Determinants of Financial E-Transparency in Honduran Municipalities

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ABSTRACT

This paper contributes to the scarce literature on e-government transparency in Central America by analyzing the impact of political, financial and socio-economic factors on municipal financial e-transparency in Honduras. The sample covers 86 Honduran municipalities in 2016-17. The data show a weak impact of ideology and mayor's gender on e-transparency, with progressive governments and men achieving more e-transparency. Municipalities receiving more transfers are more transparent. Taking all financial variables together, the data are in line with the Theory of Fiscal Illusion and the Theory of Agency, since municipalities are not reporting greater levels of taxes, deficit, and debt to their taxpayers. Honduran municipalities are only concerned about meeting central government legal requirements about transfers received. The fact that municipalities do not increase e-transparency to be held accountable by their citizens is against the assumptions of the Theory of Legitimacy. Finally, larger municipalities and with greater income are more fiscally transparent.

KEYWORDS

Central America, E-Transparency, Ideology, Municipal, Public Finance

1. INTRODUCTION

Transparency and access to public information are considered essential for the proper functioning of governments (Sáez-Martín, López-Hernandez and Caba-Perez 2017). Public sector transparency is required by State legislation as a way to guarantee the understanding of the application of public policies, to reduce uncertainty, to promote citizen participation and democracy (Lee 2017).

On the one hand, a transparent fiscal system encourages politicians to adopt better policies that consolidate a sustainable fiscal system (Arbatli and Escolano 2015). On the other, it improves public debate. Khadjavi, Lange and Nicklisch (2017) point out that transparency promotes the integrity of public officials, thus reducing the risk of corruption. Similarly, Cucciniello, Porumbescu and Grimmelikhuijsen (2017) show that greater transparency results in lower corruption. These authors also find a positive relationship between transparency and financial management.

In Latin America, with high levels of corruption, low level of economic and human development, recent legislation is seeking greater disclosure and transparency websites. According to García-Tabuyo, Sáez-Martín and Caba-Pérez (2016), this fact is more evident in Central America countries, that rank

as the most corrupt countries in Latin America, but have passed laws of free access to information, as a way to promote a culture of transparency. Despite these transparency legislations, the legacy of authoritarianism and opacity is still reflected in most of Central America countries (Michener 2015).

Considering the impact of municipal policies on citizens' lives, municipal decisions ought to be transparent. The greater the municipal transparency, the greater the citizens' confidence in their authorities (Mohelská and Sokolová 2017). Aslim and Neyapti (2017) argue that, to increase efficiency and well-being, there must be a complementarity between fiscal decentralization and mechanisms that guarantee accountability and transparency at the local level.

Cucciniello, Porumbescu and Grimmelikhuijsen (2017) show a research gap in transparency in Latin America. Nearly half of all research on this topic focuses on Europe and North America, and that only 5 per cent of the articles correspond to Latin America (8 articles of 164). Similarly, de Widt (2016) points out that, in spite of the quantity of public funds involved, local governments receive limited academic attention. The reason is twofold. First, the measurement of transparency is a complex issue, which even becomes more problematic at the sub-national level. Second, getting reliable data is a difficult task. Therefore, to fill this gap, we build our variable on e-transparency based on the Honduran official website of municipal financial transparency (https://portalunico.iaip.gob.hn/). Based on this e-transparency variable, this article studies the political, financial and socioeconomic determinants of municipal financial e-transparency on 86 municipalities, for 2016 and 2017.

The paper is organized as follows. Section 2 discusses the literature. Section 3 describes the Honduran municipal sector. Section 4 addresses the research design and methodology. Section 5 presents the regressions and discusses the empirical results. Finally, section 6 summarizes conclusions and proposes further research.

2. LITERATURE ON TRANSPARENCY

2.1. Theoretical Background

This section focuses on three theories that explain the practices of transparency on a smaller or larger scale according to the interests of those involved: *Theory of Legitimacy*, *Theory of Fiscal Illusion* and *Theory of Agency*.

