neither tested the EITI's impact of compliant stages.

Another study on the EITI's performance is that of Azerbaijan and Liberia in 2009. Here, the authors Sovacool and Andrews (2015), using a qualitative approach with data from the World Bank, illustrated the time-trend between the years 2006-2012. They found a reduction in corruption in Azerbaijan, but not in Liberia. The results for the latter case could be due to the lack of political support to the scheme. Moreover, they argue that hardly governance improvements are given by the EITI implementation. Hence, the metrics of governance seem to be worsened after the countries achieved compliance status. This paper also mentions that transparency is just one factor that contributes to the proper management of mineral resources or to reduce corruption; thus, other characteristics should also be considered. Similar to Liberia's results, Hoinathy and Janszky (2017), who used qualitative research with civil society groups in Chad, found that the EITI's effect on corruption and poverty is very limited, while the benefits remain in the oil companies and the state.

Besides the focus on institutional variables, some studies have tried to relate the EITI with the economic variables to test the theory that increased transparency counters the resource curse. In the same study of corruption from Corrigan (2017), she found that joining the EITI would explain a significant and positive effect on economic development. The disclosure of information mechanism improves the environment for business, investment, and citizen purchasing power, which leads to economic growth (Corrigan 2017: 784). Also, Malden (2017: 788), using panel data (propensity score matching) from 167 countries, found that the EITI implementation increases the country's mineral investment attractiveness. That is the increase in grassroots exploration expenditure, which captures the value of mining companies' exploration expenditure budgets in every country. Therefore, the commitment of a country to be transparent is a signal for exploration and mining companies to invest in the country (Malden 2017: 793). Nevertheless, these studies are countered by the findings of Sovacool et al. (2016) who demonstrated that the impact of the EITI on economic development variables (foreign direct investment, GDP per capita) is not statistically significant.

Finally, it is possible to find other individual studies that have contributed to the understanding of how the EITI has been working. For instance, Ogë (2017: 817) focused on

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[10] "Both methods rely on a single counterfactual case that best resembles to the treated unit, which is estimated from a 'donor pool' on a set of observable variables. Contrary to the SCM, the Entropy balancing is a reweighting method that produces covariate balancing that is superior compared to other alternative weighting methods (Hainmueller, 2011). Furthermore, because entropy balancing only uses covariate information before the introduction of the treatment, it provides the opportunity to use the weighted sample to conduct further analysis using any econometric model the researcher would like to specify. On the other hand, the advantage of SCM is that it lets the researcher reveal the contribution each unit of the donor pool has made to the synthetic control unit and therefore increases confidence in the methodology in the eye of the reader" (Etter 2012).

Azerbaijan and Kazakhstan as authoritarian states and found that even if the civil society is mentioned in the MSG, NGOs' roles of accountability and control are limited because of political pressures and harassment. Besides that, by using interrupted time-series analysis, it concludes that civil society organizations' participation does not improve after joining the EITI. Also, Hoinathy and Janszky (2017) find that the EITI process in Chad is centralized, which prevents the contribution of transparency experts and the educated elite. According to them, the EITI has made available civil participation, but the concept of civil society must be carefully addressed because these stakeholders might be representing their own interests and not the communities' ones.

2.5 Studies on the Determinants of Joining and Implementing the EITI

With the purpose to justify the participation of countries on the EITI, few qualitative and quantitative studies have been performed. These have focused on the reasons why countries join the scheme or why some make more progress than others. Regarding the studies that look for the likelihood of joining the EITI, it can be mentioned those of Pitlik et al. (2010), David-Barrett and Okamura (2016), Öge (2016), and Kasekende et al. (2016). By using different methodologies —Cox proportional hazard model, cross-section analysis, and panel data— and different cut-off points concerning the EITI membership dependent variable, they found common characteristics that suggest more likelihood of the countries to join this scheme, such as more dependency on the mineral sector, higher corruption, and poverty. Also, countries with increased openness and political freedom, as well as with more ethical diversity, would be more willing to join the EITI (David-Barrett and Okamura 2016 and Pitlik et al. 2010).

In the same line, the study of Lujala (2018) proposes three categories that would influence the progress of the EITI implementation: internal motivation (natural resource dependence, resource curse experience, development level, FDI flows, corruption), internal capacity (quality of institutions, development level), and pressure from outside (post-conflict country, aid and development assistance, external debt). This research also remarks that internal motivation is driven by governments' or ruling elites' interests. This study used a survival analysis adapted for ordered multiple failure-time data[11], with which he distinguishes the variables that determine the countries' decision to join and to progress in the implementation of this international standard, encompassing the whole EITI process. He finds that all the factors mentioned are significant to the evolution of the EITI implementation. More in-depth, his results suggest that the faster implementation of the EITI is influenced by resource-dependency, previous experience of resource curse, being poorer or richer, good levels of governance, high levels of voice and accountability, higher FDI flows, dependence on assistance, and recent major conflict (post-conflict country is 'major war' variable with at least 1000 battle-related deaths). Meanwhile, he highlights that external debt and high corruption levels together with high dependence on mineral rents reduce the likelihood of implementing the scheme. On the other hand, he remarks that the variables aligned with the speed of

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[11] "This approach is used to analyze the duration of the EITI implementation process using the six stages (government commitment, establishment of the MSG, candidate, first EITI report, first validation report, and compliant), as the 'failures' (also called events). The shorter the period of time between these 'failures', the faster the country is progressing through the implementation process. Survival analysis methods (also called duration analysis and event history analysis) are used when the outcome variable is the time to the occurrence of the event of interest (e.g. death, end of war, or marriage). Survival analysis of ordered multiple failure-time data analyzes data series with several sequential events that follow each other in time" (Lujala 2018).

implementation (higher levels of FDI and recent major conflict) also increase the probability to join the EITI. Contrary, Magno and Gatmaytan (2017), using an ordered logit model, found that weak rule of law and government ineffectiveness tend to make the countries accomplish with the EITI's requirements. He also claims that higher corruption increases the likelihood of the country to meet the requirements. Other variables that imply the compliance of the EITI are freedom of expression and association, inquiring the importance of having a civic space (Magno and Gatmaytan 2017).

Alternatively, addressing the political sphere, we can find the study of the Andes by Bebbington et al. (2017), which includes Colombia, Peru, and Bolivia. They used qualitative techniques such as interviews and results from the EITI Global Meetings held in Lima in 2016. Their postulate, also mentioned in Lujala (2018), was that the motivation to join the standard depends on the nature of the elite's politics, its interests, and pacts. The incentive to adhere to the EITI also resides on the power relations and the capacity of those in power to sell the idea of the goodness of the initiative for the country. Hence, its instrumentalization encompassed several actors. They found that in Peru (early adopter) and Colombia (late adopter) the transnational and domestic civil society influenced the acquisition of the international standard. Also, Colombia was pressured by its interest in joining the Organization for Economic Co-operation and Development (OECD). Meanwhile, Bolivia (non-adopter) rejected the international standard due to the resource nationalist politics led by the emerging elite in 2005 (Bebbington et al. 2017).

Chapter 3
Methodology

3.1 Synthetic Control Methodology (SCM)

The Synthetic Control Methodology (SCM) has been chosen to perform this analysis because this is a method suitable for small samples with qualitative characteristics like case studies employed in political science. It serves to evaluate the effects of policy interventions, such as the EITI implementation, which has the nature to influence aggregate entities (countries, regions, cities). Usually, these events have been tested through comparative case study researches that estimate the effect on aggregate outcomes (such as mortality, average income, etc.) for the unit treated given a particular intervention and then, they compare it to the evolution of estimated unaffected units (Abadie et al. 2010: 493). Nevertheless, the performance of comparative case study researches can suffer from selection bias of the comparison units due to the use of subjective measures of resemblance between affected and unaffected units. Hence, the SCM relies on a data-driven approach that can obtain one or more combinations of possible comparison units that best match the unit of interest. Moreover, contrary to what the SCM does, the traditional inference techniques do not reflect the uncertainty about the capacity of the control units to replicate the counterfactual outcome trajectory (treated unit in the absence of intervention), see Abadie et al. (2010: 493). More in-depth, by using the SCM, it is possible to select comparison units with similar characteristics to the unit of study that has been the object of an intervention (Abadie et al. 2015: 495). Thus, these units selected are meant to be the counterfactual that has not suffered any event or intervention. The comparison units are given different weights that produce a synthetic unit that resembles the behavior of the focus country as closely as possible in the pre-intervention period. (Abadie et al. 2015: 496).

This method has some advantages compared to others that could be applied. Considering the Difference-in-Difference methodology, both are interested in the difference between treated and untreated units regarding an intervention (Galiani and Quistorff 2016). Nevertheless, they differ because the SCM does not assign all the untreated units the same weight in comparison. Instead, the average weights given to the control units are higher when there is more similarity to the treated unit in the pre-treatment period. Then, the post-treatment period outcomes are projected using the weights assigned, being this the counterfactual of the unit of interest. Also, with this, we can perform inference through placebo tests (Abadie and Gardeazabal 2003; Abadie et al. 2010). Furthermore, the SCM avoids extrapolation biases, which are present in time series outcomes. In other words, the time-series regression does not limit the coefficients of the linear combination that define the synthetic control to be between 0 and 1 (Abadie et al. 2015: 498). Finally, considering that the pre-intervention period both observed and unobserved variables have a linear relationship, it is possible to predict the outcomes of those unobserved variables (Abadie et al. 2010). To explain the model in mathematical terms regarding the SCM and inference methodology, the notation and description are adapted from Abadie et al. (2010), Cavallo et al. (2013) and Galiani and Quistorff (2016).

3.1.1 Methodology specification

Within the observed covariates, we have the treated and untreated units, represented by $(1, \ldots, J + 1)$, where $j = 1$ is the treated unit (Colombia, Guatemala, Honduras, Peru,

Trinidad and Tobago) and from j=2 to $(J + 1)$ are the untreated units or non-EITI countries, called also 'donors' or 'donor pool'. The donor pool is restricted to the units that could match the units of interest and have not suffered any shock during the period of analysis that could affect the outcome of the evaluation, in this case, corruption. T is the total number of periods observed (years), which have to be balanced for all units in the pre-treatment and post-treatment period. Y_j represents the $(T \; x \; 1)$ vector of corruption outcomes for unit J. Letting Y_0 be $(T \; x \; J)$ matrix of corruption outcomes for the donor pool and $\overline{Y}_1$ be $(T \; x \; 1)$ matrix of corruption outcomes for each treated unit. These corruption outcomes can also be split up into pre and post-EITI vectors, $Y_j = \overleftarrow{Y}_J \; / \; \overrightarrow{Y}_J$. Thus, the pre-treatment outcomes of EITI are denoted by $\overleftarrow{Y}_0$ and $\overleftarrow{Y}_1$. Then, X represents the ensemble of k pre-EITI predictors of corruption Y_j. Therefore, X_0 is the notation assigned to the vector $(k \; x \; 1)$ of predictors from the donor pool, while X_1 is given by the $(k \; x \; J)$ matrix of the same predictors for every treated unit of our cases of comparison studies. V is given by $(k \; x \; k)$ variable-weight matrix is the relative significance of the predictors of corruption X on Y_j. Finally, we have W which is the $(J x 1)$ weighted matrix of $(w_2, w_3, ... w_{j+1})'$ where $\sum_{j=2}^{J+1} w_j = 1$ and $w_j \geq 0 \; \forall j \in \{2, ..., J + 1\}$, meaning that the average of donors' corruption outcome or the 'synthetic unit' is just $Y_0 W$.

Given this, what the SCM does is to obtain the ideal combinations of weightings in W that best represents the unit subject to the intervention by minimizing the distance between the treated and the weighted donors. $\sqrt{(X_1 - X_0 W)'V(X_1 - X_0 W)} = \| X_1 - X_0 W \|$. That distance is outlined as root mean squared prediction error (RMSPE). As explained above what we can infer with this last term is that the corruption outcomes Y are affected by observed X and unobserved variables U, $Y = \beta X + U$. After running SCM we obtain the weights W that leads to similar X values between the treated unit and the control units, with which it is possible to obtain the minimum absolute value of $\overleftarrow{Y}_1 - \overleftarrow{Y}_0$, implying similar values for U (Abadie et al. 2010).

If we obtain the right weighting that matches the synthetic control with the treated unit trajectory, then the impact for each post-EITI year can be obtained by the difference between the treatment's corruption outcome and the synthetic units' one, given by:

$$\alpha_{1t} = Y_{1t} - \sum_{j \geq 2} w_j y_{jt} \qquad (1)$$

Nevertheless, this method of subtracting the corruption outcome between the treated and the synthetic unit has one limitation. This does not permit direct analysis of varying treatment effects across the time, as it is required in our study to test the effect in different stages of subscription of the countries to the EITI scheme. For that, instead, it is possible to measure the treatment effects as the average annual change in differences (Villar and Papyrakis 2016: 797):

$$\alpha_{1t} = \frac{Y_{1t-t_0}}{t-t_0} - \frac{\sum_{j \geq 2} w_j Y_{jt-t_0}}{t-t_0} \qquad (2)$$

3.1.2 Inference method

As mentioned in Abadie et al. (2010), the inference method has a limited scope in the cases of small sample nature of data, the absence of randomization, or if the probabilistic sampling

was not employed to the selection of sample units. Therefore, some methods of inference have been developed related to permutation tests. With the first one, once we have obtained the counterfactual unit, it is possible to find falsification exercises with 'placebo studies' to see the statistical significance. That is, we can get the statistical significance of the differences between the synthetic units and our units of interest. The process consists of re-applying the SCM to the donor pool to obtain a distribution of placebo effects or also known as 'in place' placebo effects (Galiani and Quistorff 2016: 4). The confidence that the synthetic control reflects the effect of the EITI would vanish if larger estimates emerge in the units that were not subject to the intervention. This inferential procedure can be characterized by being a randomization inference when the intervention of the EITI is randomized (Rosenbaum 2005). However, the study cases presented in this paper are not randomized. Thus, the p-value that compares the distribution of placebo effects and the synthetic control can be at least interpreted as the likelihood of obtaining an estimated effect large enough as the unit of interest, being an informative interpretation. As expressed by Galiani and Quistorff (2016), if the estimated effect for our treated units is characterized by $\hat{\alpha}_{1t}$ and the distribution of the respective placebos' resultant from the non-EITI countries is $\hat{\alpha}_{1t}^P = \{\hat{\alpha}_{jt}: J \neq 1\}$, so the two-sided p-value is represented by:

$$\text{p-value} = \Pr(|\hat{\alpha}_{1t}^P| \geq |\hat{\alpha}_{1t}|) = \frac{\sum_{j \neq 1} 1(|\hat{\alpha}_{jt}| \geq |\hat{\alpha}_{jt}|)}{J} \qquad (3)$$

The other two inference methods that can be used, according to Abadie et al. (2010), consider further the quality of the selection of the control units from the donor pool. This because if the units were not matched properly in the pre-treatment period, it can lead to high conservative p-values due to large placebo effects. Therefore, the subsequent method consists in restricting the donor pool to those that best match the intervened unit (Galiani and Quistorff 2016: 5). In other words, the units that have to be kept are those with similar pre-EITI RMSPE as the treated units. Moreover, some parameters are suggested by Abadie et al. (2010) to limit the donor pool. For instance, the donor pool has to be restricted to those units that have a RMSPE at most twice as large (RS(2)), 5 times as large (RS(5)) or 20 times as large (RS(20)) as the unit of interest (imposing a cut-off point is subjective, thus a limitation for the method) (Villar and Papyrakis 2016: 798). Another flaw of this inference method is that for being informative the restricted sample size has to be large enough. For instance, for obtaining a confidence interval of 5% the sample has to have at least 20 units, computed as $\frac{1}{20} = 5\%$. The restriction results in another trade-off between the better match and the reduction of the level of confidence. That is why it is better to stick to the p-values with the restrictions described above that allow us to have a confidence interval of 5%.

The last and third method introduced by Abadie et al. (2010) corrects for the restriction of the donor pool and the subjective chosen cut-off point. In order to do that, the distance of the deviation in the pre-treatment period between the treated unit and the synthetic control is considered informative for inferring the deviation in the treatment period. Furthermore, Galiani and Quistorff (2016) mention that this test adapts the estimated effects gauged in the treatment period against the pre-EITI deviation for avoiding too conservative p-values. Mathematically expressing is the division of the post-EITI effect size estimate by the pre-EITI RMSPE. Akin to the first method, p-values are obtained from the non-EITI countries which have an estimated effect large enough as the unit of interest.

Finally, with the purpose to distinguish among these methods, the first one can be denoted as Non-Restricted Donor Sample method (NRDS), the second one as Restricted

Donor Sample method (RS(n), being n the cut-off parameter), and the third one as Adjusted Non-Restricted Donor Sample method (ANRDS) (Villar and Papyrakis 2016: 798).

Chapter 4
Data Description

4.1 Period of Analysis

This study uses the period 2002-2017 to assess the EITI's effect on corruption variables in five Latin American countries: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. The year 2002 was chosen as the beginning year because this is when the operations of EITI started. Before that year, there was not any EITI intervention in the world, which would not represent any value added to use previous years to obtain the synthetic unit of the intervened countries. That is all the countries were control units. For instance, the first country to join the scheme in our research is Peru in 2005, three years later of the initial year of our data. Thus, we can start whichever comparison analyses since 2002. Moreover, the year 2017 is the limit because the sources used had no further data available for the treated and non-treated units.

The Synthetic Control Methodology, as explained in the introduction and methodology sections, allows us to see the effect of an intervention in individual case studies, not only in the period that the event occurred but also in the periods that follow. Therefore, the model is applied for the first year of the EITI intervention in each country, where governments start to take measures to be part of this initiative. In this stage, according to Corrigan (2014), the public expression of commitment to the EITI is a signal to the world that the government will implement measures to tackle corrupt practices. Hence, the pre-treatment period will be modeled according to each country's year of commitment as shown in *Table 1*.

Table 1
Year of each EITI implementation stage per country

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

Source: Author's elaboration with the EITI's webpage information

The information related to the different stages of the EITI for each country was retrieved from the EITI's webpage, where it is possible to find the country's profile timeline. Furthermore, information about the progress and limitations are found in the annual EITI reports, validation reports, or EITI publications.

4.2 Outcome Variables

With the purpose to check the EITI's effect on corruption, three different outcome variables are used, one from World Governance Indicators (WGI) (2019) [12] and two from

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[12] The WGI are metrics from the World Bank in terms of governance. This data come from dozens of separate sources fed by several organizations like the World Economic Forum's Global Competitiveness Report, the Gallup World Poll, and Transparency International, the European Bank for Reconstruction, among others. This is data is based on the perception of governance from 31 sources from 25 different organizations, which

Varieties of Democracy (V-Dem) (2019)[13]. These sources build aggregate indicators on governance per country with the help of sub-indices that come from databases of different organizations. The metrics reflect citizens' perception of corruption (stakeholders of the public and private realm, at the firm and household level), in this case, from Latin American countries.

The index for corruption that corresponds to the WGI is called *'Control of Corruption'*. This measure captures "the perception of the extent to which public power is exercised for private gain, as well as the capture of the state by elites and private interests" (World Governance Indicators (WGI) 2019). This index ranges between approximately -2.5 and 2.5 points; the lower number represents weak governance (high levels of corruption) and the high number is strong governance (low levels of corruption).

The indices for corruption used from the V-Dem database range between 0 and 1, where 0 is less corrupt and 1 more corrupt. The first one is *'Public sector corruption'*, which measures "to what extent do public sector employees grant favors in exchange for bribes, kickbacks, or inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use". The second one is *'Regime corruption',* this "focuses on a more specific set of actors – those who occupy political offices - and a more specific set of corrupt acts that relate more closely to the conceptualization of corruption in the literature on neopatrimonial rule" (Varieties of Democracy (V-Dem) 2019).

Given the contradiction of measurement between these two sources, it was necessary to transform the WGI indicator by multiplying for (-1). That is the lower numbers to less corrupt and the higher numbers to more corrupt. Hence, we harmonize both sources. In the literature, we usually find the performance of studies with the WGI and International Transparency indicators. Nevertheless, the latter database changed the way of measuring the corruption index and its scale, so the new measurement is not comparable with that of previous 2012. That is why we use WGI and V-Dem instead of International Transparency indices.

In general, these three metrics will give us three distinctive perspectives on corruption. *'Control of Corruption'*, for instance, has a broad perspective of corruption at all levels in the public sector. It encompasses both petty and grand forms of corruption which includes political and private interests. On the other hand, *'Public sector corruption'* outcome variable includes perceptions of corruption of the typical person employed by the public sector (closer experience of the population) that receives bribes in exchange for favors or steals public funds or other resources. Whilst, the *'Regime corruption'* captures the corruption committed by politicians (high positions in the executive, legislative, and judicial). Hence, it is possible to see the overall picture of corruption, and also at the disaggregated level, that is the corruption of regular employees and that of the politicians. As mentioned by Fischle (2000) individuals perceive corruption based on partisanship and prior experiences since a person can be more susceptible to regular practices of corruption instead of political ones (included media scandals), but the perceptions may vary at different levels.

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is a compilation of different stakeholders and points of view. It also encompasses national surveys of governance (households and business), assessments from research institutions and commercial enterprises. The indicators have different ranges, depending on the variable (WGI 2019).

[13] The other source V-Dem contains information of democracy, rule of law, corruption, accountability, among others. The data is collected from 19 million data points in 201 countries from 1789 to 2017. They obtain the most precise information half from constitutions and government records and half from political practices and compliance with de jure rules. The indicators range from 0 (lowest) to 1(highest). It (V-Dem 2019).

4.3 Predictor variables

To build our synthetic unit that predicts the counterfactual corruption outcome (Y_j), it is necessary to rely on a certain number of predictor variables (X). The predictor variables have been selected according to the literature (usually cross-country empirical analysis) that mentions the possible causes of corruption. For instance, Serra (2006: 226), as well as Treisman (2000), found that the variables that would determine corruption would be: economic development, religion, colonial heritage, uninterrupted democracy, and political stability. Shabbir and Anwar (2007) mention that the variables that would explain corruption in developing countries are: economic freedom, distribution of income, level of development, and globalization. Moreover, Ades and Di Telia (1999), Brunetti and Weder (2003), and Persson et al. (2003) highlight that corruption is related to the openness to foreign trade, freedom of information, electoral system respectively. More information about the determinants can be seen in Elbahnasawy and Revier (2012), Ata and Arvas (2011), Jain (2001), Park (2003), Ali and Isse (2003). Based on these findings, this paper uses similar or proxy predictor variables to construct the synthetic corruption outcome, depending on the availability of the data. See *Appendix 2* for the description of the variables used. Using the predictor variables in the pre-intervention allows us to control for unobserved variables, which also determine the weights for the synthetic units by corruption outcome. Including also the corruption outcome variable in the predictors of pre-EITI, it reduces the sensitivity of the weighting procedure of the unobserved variables and helps for a better match between the control and the synthetic (the predictors indices are used as average value for every variable in the pre-EITI phase, see Villar and Papyrakis 2016).

Chapter 5 Results

5.1 Main Results

Using the SCM to build the counterfactual unit, the analysis relied on the donor pool of countries that did not receive the EITI intervention. One hundred thirteen countries around the world with data available obtained a set of weights that were averaged to estimate the synthetic unit that best resembles each treated country: Colombia, Guatemala, Honduras, Peru, and Trinidad and Tobago. The SCM permits us to appreciate the countries that contribute with a greater proportion to the weighted average comparison unit, whose weights in combination sum to one (Abadie et al. 2010). This process was repeated for each corruption outcome variable Y_j so that the synthetic unit can adapt to the different trajectories. *Appendix 3* contains the units of the donor pool that affected most to the generation of the counterfactual unit, per corruption outcome variable and country. It is important to mention that according to Abadie et al. (2015) the comparison units should approach the synthetic of our study unit without the intervention (to avoid for interpolation) so that the donor pool could be restricted to the units motivated by the same structural process of the country of our interest. Hence, this study tested the SCM with a restricted donor pool of 16 non-EITI Latin American countries. Nevertheless, the goodness of fit reduced between the counterfactual and the treated unit due to the limited number of countries of the donor Latin American pool. Therefore, the sample of non-EITI countries relies on the whole world.

With the purpose to evaluate the fit of the counterfactual unit, the SCM allows us to visually appreciate in each graph the similitude of the pre-treatment outcomes for the treated $\overline{Y}_1$ and the synthetic unit $\overline{Y}_0$. These results inferred from the observed X and unobserved variables U demonstrate the capacity of the synthetic unit to forecast the behavior that the treated country would have had without the intervention over time. Moreover, in the results of the method, it is possible to see that the weights per predictor variable are alike, which show us the resemblance between the treated and the counterfactual, a sign to validate the significance of the estimated outcome of the synthetic unit. In the graphs obtained for each country (see *Section 5.3* and *Appendix 5*), it is evident that the pre-EITI treated and synthetic units follow the same course until the year of 'commitment', or in some cases, the course changes nearly before to the point of intervention.

Subsequently, with the performance of the inference method, we obtain the 'in place' placebo effects or falsification exercises that produces statistical significance. Here, the method provides the 'change in gap size' (*Appendix 4*) average for each year of the post-intervention period (different EITI stages for each country) with their statistical significance or p-values for each of the three inference methods (NRDS, RS(n), and ANRDS). The findings show more statistical significance for the Adjusted Non-Restricted Donor Sample method (ANRDS), which supports the arguments of Villar and Papyrakis (2016). When applying the NRDS, the placebo gaps distributions can range far from the average donor (gap) outcome, so the fit of these synthetic units distorts the estimations creating too conservative p-values. Hence, the other alternative could be implemented in the donor pool. Nevertheless, when introducing the restricted method RS(2) the results can produce limited synthetic estimates gaps with also conservative p-values; thus, contradicting the results obtained in the adjusted or standardized p-values. With this regard, the informative p-values presented for each country in a graphical representation are the ANRDS.

5.2 Synthesis of Findings

The results obtained for the five studied countries are diverse and do not have general trend patterns. However, it is possible to find some common behaviors retrieved from *Table 2*. Regarding the statistical significance reported by the informative Adjusted Non-Restricted Donor Sample method (ANRDS), some conclusions can be drawn. After the EITI intervention, the *Control of Corruption Index* for Colombia, Guatemala, Honduras, and Peru does not deviate statistically significant from the synthetic unit in any of the EITI stages. This means there is no effect of the EITI on this corruption perception index that captures the overall view of corruption in these countries. Moreover, for these four countries, the analysis on the *Regime Corruption Index* does not show a statistically significant effect on the stage of 'commitment', which would tell us that the EITI's impact would not appear at this level.

Concerning the statistically significant effects, this research found that the treated *Regime Corruption Index* (which exposes corruption at the political level) is larger (i.e. increase in corruption) than the counterfactual for the cases of Guatemala, Peru, and Trinidad and Tobago in the 'candidate' stage. This index for Guatemala and Peru also reproduces a positive effect on the stage of 'compliant', while for Trinidad and Tobago in the stage of 'commitment'. On the other hand, the evaluation of the *Regime Corruption Index* for Peru (after 2015) and Trinidad and Tobago indicates a decrease in corruption compared to their synthetic in the stage of 'compliant'.

Finally, regarding the effect on the *Public Sector Corruption Index*, only Colombia and Trinidad and Tobago have larger and statistically significant results in relation to the synthetic in the 'commitment' stage. Colombia further has the same effect on the 'candidate' stage. Contrary, the Trinidad and Tobago intervened unit has an average annual decrease effect in the 'candidate' and 'compliant' stages. All of these changes in gap size are of small magnitude, with ups and downs in different stages. The effect of the EITI on Honduras is not statistically significant nor for any outcome variable neither at any stage. Meanwhile, for Trinidad and Tobago, all the ANRDS are statistically significant in each stage of the outcome variables.