In the first place, from the perspective of the *Theory of Legitimacy* (Brown and Deegan 1998; Marcuccio and Steccolini 2009; Suchman 1995), local governments must exercise their actions within the socially accepted parameters and in coherence with citizens' expectations. Therefore, if local governments operate in agreement with social values, legitimation is an attainable objective (Brusca, Manes Rossi and Aversano 2016). Under this view, the validity of the institutions over time require stakeholders' support and approval.

The *Theory of Legitimacy* focuses on the administrators' decisions to disclose information, which is published with the aim of modifying citizens' perceptions of governments and to increase the legitimacy of their actions (Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez 2015). Public decision-makers can increase their levels of legitimacy just by reasonably justifying their decisions through transparency (de Fine Licht 2014).

That is how the *Theory of Legitimacy* explains the growing interest in transparency and accountability: people with greater access to information that concerns them, are more likely to accept political decisions, provided they are given a valid reasoning on which these decisions are based. That is, transparency increases the perception of legitimacy as long as this transparency is rational (that offers users sufficient reasons or justifications for the actions carried out), instead of a massive disclosure related to decision-making. As noted by da Cruz et al. (2016), large amounts of detailed information can be an overwhelming factor for the public, which can generate frustration and disappointment for users, and therefore, adverse consequences for perceived legitimacy.

In the same vein, Brusca, Manes Rossi and Aversano (2016) and Alcaide-Muñoz, Rodríguez-Bolívar and López-Hernández (2017) state that the legitimacy of governments' policies is influenced by information disclosure to stakeholders and that the greater the probability of unpopular effects of a decision, the greater the need to influence the process through information publicity. Additionally, local governments in fiscal distress are more exposed to financial crisis, therefore, one way to preserve legitimacy and to respond to stakeholders' needs is to increase their levels of transparency on the sustainability of their actions (Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez 2015).

The following theory is the *Theory of Fiscal Illusion*, which, according to Alesina and Perotti (1996), states that politicians are not encouraged to adopt more transparent practices. This theory is based on taxpayers' inability to internalize the costs of public programs. Citizens tend to overestimate the benefits of public spending and underestimate the costs of taxes, both present and future. Additionally, Cuadrado-Ballesteros (2014) states that politicians also tend to use public debt to generate fiscal illusion, under the assumption that taxpayers do not establish an adequate relationship between the cost of public goods and services (they are underestimated) and the amount of taxes. This causes greater demand on the part of citizens and therefore an increase in public spending. At this point, the taxpayer is not aware that if this expenditure is financed by debt, future taxes will service that debt.

Additionally, fiscal illusion is a useful tool for politicians to attract voters. Turnbull (1998) concludes that fiscal illusion in local public finances underestimates the real value of taxes, so taxpayers end up supporting greater government spending, which they would not support had they had complete information. In fact, Benton and Smith (2017) point out that electorally opportunistic incumbents tend to generate the illusion of economic benefits for voters, which leads to an increase in fiscal expenditures in electoral periods, as a way to maintain this impression. Since taxpayers do not internalize the financial cost of servicing that debt, this may imply an increase of public spending and long-term debt for electoral purposes.

In other words, Alesina and Perotti (1995) point out that opportunist politicians who seek reelection, take advantage of this confusion by increasing spending instead of taxes and thus please the "fiscally illuded". Thus, this confusion and lack of transparency can generate adverse effects in the effective budget management, and this can be more evident when fiscal adjustments are needed. Baekgaard, Serritzlew and Blom-Hansen (2016) claim that lack of information (key data) leads to excessive public budgets, since it makes taxpayers underestimate costs or overestimate revenues.

Finally, the *Theory of Agency* (Ferejohn 1986) stems from the discrepancy of interests between the principal (citizen) and the agent (politician) and from the imperfect information the principal receives from the agent. This forces public officials to be accountable for their actions and to verify that they have acted in accordance with their responsibilities (Alcaide-Muñoz, Rodríguez-Bolivar and López-Hernández 2017). Following these authors, this theory promotes the use of government financial statements as a tool to inform citizens about the actions executed by incumbents.