Table 2
General view of the trajectory of the outcome variables after the placebo tests

Country	Dependent variable	Stage	Year	Annual Change
Colombia	Control of Corruption Index	Commitment	2013	+
		Candidate	2014 - 2017	+
	Regime Corruption Index	Commitment	2013	+
		Candidate	2014 - 2017	+
	Public Sector Corruption Index	Commitment	2013	+***
		Candidate	2014 - 2017	+**
Guatemala	Control of Corruption Index	Commitment	2010	-
		Candidate	2011 - 2013	-
		Compliant	2014 - 2017	+
	Regime Corruption Index	Commitment	2010	+
		Candidate	2011 - 2013	+*
		Compliant	2014 - 2017	+*
	Public Sector Corruption Index	Commitment	2010	+
		Candidate	2011 - 2013	-
		Compliant	2014 - 2017	-
Honduras	Control of Corruption Index	Commitment	2012	+
		Candidate	2013 - 2017	-
	Regime Corruption Index	Commitment	2012	-
		Candidate	2013 - 2017	+
	Public Sector Corruption Index	Commitment	2012	+
		Candidate	2013 - 2017	+
Peru	Control of Corruption Index	Commitment	2005 - 2006	+
		Candidate	2007 - 2011	-
		Compliant	2012 - 2017	+
	Regime Corruption Index	Commitment	2005 - 2006	+
		Candidate	2007 - 2011	+*
		Compliant	2012 - 2017	+/-*
	Public Sector Corruption Index	Commitment	2005 - 2006	+
		Candidate	2007 - 2011	+
		Compliant	2012 - 2017	+
Trinidad and Tobago	Control of Corruption Index	Commitment	2010	+*
		Candidate	2011 - 2014	+*
		Compliant	2015 - 2017	+*
	Regime Corruption Index	Commitment	2010	+***
		Candidate	2011 - 2014	+*
		Compliant	2015 - 2017	-**
	Public Sector Corruption Index	Commitment	2010	+*
		Candidate	2011 - 2014	-**
		Compliant	2015 - 2017	-**

Source: Author's estimation

Given the information described above, the impact of the EITI in Latin America has mixed results. There are ups and downs and in most of the cases where the index of corruption is larger than the synthetic, it coincides with events of corruption in the extractive sector. Specifications of the cases of Colombia, Guatemala, and Honduras can be seen in *Appendix 5*. With the purpose to have a deeper view of the results, Peru and Trinidad and Tobago will be explained more in detail in the next section. These latter two countries, unlike the others, are more dependent on the extractive industry. Thus, the events of the extractive sector can be more prominent in the public opinion, especially in terms of political corruption reflected in the *Regime Corruption Index,* which p-values are statistically significant for both countries. Trinidad and Tobago also obtained statistical significance for the outcome variables *Control of Corruption Index* and *Public Sector Corruption Index*. However, since there is more evidence available for corruption scandals at the political level, more emphasis will be given to the *Regime Corruption Index* of Peru and Trinidad and Tobago. Furthermore, a short profile of each country is presented before the analysis of the results.

5.3 Analysis of Peru and Trinidad and Tobago

5.3.1 Peru

Peru is the first country in the region to have implemented the EITI. This is a country rich in natural resources, whose extractive industry accounts around 13% of its GDP. It mainly extracts oil, gas, and minerals, being the second-largest producer of copper, silver, and zinc around the world (EITI Peru 2016). Similar to Guatemala, and as mentioned in the theory of the resource curse (Collier and Hoeffler 1998, Collier et al. 2009) the mining activity has brought conflicts to Peru, around 80% of the conflict is due to mining sector. Regarding corruption in this country, it can be highlighted that bribery and embezzlement of public funds have been more prominent in the public sphere since the occurrence of Fujimori's presidential corruption scandal in 2000, which dissipated over time. Moreover, like in other Latin American countries, the corruption in Peru is widespread, although anti-corruption plans have been implemented over time. For instance, from 2012-2016, Peru introduced a National Plan to Fight Corruption (Figaredo 2018).

With this background, the EITI mechanism for Peru was a tool to address key concerns of the communities with a closer relation to the mineral commodities, who tend to end up involved in conflicts. Furthermore, the generalized corruption, as depicted in *Figure 4* from 0 to 0.5 points (similar levels to Colombia and Trinidad and Tobago) in the *Control of Corruption Index,* led the government to join the EITI. Therefore, in 2005 Peru officially committed to the EITI, the 'candidate' stage was obtained two years later (2007) and became 'compliant' in 2012 (*Figure 4*). To date, it has presented five EITI reports with payments, conciliation information, minutes, etc. The Peruvian case was a pilot experience in the region, it has been through some ups and downs in the process (EITI Peru 2016). The following figures give us an overview of Peru's EITI implementation process.

Figure 4
Control of Corruption Index of Peru and Adjusted P-Values
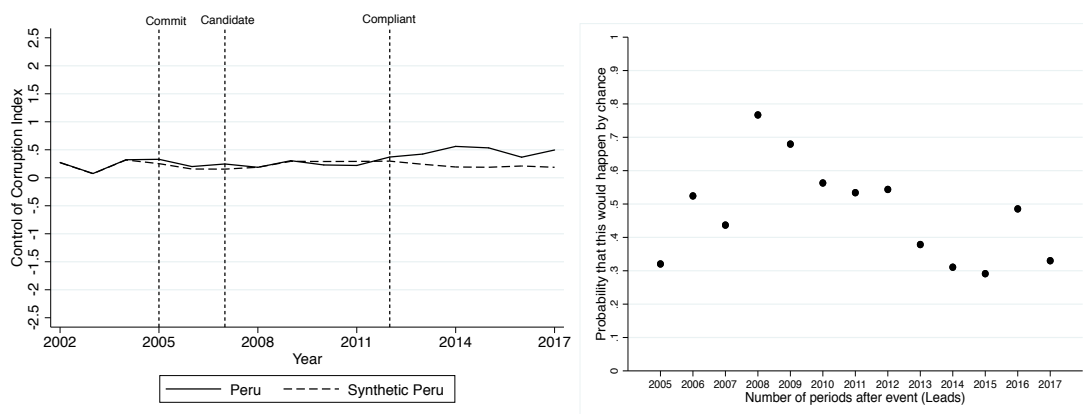
Source: Author's estimation

Figure 5
Regime Corruption Index of Peru and Adjusted P-Values
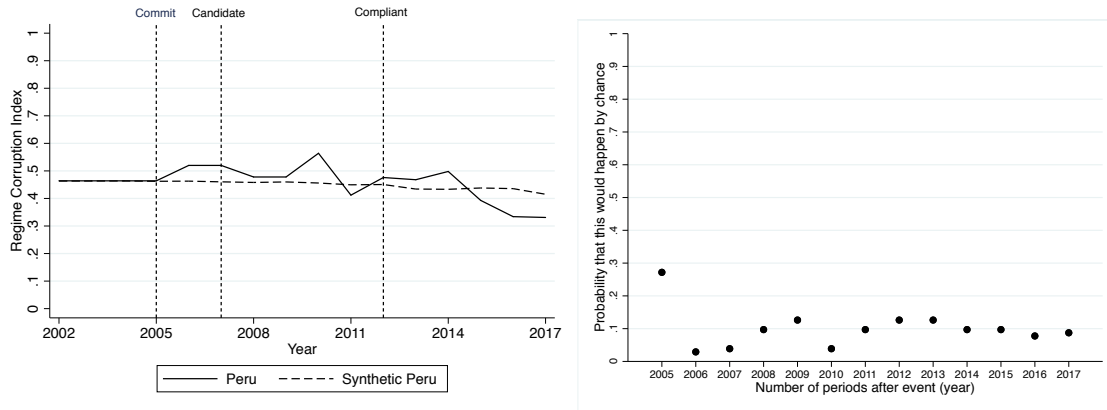
Source: Author's estimation

Figure 6
Public Sector Corruption Index of Peru and Adjusted P-Values
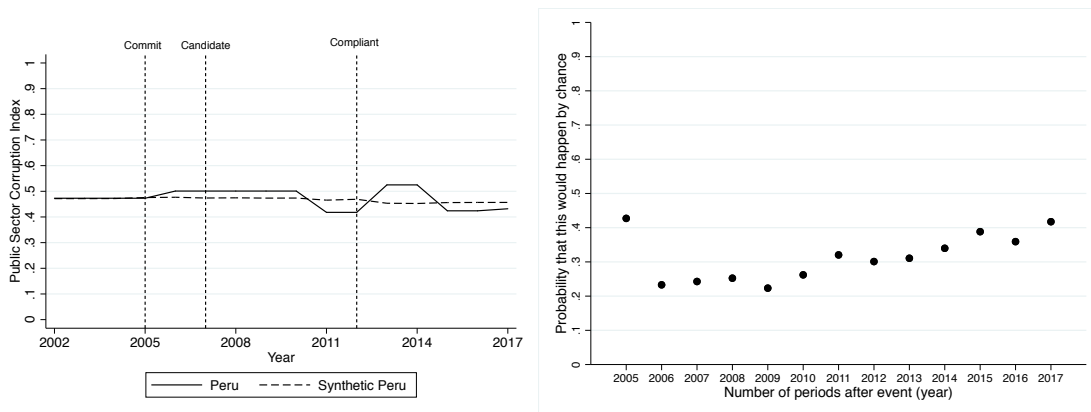
Source: Author's estimation

As we can see, the levels of corruption of the variables *Control of Corruption Index* and *Public Sector Corruption Index* for the treated unit do not change over time with regard to the synthetic Peru. This contradicts the results of Etter (2012), where he found that corruption, as an obstacle to business operations, decreased after the EITI introduction. *Figures 4* and *6* show that the synthetic unit (dotted line) is quite similar to the treated unit in every stage of the EITI implementation. The corruption indices of the treated Peru slightly fluctuate over the synthetic units in these two outcome variables, not showing an important change. This is confirmed by the placebo tests where the ANRDS are not statistically significant. For instance, after the 'compliant' stage, when the new plan anti-corruption was implemented, the *Control of Corruption Index* and the *Public Sector Corruption Index* marginally deviates, but not at a statistically significant level. These findings are in line with the view of Figaredo (2018) who mentions that corruption in Peru does not improve with the pass of time even with the implementation of the anti-corruption plan. She mentions that anti-corruption initiatives have long-term effects. However, her explanation cannot be supported by our analysis given that the EITI has more than 10 years in Peru by now.

On the other hand, Peru's *Regime Corruption Index — Figure 5 —* fluctuates after the post-treatment. In general, this index is higher for the treated than for the synthetic Peru, but of

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small magnitude (0.038 annual average change obtained from *Appendix 4* between 2006 and 2014), statistically significant at the 10% confidence level. Considering that this index is the perception of corruption committed by politicians (high positions), it can be influenced by the constant corrupt scandals in the extractive sector. These corrupt practices would produce a negative influence on the public opinion and suggest a weak EITI intervention, undermining also the measures taken by the EITI in the sector. Some corrupt cases are related to the state-owned oil company 'PETROPERU'. In 2005, it was involved in the Modernization Project of the Refinery called 'Talara', which was questioned during the next four year because of its manager's record, its continuous increase in price —almost four times the original price—, as well as the lack of transparency in the concession process (Manco 2010). Afterward, in 2008 there was a prominent case that lasted for about 3 years in the public sphere called 'Petroaudios'. Here, some audios were revealed with declarations of paying bribes to employees of PETROPERU to favor the Norwegian Discover Petroleum company to get exploration contracts of submarine oil blocks and gas fields (De Cuello Blanco 2012).

As mentioned at the beginning of this section, Peru is also characterized by having serious problems of conflicts where the mining activity is present. However, the conflict is not the only problem in the mining activity but it is the lack of transparency. Hence, the mechanism of the EITI to include civil society participation to work toward a well-functioning of the extractive sector, as well as the wellbeing of communities, might not be properly addressed. Some controversial cases that have been broadcasted are 'Antamina', 'Tintaya' and 'Camisea', most issues of these mining companies are related to environmental and economic matters. In 2012, Antamina caused a rupture of the mineral pipeline that affected the nearby populations and the rivers. Moreover, this company was involved in illegal land transactions and unfair reallocation of the communities. In 2013, Antamina has also been suspected of collusion in a region highly vulnerable to corrupt practices due to mining activity (Quispe et al. 2018). Tintaya, also in 2012, provoked riots and a declaration of 'state of emergency' due to the expansion of its mining operations. Meanwhile, Camisea – a hydrocarbon project-between 2005 and 2009 was questioned because the company negotiated with Mexico larger exports of gas which left short-handed to the national demand. This was an irregular modification of the contract that this company had with the Peruvian government. Thus, the company was criticized by the irregular economic activity of its exports (Sanborn and Dammert 2013).

The cases presented above have been timely revealed. However, while the EITI was operating, another case of corruption, namely the 'Odebrecht' scandal, was taking place, only discovered until 2016. The Odebrecht company paid about USD 29 million in bribes to Peruvian public officials between 2005 and 2014 with the purpose to obtain several contracts that added up to USD 12.5 billion (Faiola 2018). The largest amount of money in contracts with this company is led by the Ministry of Mining and Energy in 2014, two projects valued at more than 6 billion —a gas pipeline and a hydroelectric power station in the south and center of Peru respectively (IDL Reporteros 2016). In this sense, it is evident that the transparency policy of the EITI is limited to deter corruption cases. A timeline illustrates these events in *Figure 7* that coincide with the results of the SCM (increased corruption) for the *Regime Corruption Index*.

Figure 7
Corruption Milestones of Peru
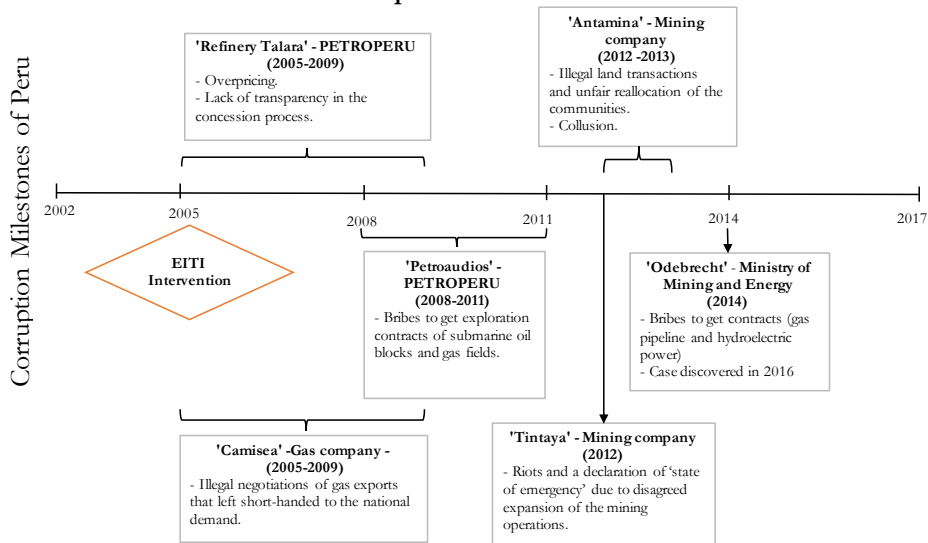
Source: Author's elaboration

On the other hand, particularly between 2015 and 2017, the *Regime Corruption Index* for the treated Peru is smaller than the counterfactual unit, an average annual change in gap of – 0.07 points, meaning a decrease in corruption. During those years, it can be highlighted some actions taken by the Peruvian government, such as the publication of two EITI reports which emphasize extensive civil participation (EITI Peru 2016). Also, in 2016, the government brought to light the achievements obtained from its Plan Anti-Corruption 2012-2016, like the creation of a digital platform and the implementation of conferences and workshops (Figaredo 2018). Likewise, at that time, the investigation of corruption cases increased by 60%, most of them related to Odebrecht that worked closely with the extractive sector and where key officials were sent to jail (Gestion 2017). With these measures, the government tried to show its effort to fight corruption, which could have positively influenced the public opinion regarding the perception of corruption at the political level.

5.3.2 Trinidad and Tobago

The extractive sector in Trinidad and Tobago represents 32.2% of its GDP and 77% of its exports. If we compare to the other Latin American countries, Trinidad and Tobago is more dependent on the revenues of this sector. The country's main exports are oil and liquefied natural gas, followed by mineral activities (EITI Trinidad and Tobago 2016). The levels of corruption of this country are displayed in *Figure 8* for the *Control of Corruption Index*. This indicator fluctuates from 0 to 0.5 points over the last fifteen years, levels comparable to Peru and Colombia. According to the World Economic Forum Global Competitiveness Report (Global Security 2017), corruption is the second-most problematic issue for doing business in the country. Common nepotism cases, police abuse of power, bribe to facilitate drug, weapons, and human smuggling and trafficking have been reported in the country. Moreover, this country is a transit port for moving drugs. It is also reported money laundering proceeding from drug trafficking, illegal arms sales, fraud, tax evasion, and public corruption (Global Security 2017).

Under this panorama and given the historical compromise of joining the EITI in the first EITI Plenary Conference in London, 2003, the government of Trinidad and Tobago started the public commitment phase in 2010. One year later in 2011, it was granted the

'candidate' status. Then, in 2015, Trinidad and Tobago obtained the compliance status, which according to the multi-stakeholders was planned for 2014. During the process, this country presented six EITI reports with their due conciliations (companies' declared tax and other payments). Nevertheless, the main problem encountered was the disclosure of information from the enterprises because discretion to divulge tax data was protected by the law. Thus, the government has had to find a way to encourage them to present the information by the signature of an agreement, which in the end caused some delays in the reports. In 2014 and 2015, the government started to populate the data in order to spread the benefits of the EITI and transparency (EITI Trinidad and Tobago 2016). The effects and the process of the EITI implementation can be appreciated in the next figures.

Figure 8
Control of Corruption Index of Trinidad and Tobago and Adjusted P-Values
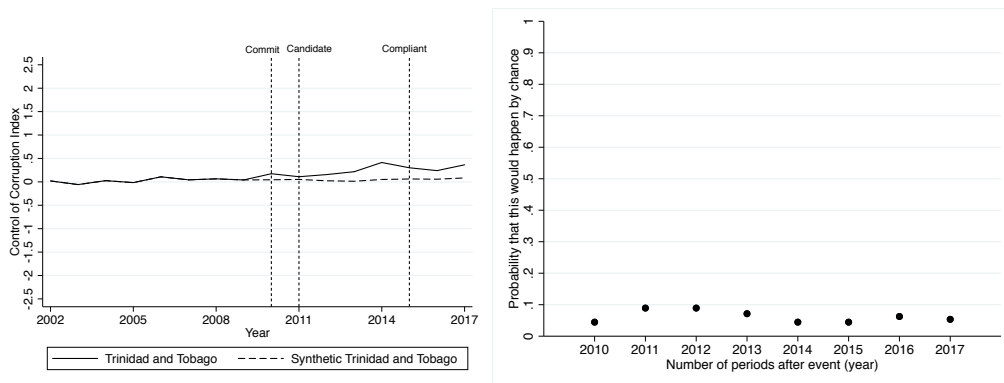
Source: Author's estimation

Figure 9
Regime Corruption Index of Trinidad and Tobago and Adjusted P-Values
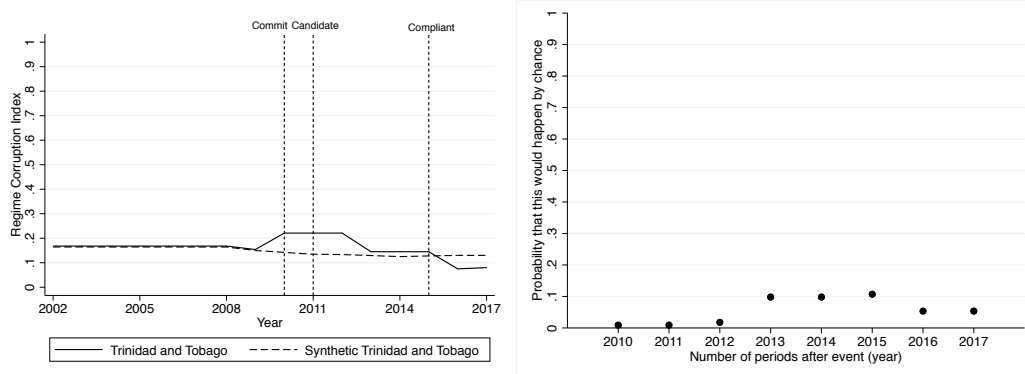
Source: Author's estimation

Figure 10

Public Sector Corruption Index of Trinidad and Tobago and Adjusted P-Values
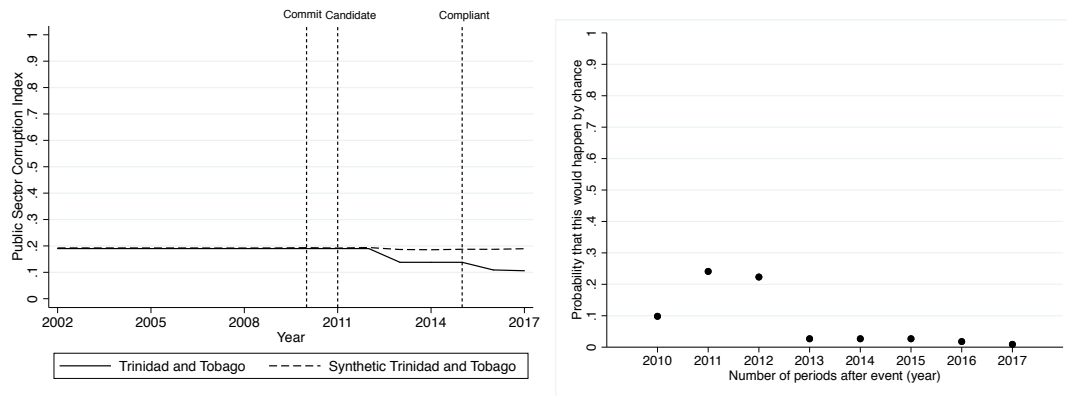
Source: Author's estimation

Contrary to the results found in the other Latin American countries of this research, Trinidad and Tobago presents results that are statistically significant in almost every stage of the three outcome corruption variables. For the *Control of Corruption Index* (*Figure 8*), the trajectory of corruption of Trinidad and Tobago starts to rise compared to the synthetic Trinidad and Tobago after the EITI intervention. That is, in the 'commitment' stage (2010) the change in gap size is 0.13 points (statistically significant at the 5% confidence level) and between the 'candidate' and 'compliant' stages (2011-2017), there is a 0.23 average annual increase (statistically significant at the 10 % confidence level). Moreover, the evaluation for Trinidad and Tobago's *Regime Corruption Index* (*Figure 9*) confirms this increase after the adoption of the EITI. In the 'commitment', 'candidate', and 'compliant' stages, from 2010 until 2015, the index for the treated unit slightly deviates by 0.053 points (average annual increase) from the counterfactual unit, statistically significant at the 10 % confidence level. Nevertheless, for the years 2016 and 2017 after the 'compliant' stage, on average the corruption outcome is smaller by - 0.05 compared to the synthetic index, with a 5 % confidence level.

In general terms, the graphical representations of the *Control of Corruption Index* and *Regime Corruption Index* demonstrate that the EITI implementation has not influenced the decrease of corruption perception. The results for these two indices, instead, imply higher corruption for the treated Trinidad and Tobago compared to its counterfactual. This situation can also be connected to scandals of corruption in the extractive sector, which are in detriment to the EITI performance. This would also suggest that the EITI mechanism of transparency has not been enough to counter corruption. Besides that, during the period of the EITI intervention, the Trinidad and Tobago's government started to raise its expenditure thanks to the increased commodity prices, which was an open door for corrupt practices, especially in the energy sector. The most prominent case is that of 'Petrochin', a state-owned company involved in overpricing and embezzlement of public funds for several years. This company together with World GTL (a private company that produces Gas-To-Liquids - GTL diesel fuels) started a joint venture to build a Gas-To-Liquids plant since 2005 that had to be functioning by 2009. However, this plant was not ready at that time and its construction price rose to more than twice the budget approved in the first instance. This project was late regarding the delivery deadline and the World GTL stopped financing it. Thus, the project was cataloged as receivership and, one year later, with the new government, it was suspended. In 2012, the plant that cost about US$399 million was sold to a private company for just US$35 million. The public opinion considered a case of corruption for its overpricing, deviation of public funds, and for its insignificant sale price (Guardian 2018).

In addition to that, in 2010 Calder Hart —former executive chairman of the public company Urban Development Corporation of Trinidad and Tobago (UDeCOTT)— fled to the United States of America because some documents linked him with corruption allegations. He was in charge of the construction of numerous government projects that add up to $820 million (Guardian 2012). These corrupt events, together with the failure of one member of the president Manning's party to declare a London Bank account to the Integrity Commission, lead the country to opt for a new ruling party in the presidency (Coha 2010). Nevertheless, the new government could not deal with corruption and it was also involved in scandals. Employees of the Ministry of Energy (in charge of the oil, gas and minerals sectors) were using their positions for private gain. Hence, in 2015, the new Minister of Energy found a drop of the revenues not because of a decline in production, but due to 'tax leakage' in the energy sector (Guyana Times 2018). Furthermore, in the same year, the Ministry of Energy fired 'Super Industrial Services' —a favored company from the previous government— because it did not accomplish several contracts of construction, e.g. a water treatment plant. The owners of this company bribed public employees, misused public funds by failing to carry out the contracts, and fled from the country (Global Security 2017). These scandals of corruption could be to some extent the reasons why corruption has been increasing instead of decreasing. The effects that the EITI could have had on corruption perception must have been mitigated for the constant corrupt acts of this country. A timeline of these corrupt practices that concur with the increase in corruption for the *Regime Corruption Index* after the EITI intervention can be appreciated in *Figure 11.*

Figure 11
Corruption Milestones of Trinidad and Tobago
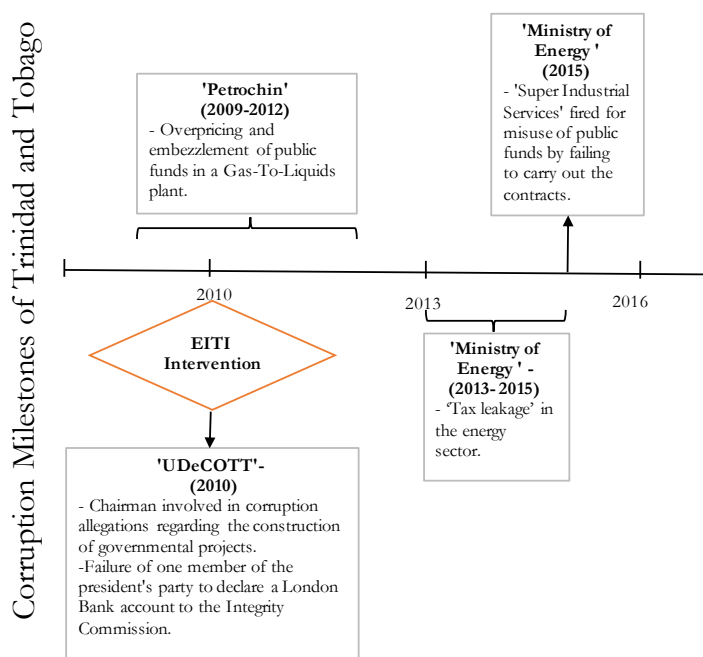
Source: Author's elaboration

On the other hand, exceptionally, Trinidad and Tobago's *Public Sector Corruption Index* (*Figure 10*) starts to decrease two years after the 'candidate' stage. From 2013 until 2014 the annual average change in gap size is - 0.05 points, which p-values are statistically significant at the 5% confidence level. While for the 'compliant' status, from 2015 until 2017, the deviation of the treated unit is on an annual average -0.07, at the 1% confidence level. This special result could be explained by the measures taken to approach the civil society, such as the

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television and radio shows implemented since 2013. In these spaces, two EITI reports were also published showing the population that the government was applying measures to fight corruption (EITI Trinidad and Tobago 2016).

Chapter 6
Conclusions

The concerns about corruption and economic growth in resource-rich countries, deeply analyzed in the resource curse theory, have brought to the international arena the necessity to create initiatives that promote good governance, transparency, and accountability. The EITI, shaped under these principles, has attracted several countries around the world. As this initiative has become widespread, numerous studies have been performed to investigate the EITI's impact on institutional and economic variables. Regarding corruption, since the inception of this scheme, the qualitative and quantitative methods applied have focused on the effect of the EITI on the whole sample of EITI countries and few on individual case studies. Above all, none of them have paid attention to the cases of the same region, considering the similarities that countries in the same zone can have. With this precept, this research contributed to the literature by showing comparative outcomes in Latin American countries in every stage of the EITI intervention for the period 2002-2017. In general, the results are mixed. Nevertheless, with a broad perspective, it could be said that the EITI mostly has not affected the reduction of corruption perception in Latin America. The effects of the EITI are marginal, moving up and down without a defined pattern. In the majority of the cases, the informative standardized p-values do not show a statistical significance and, in the cases where there is significance, the corruption for the treated unit tends to be higher than for the synthetic one.