According to Alesina and Perotti (1995), information asymmetries between citizens and politicians can be used by opportunistic politicians with a view to re-election. In this case, transparency becomes a mechanism that can reduce these information inequalities. Hollyer, Rosendorff and Vreeland (2015) point out that, as transparency increases, voters are more likely to electorally punish low-performing leaders and replace them with high-performers.

2.2. Political Factors

This section describes other political factors with an impact on e-transparency, apart from the theories explained on the previous section.

Alt, Lassen and Rose (2006), in a US survey, show that more egalitarian political competition and power sharing are related to higher levels in financial transparency. Similarly, Arbatli and Escolano (2015) argue that countries with greater political rotation have greater financial transparency. This is because the ruling political parties have more incentives to implement reforms that strengthen transparency, when they perceive high chances of failing to be re-elected. Such reforms, according

to Berliner and Erlich (2015), become a means to monitor future governments, in the event that current incumbents lose power. At the local level, Bearfield and Bowman (2017) argue that cities that experience higher levels of political competition are also more likely to be more transparent. Additionally, the accountability and transparency of the public sector is greater with minority governments, since generally the political parties, fulfilling their role as financial controllers and effective opposition, request complete disclosure of public financial information from the government (Alcaide-Muñoz, Rodríguez-Bolivar and López-Hernández 2017).

Furthermore, regarding partisanship, Gandía, Marrahí and Huguet (2016), Bearfield and Bowman (2017) and Cuadrado-Ballesteros (2014) find that leftist municipal governments are more transparent, while García-Tabuyo, Sáez-Martín and Caba-Pérez (2016) find no impact of political ideology on transparency. In partisan models, leftist parties are expected to favor a larger government and have less resistance to the public deficit compared to right-wing parties (Gupta, Liu and Mulas-Granados 2016).

Piotrowski and van Ryzin (2007) and Lee (2017) argue that government transparency is not connected with partisanship, because it is supported by both Democrats and Republicans. The point is on the kind of information each party wants to disclose. On the one hand, conservatives are more interested in access to information on security and safety, while liberals are more concerned about transparency as an indicator of good governance. Furthermore, Piotrowski and van Ryzin (2007) show conservatives question the need for transparency more than liberals.

Finally, Araujo and Tejedo-Romero (2016, 2018) point out that women have more ethical concerns than men, which is an important attitude that encourages more transparency and reduces municipal information asymmetry. In the transparency demand model developed by Piotrowski and van Ryzin (2007), and considering the citizens, being a woman was the most determining factor in the demand for information on health and safety issues.

2.3. Indicators of Financial Condition

Not only political features, but also financial indicators may explain government transparency. Alt, Lassen, and Rose (2006) include the municipal deficit, debt, and general income per capita as explanatory factors of financial transparency. Their results show that both higher deficits and larger surpluses contribute to greater transparency. This feature indicates that in bad times, politicians need to explain and justify their actions, and in good times, they want to report it to increase their reputation. In the case of debt, they find a negative relationship between transparency and debt, that is, greater debt, less transparency. According to Irwin (2015), few governments publish information on public debt, which has generated demand for greater budget transparency. These demands include a correct measurement of debt and government deficit, as well as the periodic publication of budgets and accounts, credible fiscal forecasts and opportunities for citizens to participate in budget decisions.

According to Alt and Lassen (2006), a transparent budgetary process is the one that provides clear information. Budgets with numerous special accounts and not having consolidated all fiscal activity in a consistent manner, are not transparent. In fact, those budgets that are readily available to the public and those that report details on policy making are transparent. Therefore, an adequate record of deficit and debt would cause positive effects in terms of transparency in the social debate, by showing the role of government in the economy (Reviglio 2001).