More in detail, the change in the gap size between the treated and the synthetic *Control of Corruption Index* does not have statistical significance in any stage of the EITI implementation for the countries included in this research, apart from Trinidad and Tobago where the corruption indices for the intervened unit are larger in almost every phase. A similar situation is reflected in the *Public Sector Corruption Index* which results show statistical significance for only Colombia and Trinidad and Tobago. In the stage of 'commitment' for both of these countries, the intervened unit deviates positively from the counterfactual, i.e. an increase in corruption. Whilst in the stages of 'candidate' and 'compliant', there is an opposite effect in Trinidad and Tobago, i.e. a decrease in corruption. The majority of the statistically significant effects are seen in the *Regime Corruption Index* that exposes corruption at the political level. This index of corruption for Guatemala, Peru, and Trinidad and Tobago is higher in the 'candidate' stage, while it is smaller for Peru (after 2015) and Trinidad and Tobago in the 'compliant' stage. These fluctuations across different stages are, nevertheless, of small magnitude. In most of the cases where corruption increases, there is a coincidence with scandals of corruption or conflict in the extractive sector, which diminish the performance of the EITI per se. Such is the case of Trinidad and Tobago that, in 2015, public employees from the Ministry of Energy embezzled public funds toward third companies.

Moreover, it is important to mention that the results can be limited because corruption perception indices do not only measure corruption of the extractive industries but of every sector. In some cases, the mineral revenues represent a small percentage of GDP, like in Guatemala and Honduras, where the introduction of the EITI that only targets the extractive sector would not have a significant impact on the national opinion. Besides that, the EITI focuses on transparency which might not have an immediate effect on corruption or these concepts would not be associated as consequents in popular perception. Hence, this would limit the effects on corruption perception measures. Even though in our case studies (such

as Peru) the EITI has been operating for many years, the effects of the scheme cannot be perceived as a reduction in corruption.

The EITI alone is just one factor that contributes to mitigating corruption, limited to the extractive sector. Therefore, its policy of transparency can be perceived as narrowed. The fight against corruption requires the implementation of complementary measures at the national level in every sector, such as anti-corruption plans with technological innovations that allow people from remote parts of a country to report corrupt acts. Furthermore, governments have to guarantee civil society participation, a key component to improve transparency, accountability, and policy formulations concerning corruption. This study has found that civil society participation has been restricted, like in the case of Guatemala, which also hampers EITI's benefits. Hence, it is imperative to apply comprehensive transparency tools that enhance institutions and assure citizens' participation to prevent the resource curse. Dykstra (2011), Aaronson (2011), Kasekende et al. (2016), Lujala et al. (2017), and Ogë (2016) also mention similar limitations and measures to be considered by the governments besides the EITI.

Finally, the results from the SCM along with the corrupt cases presented in this research show that the EITI, as a transparency mechanism, has failed to reduce corruption in Latin American countries. While the EITI was working, corrupt practices were taking place as well. In this regard, there is a need to review the scope of the EITI, which focus should be broadened to address the failures detected during its intervention. Additionally, to support or reject this postulate of the EITI effectiveness on corruption, further individual case studies should be conducted in other regions of the world that also share similar backgrounds. Besides that, it should be considered the importance and magnitude of the extractive sector in the economy of the countries evaluated. This could make the difference at the moment of using macro indices that do not measure transparency solely in the extractive sector. It would be useful for these kinds of studies to develop indices that specifically measure corruption in the sector of interest.

Appendices

Appendix 1 Literature Review

EITI's effect on institutional and economic variables

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

Source: Author's elaboration

Appendix 2 Data Description

Variable Name	Description	Source
Outcome Variables		
Regime corruption	The extent to which political actors use political office for private or political gain. If focuses on specific set of actors – those who occupy political offices - and a set of corrupt acts that relate neopatrimonial rule (higher scores = more regime corruption). Scale 0 (lowest) to 1 (highest)	V-Dem
Public sector corruption	The extent to which public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often they steal, embezzle, or misappropriate public funds or other state resources for personal or family use (from less corrupt to more corrupt). Scale: 0 (lowest) to 1 (highest)	V-Dem
Control of Corruption	It defines the exercise of public power for private gain. It includes additional payments to get things done, corruption on the business environment, "grand corruption" in the political arena or in the tendency of elite forms to engage in "state capture". Scale - 2.5 (less corrupt) to 2.5 (highest corruption). Indicator inverted for equivalence with the other indicators of corruption.	WGI
Predictor Economic Variables		
Log of GDP	GDP logged to limit large numbers (current US$)	World Bank
GDP growth	GDP growth (annual %)	World Bank
Log of GDP per capita	GDP per capita logged to limit large numbers (current US$)	World Bank
Trade*	Trade (% of GDP). Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank
Mineral rents	It is the aggregated value of mineral rents, coal rents, gas rents, and oil rents (% of GDP)	World Bank
Predictor Social Variables		
Log of Population	Total Population logged to limit large numbers	World Bank
Birth rate	Birth rate, crude (per 1,000 people). Number of live births occurring during the year, per 1,000 population estimated	World Bank
Death rate	Death rate, crude (per 1,000 people). Number of deaths occurring during the year, per 1,000 population estimated.	World Bank
Basic drinking water services	People using at least basic drinking water services (% of population).	World Bank
Basic sanitation services	People using at least basic sanitation services (% of population)	World Bank
Access to electricity	Access to electricity (% of population)	World Bank
Adolescent fertility rate	Adolescent fertility rate (births per 1,000 women ages 15-19)	World Bank
Life expectancy at birth, female	Life expectancy at birth, female (years). The number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth	World Bank
Life expectancy at birth, male	Life expectancy at birth, male (years). The number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth.	World Bank
Mortality rate, infant	Mortality rate, infant (per 1,000 live births). Number of deaths of infants under one year old per 1,000 live births.	World Bank
Labor force participation	Labor force participation rate, total (% of total population ages 15+ (modelled ILO estimate) Proportion of the population ages 15 and older that is economically active.	World Bank
Unemployment	Unemployment, total (% of total labor force) (modelled ILO estimate). Share of the labor force that is without work but available for and seeking employment.	World Bank
Vulnerable employment	Vulnerable employment, total (% of total employment) (modelled ILO estimate)	World Bank
Employment to population ratio, female	Employment to population ratio, 15+, female (%) (modelled ILO estimate). Proportion of a country's population of female that is employed.	World Bank
Employment to population ratio, male	Employment to population ratio, 15+, male (%) (modelled ILO estimate). Proportion of a country's population of male that is employed.	World Bank
Female employers	Employers, female (% of female employment) (modelled ILO estimate). Female workers on their own account or with one or a few partners.	World Bank

Male employers	Employers, male (% of male employment) (modelled ILO estimate). Male workers on their own account or with one or a few partners.	World Bank

Predictor Governance and Transparency Variables

Regulatory Quality	It includes measures of the incidence of market unfriendly policies. Scale: -2.5 (weak) to 2.5 (strong)	WGI
Voice and Accountability	It captures aspects of the political process, civil liberties and political rights. Percentile Rank: 0 (lowest) to 100 (highest)	WGI
Political Stability and Absence of Violence/Terrorism	It measures perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism. Scale: -2.5 (weak) to 2.5 (strong)	WGI
Rule of Law	It gauges the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. Scale: -2.5 (weak) to 2.5 (strong)	WGI

Predictor Political Liberties Variables

Freedom of expression	The extent to which the government respect press and media freedom, the freedom of ordinary people to discuss political matters at home and in the public sphere, as well as the freedom of academic and cultural expression. Scale: 0 (lowest) to 1 (highest)	V-Dem
Civil liberties	It measures the extent to which civil liberty are respected. Scale: 0 (lower) to 1 (higher)	V-Dem
CSO repression	It captures the government attempt to repress civil society organizations. Scale: from least democratic "-3.22" to most democratic "3.37"	V-Dem
Electoral democracy	It measures to what extent is the ideal of electoral democracy in its fullest sense achieved—liberal, participatory, deliberative, egalitarian, or some other. Scale: 0 (lowest) to 1 (highest)	V-Dem
Political civil liberties	It includes freedom of association and freedom of expression, relevant for political competition and accountability. Scale: 0 (lowest) to 1 (highest)	V-Dem

* No used in Trinidad and Tobago due to absence of information
Source: Author's elaboration

Appendix 3 Donor Pool Countries and Weights by Corruption Outcome Indicator per Each Country

Treated country	Colombia			Guatemala			Honduras		
Donor Pool	Control Corr.	Reg. Corr.	Public Sector Corr.	Control Corr.	Reg. Corr.	Public Sector Corr.	Control Corr.	Reg. Corr.	Public Sector Corr.
Algeria	0	0	0.007	0	0.003	0	0	0	0
Angola	0	0	0.005	0	0.018	0	0	0	0
Australia	0	0	0.008	0	0.001	0	0	0	0
Austria	0	0	0.008	0	0.001	0	0	0	0
Bahrain	0	0	0.007	0	0.003	0	0	0	0
Bangladesh	0	0	0.002	0	0.002	0	0.207	0.102	0
Barbados	0.006	0	0.009	0	0.001	0	0	0	0
Belarus	0	0	0.020	0	0.002	0	0	0	0
Belgium	0	0	0.008	0	0.001	0	0	0	0
Benin	0	0	0.020	0	0.004	0.168	0	0	0
Bhutan	0	0	0.008	0	0.001	0	0	0	0
Bolivia	0	0	0.007	0	0.009	0	0	0	0
Bosnia and Herzegovina	0	0	0.007	0	0.002	0	0	0	0
Botswana	0	0	0.007	0	0.001	0	0	0	0
Brazil	0	0	0.007	0	0.002	0	0	0	0
Bulgaria	0	0.004	0.029	0	0.001	0	0	0	0
Burundi	0	0.044	0.003	0	0.045	0.012	0	0.004	0
Cabo Verde	0	0	0.008	0	0.001	0	0	0	0
Cambodia	0	0	0.005	0	0.008	0	0	0	0
Canada	0	0	0.007	0	0.001	0	0	0	0
Chile	0	0	0.007	0	0.001	0	0	0	0
China	0	0	0.006	0	0.002	0	0	0	0
Comoros	0	0	0.007	0	0.002	0	0	0	0
Costa Rica	0	0.017	0.007	0	0.001	0	0	0	0
Croatia	0	0.213	0.005	0	0.001	0	0	0.037	0
Cuba	0	0	0.006	0	0.002	0	0	0	0
Cyprus	0	0.220	0.008	0	0.001	0	0	0	0
Czech Republic	0	0	0.009	0	0.002	0	0	0	0

Denmark	0	0	0.008	0	0.001	0	0	0	0
Ecuador	0	0	0.007	0	0.002	0	0	0	0
Egypt, Arab Rep.	0	0	0.004	0	0.006	0	0	0	0.380
El Salvador	0	0	0.007	0	0.002	0	0	0	0
Equatorial Guinea	0	0	0.005	0	0.053	0	0	0.197	0
Eritrea	0	0	0.006	0	0.002	0	0	0	0
Estonia	0	0	0.008	0	0.001	0	0	0	0
Fiji	0.135	0	0.005	0	0.002	0	0	0	0
Finland	0	0	0.008	0	0.001	0	0	0	0
France	0	0	0.008	0	0.001	0	0	0	0
Gabon	0	0	0.006	0	0.005	0	0	0	0
Gambia, The	0	0	0.007	0	0.003	0	0	0	0
Georgia	0.024	0.14	0.004	0	0.100	0.105	0.187	0.005	0
Greece	0	0	0.007	0	0.002	0	0	0	0
Guinea-Bissau	0	0	0.003	0	0.009	0.693	0	0.156	0.040
Haiti	0	0	0.004	0.050	0.011	0	0	0	0
Hungary	0	0	0.007	0	0.002	0	0	0	0
Iceland	0	0	0.008	0	0.001	0	0	0	0
India	0	0	0.008	0	0.002	0	0	0	0
Iran, Islamic Rep.	0	0	0.005	0	0.002	0	0.118	0	0
Ireland	0	0	0.008	0	0.001	0	0	0	0
Israel	0	0	0.008	0	0.001	0	0	0	0
Italy	0	0	0.007	0	0.003	0	0	0	0
Jamaica	0	0	0.008	0	0.001	0	0	0	0
Japan	0	0	0.008	0	0.001	0	0	0	0
Jordan	0.124	0	0.007	0	0.002	0	0	0	0
Kenya	0	0	0.005	0	0.002	0	0	0	0
Korea, Rep.	0	0.012	0.007	0	0.004	0	0	0	0
Kuwait	0	0	0.009	0	0.003	0	0	0	0
Lao PDR	0	0	0.006	0	0.003	0	0	0	0
Latvia	0.116	0	0.008	0	0.001	0	0	0	0
Lebanon	0	0	0.009	0.443	0.002	0	0	0	0
Lesotho	0	0	0.005	0	0.002	0	0	0	0.001
Lithuania	0	0	0.007	0	0.001	0	0	0	0
Luxembourg	0	0	0.008	0	0.001	0	0	0	0
Malaysia	0	0	0.011	0	0.002	0	0	0	0
Maldives	0	0	0.006	0	0.001	0	0	0	0
Malta	0	0	0.008	0	0.002	0	0	0	0
Mauritius	0	0	0.009	0	0.002	0	0	0	0
Moldova	0	0	0.109	0	0.003	0	0.032	0.142	0
Montenegro	0	0	0.017	0	0.003	0	0	0	0.026
Morocco	0	0	0.007	0	0.002	0	0	0	0
Namibia	0	0	0.008	0	0.002	0	0	0	0
Nepal	0	0	0.006	0	0.002	0	0	0	0
Netherlands	0	0	0.008	0	0.001	0	0	0	0
New Zealand	0	0	0.008	0	0.001	0	0	0	0
Nicaragua	0	0.237	0.014	0	0.003	0	0	0	0
North Macedonia	0	0	0.015	0.062	0.023	0	0	0	0
Oman	0	0	0.006	0.013	0.001	0	0	0	0
Pakistan	0	0	0.002	0	0.029	0	0	0	0.015
Panama	0	0	0.007	0	0.002	0	0	0	0
Paraguay	0	0	0.006	0.207	0.002	0.022	0	0	0.072
Poland	0	0	0.007	0	0.001	0	0	0	0
Portugal	0	0	0.008	0	0.001	0	0	0	0
Qatar	0	0	0.007	0.039	0.002	0	0	0	0
Romania	0	0	0.006	0	0.002	0	0	0	0.031
Russian Federation	0	0	0.009	0	0.003	0	0.126	0	0
Rwanda	0	0	0.006	0	0.002	0	0	0	0
Saudi Arabia	0	0	0.007	0	0.003	0	0	0	0
Serbia	0	0	0.007	0	0.002	0	0	0	0
Singapore	0	0	0.008	0	0.001	0	0	0	0
Slovak Republic	0.007	0	0.008	0	0.002	0	0	0	0
Slovenia	0	0	0.008	0	0.001	0	0	0	0
South Africa	0.254	0	0.006	0	0.002	0	0	0	0
Spain	0	0	0.007	0	0.001	0	0	0	0
Sri Lanka	0	0	0.006	0	0.002	0	0	0	0
Sudan	0.010	0	0.012	0	0.006	0	0	0	0
Sweden	0	0	0.008	0	0.001	0	0	0	0
Switzerland	0	0	0.008	0	0.001	0	0	0	0
Syrian Arab Republic	0	0	0.004	0	0.004	0	0.089	0	0
Thailand	0	0	0.007	0	0.017	0	0	0	0
Tunisia	0	0.114	0.002	0	0.003	0	0	0.052	0
Turkey	0	0	0.005	0	0.002	0	0	0	0
Turkmenistan	0	0	0.071	0	0.462	0	0	0.305	0.101
Uganda	0	0	0.005	0	0.003	0	0	0	0
United Arab Emirates	0	0	0.006	0	0.001	0	0	0	0
Uruguay	0	0	0.007	0	0.001	0	0	0	0

Uzbekistan	0	0	0.003	0	0.008	0	0	0	0.002
Vanuatu	0.020	0	0.007	0	0.002	0	0	0	0
Venezuela, RB	0.306	0	0.004	0	0.006	0	0.240	0	0
Vietnam	0	0	0.007	0	0.002	0	0	0	0
West Bank and Gaza	0	0	0.010	0.187	0.001	0	0	0	0
Zimbabwe	0	0	0.006	0	0.006	0	0	0	0

Source: Author's estimation

Treated country	Peru			Trinidad and Tobago		
Donor Pool	Control Corr.	Reg. Corr.	Public Sector Corr.	Control Corr.	Reg. Corr.	Public Sector Corr.
Algeria	0.003	0.010	0.010	0.003	0.001	0.003
Angola	0.001	0.010	0.014	0.001	0.001	0.003
Australia	0.003	0.009	0.008	0.005	0.010	0.053
Austria	0.003	0.009	0.008	0.004	0.002	0.007
Bahrain	0.002	0.010	0.009	0.003	0.001	0.004
Bangladesh	0	0.010	0.016	0.032	0.001	0.002
Barbados	0.003	0.009	0.009	0.005	0.003	0.008
Belarus	0.004	0.010	0.009	0.002	0.001	0.012
Belgium	0.003	0.009	0.008	0.004	0.013	0.029
Benin	0.003	0.010	0.011	0.006	0.002	0.004
Bhutan	0.004	0.009	0.008	0.004	0.034	0.016
Bolivia	0.002	0.010	0.009	0.002	0.002	0.003
Bosnia and Herzegovina	0.003	0.010	0.010	0.003	0.001	0.003
Botswana	0.194	0.009	0.008	0.108	0.002	0.005
Brazil	0.003	0.010	0.009	0.004	0.002	0.004
Bulgaria	0.003	0.009	0.009	0.005	0.001	0.006
Burundi	0.002	0.010	0.009	0.003	0.001	0.001
Cabo Verde	0.003	0.009	0.009	0.003	0.003	0.006
Cambodia	0.002	0.011	0.012	0.119	0.001	0.003
Canada	0.003	0.009	0.008	0.003	0.008	0.012
Chile	0.002	0.009	0.008	0.003	0.009	0.012
China	0.005	0.010	0.010	0.003	0.001	0.003
Comoros	0.003	0.010	0.010	0.002	0.001	0.003
Costa Rica	0.005	0.009	0.008	0.006	0.002	0.007
Croatia	0.003	0.015	0.015	0.006	0.004	0.003
Cuba	0.002	0.009	0.011	0.003	0.002	0.003
Cyprus	0.005	0.009	0.009	0.003	0.003	0.006
Czech Republic	0.003	0.009	0.009	0.005	0.079	0.005
Denmark	0.003	0.009	0.008	0.003	0.147	0.065
Ecuador	0.002	0.010	0.009	0.003	0.002	0.005
Egypt, Arab Rep.	0.003	0.010	0.015	0.005	0.001	0.002
El Salvador	0.004	0.010	0.011	0.003	0.013	0.003
Equatorial Guinea	0	0	0	0.001	0.001	0.003
Eritrea	0.003	0.010	0.010	0.002	0.002	0.003
Estonia	0.003	0.009	0.008	0.004	0.007	0.009
Fiji	0.002	0.009	0.009	0.002	0.001	0.004
Finland	0.003	0.009	0.008	0.003	0.015	0.017
France	0.003	0.009	0.008	0.003	0.004	0.016
Gabon	0.003	0.010	0.012	0.021	0.001	0.003
Gambia, The	0.007	0.010	0.010	0.015	0.001	0.003
Georgia	0.003	0.008	0.006	0.002	0.002	0.003
Greece	0.002	0.010	0.009	0.003	0.002	0.004
Guinea-Bissau	0.002	0.010	0.011	0.001	0.001	0.002
Haiti	0	0.010	0.012	0.002	0.001	0.003
Hungary	0.003	0.009	0.009	0.004	0.002	0.008
Iceland	0.003	0.009	0.008	0.003	0.01	0.047
India	0.003	0.010	0.009	0.002	0.002	0.005
Iran, Islamic Rep.	0.003	0.010	0.009	0.002	0.001	0.003
Ireland	0.004	0.009	0.008	0.003	0	0.017
Israel	0.003	0.009	0.008	0.002	0.003	0.007
Italy	0	0	0	0.002	0.025	0.005
Jamaica	0.003	0.009	0.009	0.003	0.004	0.006
Japan	0.003	0.009	0.008	0.003	0.004	0.026
Jordan	0.004	0.009	0.009	0.004	0.003	0.004
Kenya	0.002	0.011	0.010	0.003	0.001	0.003
Korea, Rep.	0.004	0.009	0.008	0.124	0.002	0.009
Kuwait	0.002	0.010	0.010	0.004	0.001	0.004
Lao PDR	0.002	0.010	0.011	0.003	0.001	0.003
Latvia	0.004	0.009	0.008	0.003	0.199	0.007
Lebanon	0.002	0.010	0.011	0.101	0.002	0.003
Lesotho	0	0	0	0.003	0.001	0.002
Lithuania	0.003	0.009	0.008	0.057	0.038	0.006

Luxembourg	0.002	0.009	0.008	0.003	0.014	0.017
Malaysia	0.003	0.010	0.011	0.004	0.001	0.004
Maldives	0	0	0	0.004	0.001	0.005
Malta	0.004	0.009	0.009	0.003	0.002	0.006
Mauritius	0.003	0.010	0.009	0.003	0.001	0.005
Moldova	0.003	0.010	0.010	0.002	0.002	0.003
Montenegro	0	0	0	0.003	0.001	0.013
Morocco	0.002	0.009	0.011	0.008	0.002	0.003
Namibia	0.003	0.009	0.009	0.003	0.002	0.005
Nepal	0.009	0.010	0.011	0.002	0.001	0.003
Netherlands	0.003	0.009	0.008	0.004	0.011	0.017
New Zealand	0.003	0.009	0.008	0.004	0.037	0.045
Nicaragua	0.002	0.011	0.010	0.004	0.002	0.003
North Macedonia	0.002	0.011	0.010	0.003	0.001	0.008
Oman	0	0	0	0.003	0.002	0.004
Pakistan	0.516	0.010	0.010	0.002	0.001	0.002
Panama	0.002	0.010	0.009	0.003	0.002	0.004
Paraguay	0.001	0.010	0.010	0.002	0.001	0.003
Poland	0	0	0	0.003	0.004	0.006
Portugal	0.003	0.009	0.008	0.004	0.005	0.007
Qatar	0.003	0.010	0.009	0.002	0.001	0.004
Romania	0	0	0	0.003	0.001	0.004
Russian Federation	0.003	0.011	0.012	0.003	0.001	0.003
Rwanda	0.002	0.010	0.009	0.003	0.002	0.005
Saudi Arabia	0	0	0	0.002	0.001	0.003
Serbia	0.004	0.010	0.010	0.003	0.001	0.003
Singapore	0.002	0.009	0.008	0.004	0.022	0.08
Slovak Republic	0.003	0.009	0.009	0.004	0.001	0.005
Slovenia	0.003	0.010	0.008	0.004	0.009	0.01
South Africa	0.002	0.009	0.009	0.003	0.002	0.004
Spain	0.003	0.009	0.008	0.004	0.018	0.02
Sri Lanka	0.002	0.010	0.009	0.003	0.001	0.003
Sudan	0.002	0.011	0.012	0.001	0.003	0.003
Sweden	0.003	0.009	0.008	0.003	0.076	0.065
Switzerland	0.003	0.009	0.008	0.003	0.029	0.026
Syrian Arab Republic	0.002	0.010	0.012	0.001	0.001	0.003
Thailand	0.003	0.010	0.010	0.083	0.001	0.003
Tunisia	0.003	0.010	0.012	0.003	0.001	0.003
Turkey	0.004	0.010	0.009	0.003	0.002	0.003
Turkmenistan	0.001	0.011	0.013	0.005	0.001	0.003
Uganda	0.002	0.010	0.010	0.003	0.001	0.003
United Arab Emirates	0.002	0.009	0.009	0.004	0.003	0.004
Uruguay	0.004	0.009	0.008	0.004	0.021	0.008
Uzbekistan	0.002	0.011	0.013	0.001	0.001	0.003
Vanuatu	0.003	0.010	0.009	0.002	0.002	0.004
Venezuela, RB	0.002	0.011	0.012	0.002	0.001	0.003
Vietnam	0.004	0.010	0.010	0.012	0.001	0.003
West Bank and Gaza	0.002	0.009	0.009	0.015	0.003	0.016
Zimbabwe	0.002	0.010	0.013	0.002	0.001	0.003

Source: Author's estimation

Appendix 4 Placebo Results

Values obtained after the placebo tests

Country	Dependent variable	Stage	Year	Annual Change	NRDS	ANRDS	RS(2)
Colombia	Control of Corruption Index	Commitment	2013	0.03	0.76	0.23	0.62
		Candidate	2014	0.04	0.87	0.41	0.81
			2015	0.00	1.00	1.00	1.00
			2016	0.05	0.80	0.42	0.81
			2017	0.11	0.62	0.19	0.67
	Regime Corruption Index	Commitment	2013	0.01	0.74	0.61	0.63
		Candidate	2014	0.00	0.93	0.85	0.93
			2015	0.05	0.40	0.42	0.20
			2016	0.05	0.46	0.44	0.31
			2017	0.11	0.31	0.37	0.13
	Public Sector Corruption Index	Commitment	2013	0.08	0.20	0.00***	0.00***
		Candidate	2014	0.08	0.22	0.00***	0.00***
			2015	0.07	0.26	0.00***	0.00***
			2016	0.01	0.73	0.06*	1.00
			2017	0.05	0.43	0.03**	0.33
Guatemala	Control of Corruption Index	Commitment	2010	-0.03	0.71	0.75	0.66
		Candidate	2011	-0.13	0.29	0.40	0.24
			2012	0.03	0.87	0.88	0.86

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Country	Index	Category	Year				
			2013	-0.06	0.83	0.78	0.81
			2014	0.00	0.98	1.00	0.98
		Compliant	2015	0.02	0.94	0.94	0.93
			2016	0.09	0.70	0.73	0.70
			2017	0.09	0.76	0.73	0.76
		Commitment	2010	0.00	0.92	0.32	0.94
			2011	0.00	0.89	0.28	0.94
		Candidate	2012	-0.02	0.46	0.13	0.44
	Regime Corruption Index		2013	0.10	0.20	0.06*	0.28
			2014	0.09	0.22	0.07*	0.28
		Compliant	2015	0.09	0.26	0.07*	0.28
			2016	0.03	0.58	0.13	0.61
			2017	0.09	0.32	0.09*	0.33
		Commitment	2010	0.00	0.66	0.90	0.60
			2011	-0.01	0.71	0.85	0.67
		Candidate	2012	-0.01	0.56	0.80	0.49
	Public Sector Corruption Index		2013	-0.06	0.39	0.77	0.33
			2014	-0.06	0.39	0.76	0.33
		Compliant	2015	-0.07	0.24	0.73	0.22
			2016	-0.11	0.15	0.75	0.13
			2017	-0.08	0.29	0.75	0.27
		Commitment	2012	0.20	0.17	0.17	0.08*
			2013	0.19	0.25	0.20	0.18
	Control of Corruption Index	Candidate	2014	0.06	0.79	0.65	0.77
			2015	-0.17	0.44	0.35	0.43
			2016	-0.07	0.76	0.61	0.80
			2017	-0.02	0.97	0.93	0.98
		Commitment	2012	-0.07	0.10*	0.41	0.04**
			2013	0.02	0.64	0.48	0.54
Honduras	Regime Corruption Index	Candidate	2014	0.03	0.56	0.47	0.43
			2015	-0.02	0.71	0.49	0.63
			2016	0.02	0.74	0.50	0.67
			2017	0.05	0.45	0.44	0.35
		Commitment	2012	0.02	0.33	0.58	0.23
			2013	0.03	0.46	0.62	0.40
	Public Sector Corruption Index	Candidate	2014	0.03	0.47	0.62	0.41
			2015	0.03	0.50	0.63	0.46
			2016	0.02	0.62	0.68	0.56
			2017	-0.03	0.63	0.65	0.54
		Commitment	2005	0.08	0.52	0.32	0.53
			2006	0.04	0.79	0.52	0.84
			2007	0.09	0.64	0.44	0.73
			2008	0.00	0.99	0.77	0.98
		Candidate	2009	0.01	0.97	0.68	0.98
			2010	-0.06	0.76	0.56	0.75
	Control of Corruption Index		2011	-0.07	0.75	0.53	0.75
			2012	0.07	0.78	0.54	0.78
			2013	0.18	0.52	0.38	0.49
		Compliant	2014	0.37	0.35	0.31	0.38
			2015	0.35	0.36	0.29	0.35
			2016	0.16	0.68	0.49	0.65
			2017	0.31	0.47	0.33	0.42
		Commitment	2005	0.00	0.82	0.27	0.65
			2006	0.06	0.10*	0.03**	0.13
			2007	0.06	0.12	0.04**	0.13
			2008	0.02	0.38	0.10*	0.17
Peru		Candidate	2009	0.02	0.46	0.13	0.39
			2010	0.11	0.12	0.04**	0.09*
	Regime Corruption Index		2011	-0.04	0.40	0.10*	0.35
			2012	0.03	0.53	0.13	0.52
			2013	0.03	0.52	0.13	0.57
		Compliant	2014	0.06	0.35	0.10*	0.35
			2015	-0.04	0.45	0.10*	0.39
			2016	-0.10	0.23	0.08*	0.26
			2017	-0.08	0.33	0.09*	0.30
		Commitment	2005	0.00	0.66	0.43	0.67
			2006	0.02	0.19	0.23	0.26
			2007	0.03	0.32	0.24	0.33
	Public Sector Corruption Index		2008	0.03	0.37	0.25	0.33
		Candidate	2009	0.03	0.33	0.22	0.35
			2010	0.03	0.42	0.26	0.44
			2011	-0.05	0.28	0.32	0.28
		Compliant	2012	-0.05	0.32	0.30	0.28

Country	Index	Category	Year				
			2013	0.07	0.31	0.31	0.33
			2014	0.07	0.30	0.34	0.30
			2015	-0.03	0.59	0.39	0.60
			2016	-0.03	0.52	0.36	0.58
			2017	-0.02	0.63	0.42	0.74
Trinidad and Tobago	Control of Corruption Index	Commitment	2010	0.13	0.19	0.04**	0.09*
		Candidate	2011	0.06	0.60	0.09*	0.55
			2012	0.13	0.51	0.09*	0.45
			2013	0.20	0.36	0.07*	0.27
			2014	0.36	0.15	0.04**	0.09*
		Compliant	2015	0.24	0.33	0.04**	0.27
			2016	0.18	0.51	0.06*	0.55
			2017	0.28	0.31	0.05*	0.45
	Regime Corruption Index	Commitment	2010	0.08	0.09*	0.01***	0.25
		Candidate	2011	0.09	0.13	0.01***	0.25
			2012	0.09	0.13	0.02**	0.00***
			2013	0.02	0.66	0.10*	0.75
			2014	0.02	0.70	0.10*	0.75
		Compliant	2015	0.02	0.70	0.11	0.75
			2016	-0.05	0.45	0.05**	0.75
			2017	-0.05	0.47	0.05**	0.63
	Public Sector Corruption Index	Commitment	2010	0.00	0.61	0.10*	0.67
		Candidate	2011	0.00	0.84	0.24	0.67
			2012	0.00	0.74	0.22	0.56
			2013	-0.05	0.47	0.03**	0.33
			2014	-0.05	0.48	0.03**	0.33
		Compliant	2015	-0.05	0.38	0.03**	0.44
			2016	-0.08	0.24	0.02**	0.11
			2017	-0.08	0.26	0.01***	0.22

Source: Author's estimation

Appendix 5 Detailed results of Colombia, Guatemala, and Honduras

Colombia

Colombia is a country characterized by having an abundance of mineral resources (petroleum, natural gas, coal, iron ore, nickel, gold, copper, emeralds, and hydropower). The extractive sector represented in 2016 around 6.4% of its GDP (USD 3.1 billion), which is a reduced percentage compared to the previous years. For instance, in 2013 the revenues of this sector contributed to 7.7% of the GDP. Including in the worsening of these figures are the decreasing of foreign direct investment, taxes, and exports. According to the Colombian government, this situation is due to the reduction of price levels of the raw material of petroleum and mining, the slowdown of the world economy, the slower growth in demand from China (main consumer of oil and mining products), and the oil oversupply in the world. The main dividends of hydrocarbon production come from the state-owned company Ecopetrol which also dropped from USD 4.3 billion in 2013 to USD 226 million in 2016. Mateus (2012) mentions that resource endowments together with the illegal armed conflict keep the threat of corruption in Colombia. Despite the fact that Colombia is one of the leading economies in the region with an economic growth of 3.1% in the first term of 2019 (Ruiz 2019), the levels of corruption have not change over the last 15 years as seen in *Figure 12* (the *Control of Corruption Index* has fluctuated between 0.1 and 0.45 —World Governance Indicators).

Concerning this situation, the government of Colombia in 2012 mentioned that accountability and good governance are important for development. Hence, it announced its intention to be more transparent by adhering to the EITI, not only to benefit the population but also to give a signal to the world the idea that Colombia would take the necessary measures to curb corruption. Behind the President's announcement was the aim to facilitate

the process of joining the OECD (Mateus 2012), which would improve its position in the world[14]. Moreover, joining the initiative would have been attractive to obtain resources from international organizations. Thus, in 2013 during the 6th EITI Global Conference, Colombia announced its public commitment to the initiative; the actions implemented during this stage and the following one were supported with funds of international cooperation[15]. One year later in 2014 (see *Figure 12*), Colombia obtained the 'candidate' status. Since the commitment year until 2017, this country published three EITI Reports concerning the fiscal years 2013 to 2016, which encompasses corporate tax, royalties, Ecopetrol's dividends and other taxes (EITI Colombia 2016). The stages of the EITI implementation in Colombia along with the impact on the three corruption outcome variables used can be appreciated in the following figures.

Figure 12
Control of Corruption Index of Colombia and Adjusted P-Values
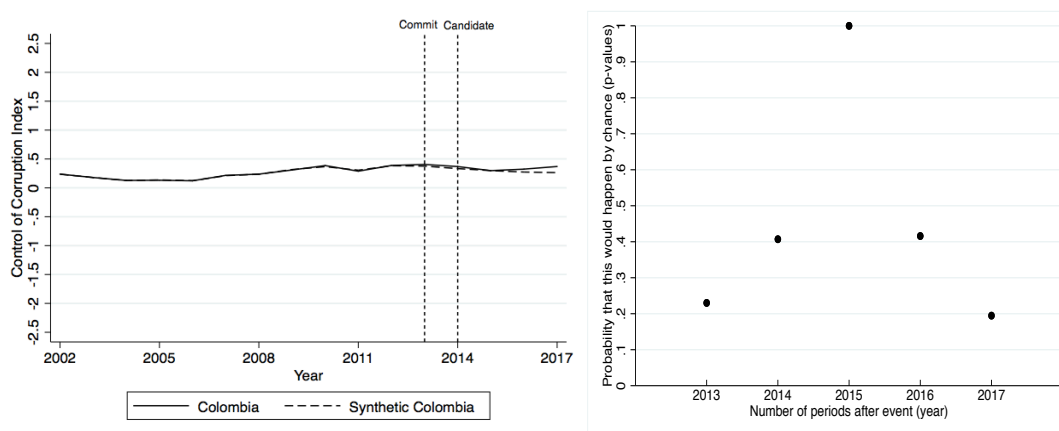
Source: Author's estimation

Figure 13
Regime Corruption Index of Colombia and Adjusted P-Values
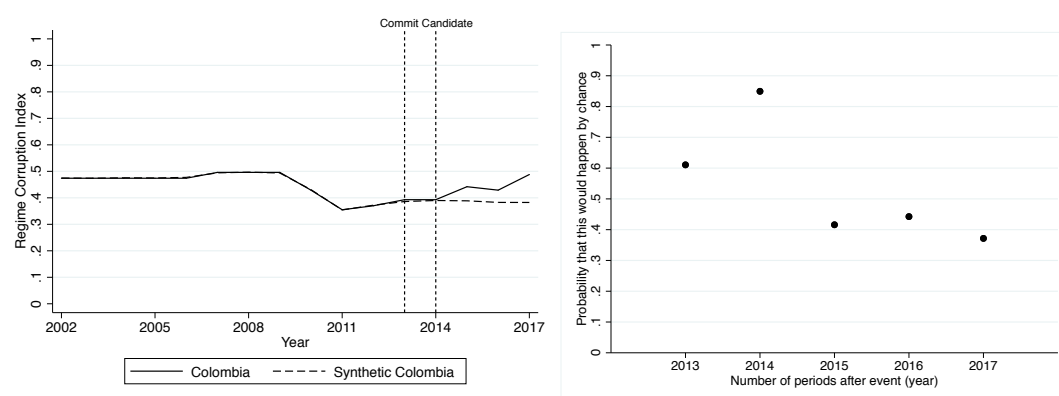
Source: Author's estimation

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[14] "The OECD is an international forum that aims to promote policies that will improve the economic and social well-being of people around the world. This organization is known as the "rich countries club" by some specialists, even though this label is denied by some of its delegates, who see it as just one club for some countries" Mateus (2012).

[15] The organizations that contributed to their EITI budget are the Latin American Energy Organization (OLADE), the Inter-American Development Bank (IDB), the International and Latin American Foundation for Administration and Policies Public (FIIAPP), the World Bank Multi-Donor Fund (FMBM)

Figure 14
Public Sector Corruption Index of Colombia and Adjusted P-Values
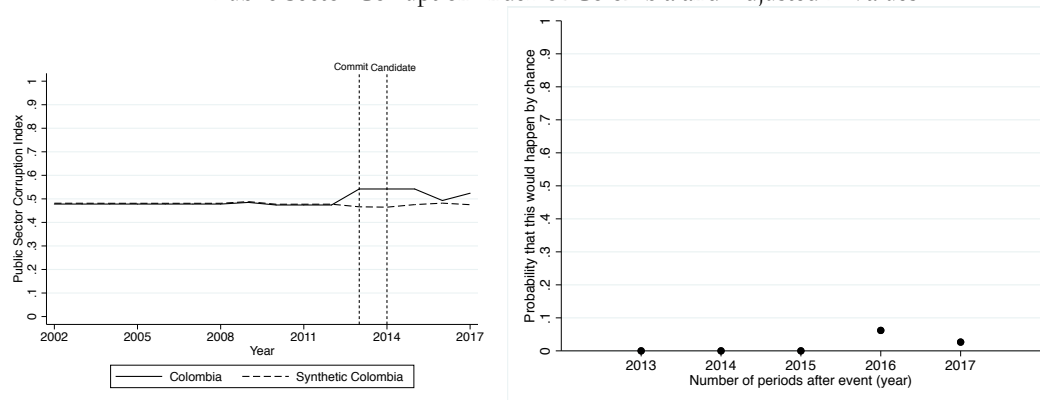
Source: Author's estimation

The three graphs presented above gives us an idea of how the EITI has worked in Colombia. As it is possible to see in the post-intervention period, for the *Control of Corruption Index* (*Figure 12*) and *the Regime Corruption Index* (*Figure 13*), the synthetic unit does not differ significantly from the treated unit. This is confirmed with the p-values that are not even statistically significant at the 10% confidence level, which suggests that the EITI has not had any impact on these two perception indices. However, for the *Public Sector Corruption Index* (*Figure 14*), we can appreciate that the synthetic Colombia deviates significantly from the treated unit during the 'commitment' and 'candidate' stages. From 2013 to 2017, for this corruption outcome, the standardized p-values are all statistically significant. For example, in 2013 there is a small magnitude of 0.08 points change in gap size, larger for the treated (i.e. increase in corruption) compared to the synthetic unit, statistically significant at the 1% confidence level. In general terms, these results tell us the synthetic Colombia is not statistically different from the treated Colombia with the EITI intervention, except for the *Public Sector Corruption Index.* This last indicator that is closer to the daily life of Colombians (not of a large magnitude) is higher for the treated unit. The reasons for these findings could be attributed to the strong discredit campaign, faced by the re-elected President of Colombia Juan Manuel Santos, during the 2013 and 2014 presidential elections about corruption cases. Such was the case of the consulting 'PetroTiger', a company that in 2014 paid bribes to a Colombian official from the state-owned oil company 'Ecopetrol SA' in order to get oil service contracts (Stempel 2019). These events would weaken the perception of the EITI performance in this period in terms of increasing transparency. In addition to that, Mateus (2012) found that people perceive the disclosure of information in the mineral sector is already available in the webs, so the EITI mechanism for them would not have any impact on transparency, and so on corruption. Therefore, transparency would not the problem in the mineral sector, but it is the use and distribution of revenues generated (11% of the Colombian population that dwell in seven out of thirty-two provinces received about 80% of the total royalties); allocation problems that were not incorporated in the EITI regulations before 2016. Moreover, another explanation is that Civil Society Organizations (CSO) in this country could be manipulated by powerful groups, including the guerrillas, to diminish the performance of the EITI (Mateus 2012).
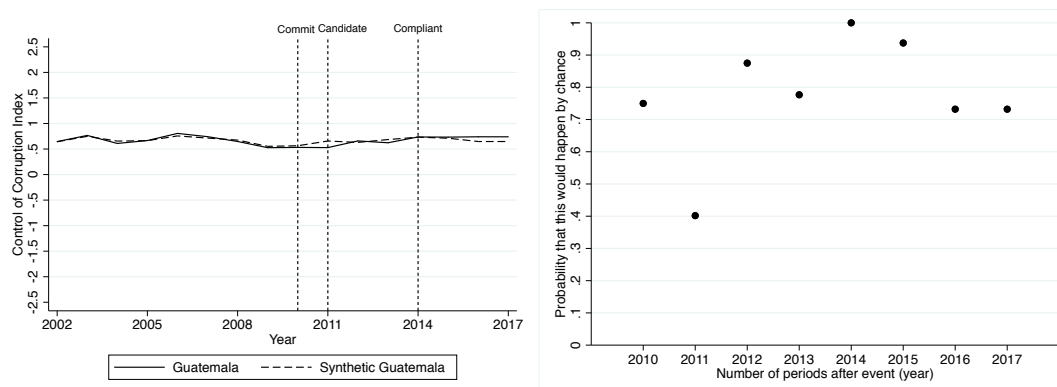
Guatemala

Contrary to Colombia, Guatemala relies less on the extractive sector because it only represents 2% of its GDP for 2016. The main extractive activity comes from the mining sector, being the silver the mineral that contributes with half of the royalties of the sector (56%), followed by the production of gold (27%) and a smaller proportion the petroleum. Thus,

this country is in the 15th rank of the largest producers of silver and the 55th rank of producers of gold (World Mining Congress 2019). The mineral sector represents 13% of the foreign direct investment and 14% of the exports of the country. As mentioned in the literature review, mineral endowments can lead to conflict. Guatemala is an example of it, where the mining activity has caused social conflicts and, so, judicial claims and bills (EITI Guatemala 2013).

Furthermore, this country also suffers from high levels of corruption (far above from the 0.27 points average for Latin America in the *Control of Corruption Index*, Guatemala's corruption level is between 0.5 and 0.9 points —*Figure 15*), where the elites routinely enrich at public expense. Consequently, in the search for power, big crime organizations exist in the country. Indeed, large parts of the country are under the power of drug lords and crime syndicates. This situation has led to mass frustration and huge riots around Guatemala. For instance, in 2015, the violent popular demonstrations resulted in the resignation and imprisonment of the Guatemalan president after an anti-corruption investigation of customs fraud (Warf and Stewart 2016).

With this background, Guatemala has issued some instruments to tackle corruption and in 2010 publicly committed to the EITI (see stages in *Figure 15*). In the beginning, it relied on international cooperation[16] to implement this scheme. Therefore, and despite the political elections, they could accomplish the candidature stage in less than a year, i.e. 2011. Guatemala has presented four EITI reports since 2013, which cover corporate tax, royalties, and other taxes. Nevertheless, these reports have to some extent discrepancies about the revenue's flows and the distribution according to the national regulation (the National Development Fund has unequally allocated funds to the Guatemalan departments). This, the changes in government, and the recovery from internal armed conflict of 36 years and an earthquake in 2012 and 2013 have conducted the country to various ups and downs during the implementation process (EITI Guatemala 2013). Hence, in 2014 it obtained the 'compliant' status, but in 2015 it was suspended. The following figures show how corruption outcome variables have been changing over time compared to their counterfactual.
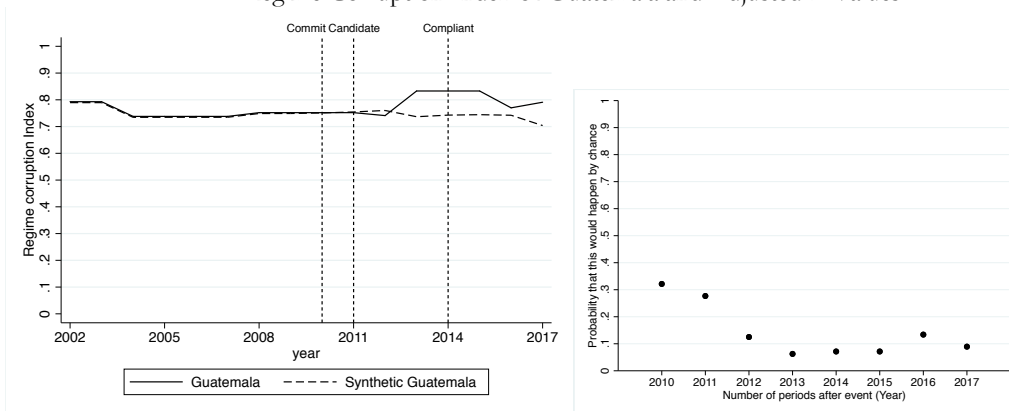
Figure 15
Control of Corruption Index of Guatemala and Adjusted P-Values
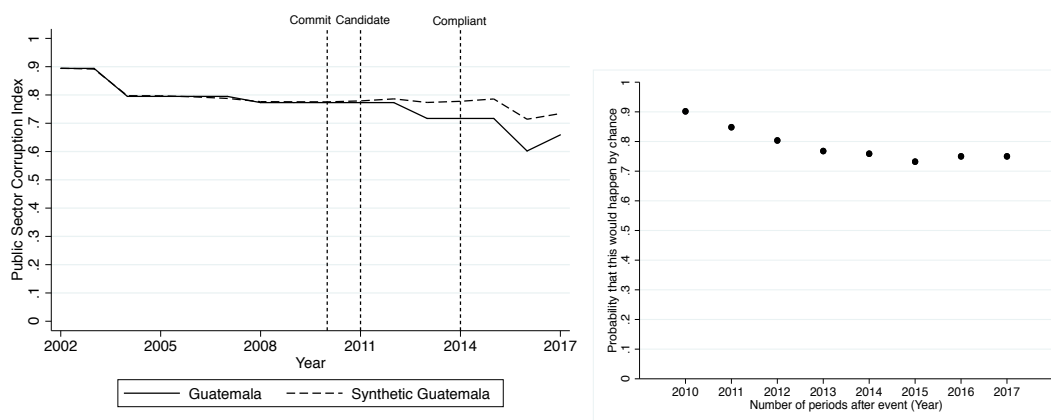

Source: Author's estimation

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[16] The main donors are The World Bank and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ, German Corporation for International Cooperation GmbH) (EITI Guatemala Report 2016)

Figure 16
Regime Corruption Index of Guatemala and Adjusted P-Values

Source: Author's estimation

Figure 17
Public Sector Corruption Index of Guatemala and Adjusted P-Values

Source: Author's estimation

Similar to the situation of Colombia, the corruption perception in Guatemala post-EITI intervention does not decrease in any of the indicators. The synthetic unit is not different from the treated unit for the *Control of Corruption Index (Figure 15)* and *Public Sector Corruption Index (Figure 17),* confirmed by the p-values that show non-statistical significance in any of the stages. However, *the Regime Corruption Index (Figure 16)* for the treated unit is higher (i.e. increase in corruption) than for the synthetic Guatemala between 2013 and 2015. The average annual change for these three years is 0.07 points, statistically significant at the 10% confidence level. This deviation of the treated unit coincides with the event of increasing riots regarding the mining concessions. The representative of the communities claimed that the mining activity pollutes their homes, and so undermine their human rights, they have received threats for protesting against the activity (in 2013 the government declared a state of emergency). People disagree with the mineral activity because companies receive concessions without considering their wellbeing or the international norms about citizens' consent to let mining operate (Movimiento Mesoamericano contra el Modelo Extractivo Minero (M4, Meso-American Movement Against the Mining Extractive Model) 2014). Hence, it would be in detriment to the EITI performance because the transparency that EITI promotes is in line with the undesirable extractive sector. In addition to that, the generalized perception of corruption was spread due to the destitution of the Guatemalan president (2015) for corrupt practices and any relation of this government with the EITI work could be assimilated as not transparent. Having in mind that this latter indicator is more related to political corruption,

the increase in corruption in the 'compliant' period could be endorsed to these events. In the EITI reports (EITI Guatemala 2013), it is mentioned that Civil Society Organizations (CSO) that were against the mining sector had a low involvement in the early stages of the EITI implementation. Moreover, in the same report, it is said that people do not know how to participate in the mechanism. This would suggest a failure of this international standard to make people aware of the importance of transparency. Additionally, there is a limited engagement of the companies of the sector in the initiative because of the lack of knowledge about the benefits of participating. In a general view, there is no evidence of the effect of EITI on reduced corruption in Guatemala (EITI Guatemala 2013).

Honduras

Honduras, together with Guatemala, is part of Central America with a small extractive sector. Honduras' mining sector mainly consists of silver and gold (66% of mineral exports), which represents 1% of its GDP and 5% of the national exports. Yet, informal mining might be three to four times larger than the commercial activities of the sector. There are four mining companies of which two have foreign residences, meaning that the real benefits of the revenues could not be revealed (EITI Honduras 2013). The levels of corruption in Honduras are similar to those of Guatemala, as it is possible to see in *Figure 18*, they range between 0.5 and 1 point in the *Control of Corruption Index* of WGI. According to the Business Anti-Corruption Portal (2016), the corruption in Honduras that takes the forms of patronage networks, bribery, and clientelism impedes the development of an attractive business investment environment. Moreover, the lack of enforcement of anti-corruption frameworks and long procedures (opening business and construction permits) keep the corruption active and working smoothly. Also, extortion is a frequent behavior among police officers and tax officials. In procurement processes, it is common to find bribery as a way to obtain contracts and licenses. A related case was found and made public in 2014, where the chief of the Honduran Institute of Social Security (IHSS) was arrested for embezzlement of public funds (overpriced medicine, overpaying for ten ambulances, and money laundering through fake enterprises), see The Guardian (2015). There is almost no information about the corruption in the mining sector, but it is a branch of the other sectors in terms of corruption with problems like illegal logging and long periods to obtain environmental permits (Business Anti-Corruption Portal 2016).

This situation of corruption along with the interest of expanding mining investment and hydrocarbon sector motivated the government to adhere to the EITI. In this way, Honduras would demonstrate its compromise to be transparent with the purpose to obtain foreign direct investment. Hence, the government committed publicly in 2012 to the EITI. In order to accomplish with the requirements of the EITI, Honduras also received international support by the Multi-donor Trust Fund (FFMD), which budget was managed by the World Bank. Thus, with this help, the country could obtain the candidature rank in the following year, 2013 (*Figure 18*). Since the commitment year, Honduras has presented three reports, disclosing information about payments and its due conciliations of the mining companies together with the reports of the central and local governments. With the progress of the process, more companies, even small, are included in the reports. For example, in the first report, six metallic mining companies were reporting, adding up to seven in the second one. In the reports, there have been flaws related to aspects of the work plan, the payments to subnational bodies, and public debates, so these limitations have deterred the country to become a 'compliant' member as we can see in the next graphs (EITI Honduras 2013).

Figure 18
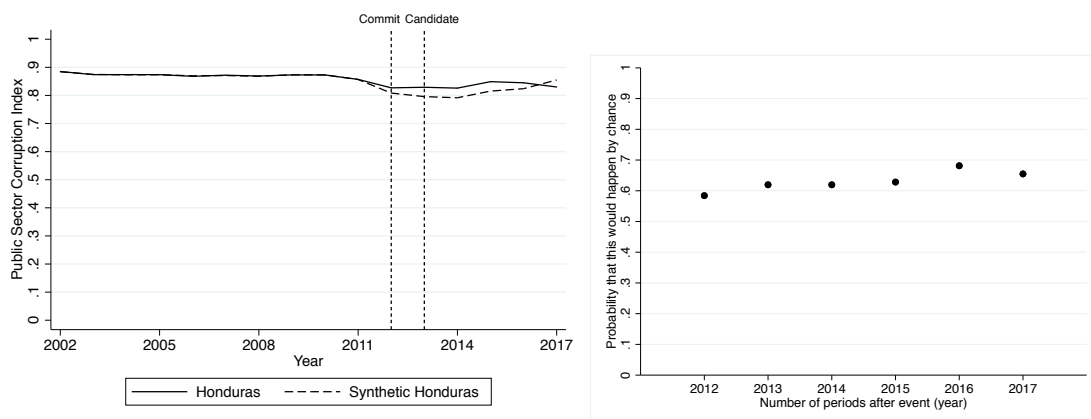Control of Corruption Index of Honduras and Adjusted P-Values
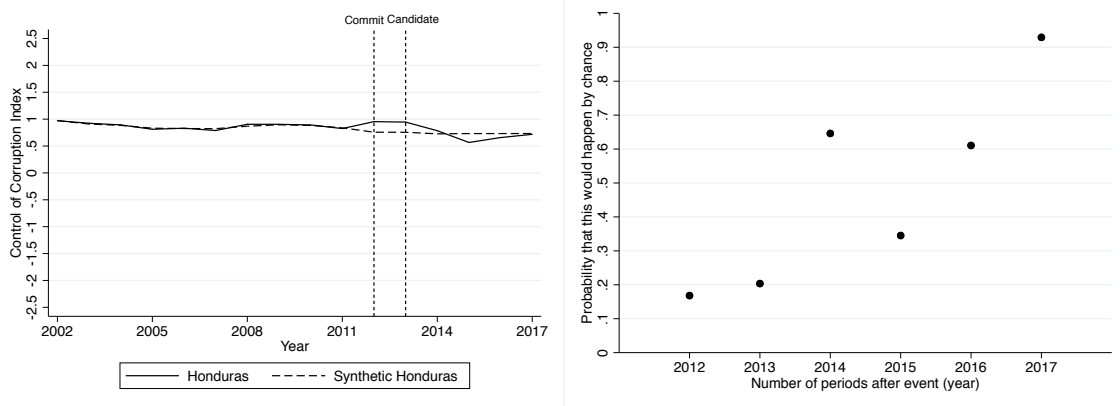
Source: Author's estimation

Figure 19
Regime Corruption Index of Honduras and Adjusted P-Values
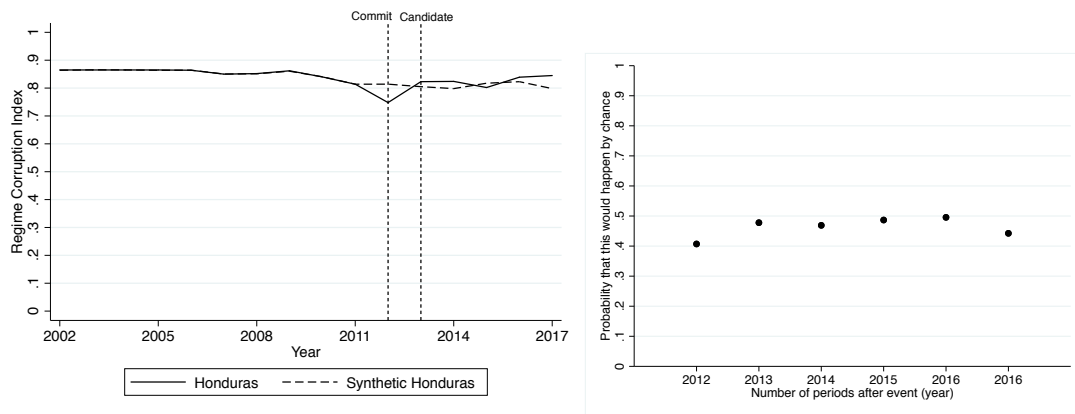
Source: Author's estimation

Figure 20
Public Sector Corruption Index of Honduras and Adjusted P-Values

Source: Author's estimation

Given the situation of Honduras and after performing the SCM, the results suggest that the treated Honduras has not changed in relation to the synthetic one. In our period of study 2002 – 2017, the corruption trajectory of the three indicators keep steady. *Figure 18,* pertaining to the *Control of Corruption Index,* shows that after the EITI intervention there is a slight deviation of 0.2 index points (average annual change for years 2012 and 2013) higher than

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the synthetic unit for the periods of commitment and candidature. Notwithstanding, according to the ANRDS method, the informative statistics indicate no statistical significance in any of these changes. The same results are appreciated for the *Public Sector Corruption Index* (*Figure 20*), which index rises by 0.02 compared to the dotted line of the synthetic unit after the intervention, but also non-statistically significant. Contrary to these two indicators, for the *Regime Corruption Index* (*Figure 19*) the intervened Honduras deviates from the synthetic Honduras in the year of commitment by - 0.07 points (i.e. decrease in corruption), non-statistically significant for the ANRDS. However, this particular measure is statistically significant in the NRDS and the RS(2) inference methods, at 10% and 5 % confidence interval respectively. These informative p-values would imply that the campaign implemented to spread the inclusion of the EITI in the country would have had to some extent an effect in public opinion about corruption. In general, since the extractive sector in Honduras is very small, the scheme would not have any effect on the corruption perception indices. This because corruption indicators encompass the perception of corruption in every sector, not a specific one.

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