Alcaide-Muñoz, Rodríguez-Bolivar and López-Hernández (2017) show that, if indebtedness increases, politicians turn to different information dissemination channels, as a way to demonstrate the government's ability to service the debt. In the same vein, Serrano-Cinca, Rueda-Tomás and Portillo-Tarragona (2009) state that, under the agency theory, when governments resort to debt, they disclose more financial information, because they want to minimize conflicts of interest between creditors and politicians. However, Cuadrado-Ballesteros (2014) affirms that the lowest debt levels are related to the most transparent local governments. In contrast to these findings, Brusca, Manes Rossi and Aversano (2016) show that per capita debt has no influence on Italian local governments'

transparency. The same conclusion is reported by García-Tabuyo, Saez-Martin and Caba-Perez (2017), referred to countries.

Government transfers have also been considered as a possible determinant of the disclosure of financial information by the literature. According to the agency's theory, the funds received by local governments from central governments obliges them to report and disclose information on the use of these funds, with the intention of showing that public officials have acted according to their responsibilities (Alcaide-Muñoz, Rodríguez-Bolívar and López-Hernández 2017; Brusca, Manes Rossi and Aversano 2016; García-Tabuyo, Saez-Martin and Caba-Perez 2017). Reinikka and Svensson (2005) show a relationship between government transfers and transparency in Uganda. Through a survey conducted by the World Bank and the Government of Uganda, they discovered that a low percentage of funds transferred by the central government to improve local schools, reached its destination. Corrupt district officials diverted funds. In view of this fact, the government began to publish budgets and reports on these transfers in national and local newspapers and on bulletin boards. After that decision, disbursements arriving to schools increased from an average of 24 per cent in 1995 to 80 per cent in 2001.

In contrast to these findings, Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez (2015), do not report a significant association between transfers and information disclosure. Brusca, Manes Rossi and Aversano (2016) state that, in times of austerity, government transfers and revenues plummet and that although local governments increase taxes, they are not enough to balance the budget. As a consequence, total income is reduced every year and in view of this situation, the theory suggests that institutions should provide more detailed explanations on the use of financial resources.

Finally, the capacity of the municipality to generate income has also been considered in other studies on transparency. Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez (2015) find that transparency is significantly affected by: first, the financial autonomy, which is related positively; secondly, the fiscal pressure that is inversely related to transparency. These authors conclude that municipalities with higher taxes are more transparent. Brusca, Manes Rossi and Aversano (2016) show that municipalities that have increased the tax burden offer less information. From the point of view of the agency theory, it is possible to relate an increase in per capita tax burden, with the disclosure of information. Taxpayers want to know how their taxes have been spent. Consequently, limited transparency can increase the gap for the misappropriation of tax revenues, leading to corruption (Tsani 2015).

2.4. Socioeconomic Factors

Population is one of the main variables scholars have related to transparency. According to Cohen et al. (2017), to the extent that municipalities' population grows, it is expected a greater demand for services and accordingly, greater taxes and fees to fund these services. Therefore, citizens will demand more information to control whether the government fulfills its duties (Giroux and McLelland 2003). Additionally, in large cities, the number and variety of stakeholders is greater, as well as the probability of a greater number of highly educated citizens, which contributes to an environment with high levels of government information exchange and participation (Ingrams 2017).

Other studies such as Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez (2015), Bearfield and Bowman (2017) and Navarro-Galera, Alcaraz-Quiles and Ortiz-Rodríguez (2016) indicate that the disclosure of information is significantly and positively affected by population. However, in contrast to these findings, García-Tabuyo, Sáez-Martín and Caba-Pérez (2016) conclude that municipal population is not a determining factor in the dissemination of information. Similarly, da Cruz et al. (2016) find that the largest Portuguese cities are far from being the most transparent.

Another socioeconomic factor considered by the empirical literature on transparency is per capita income. Pina, Torres and Royo (2010) assume that municipalities with high income per capita are likely to have more educated population. Consequently, these people will have greater interest in democratic values such as transparency, accountability and management of local finances. Therefore,

they will demand more fiscal information. The results obtained in other studies (Alcaide-Muñoz, Rodríguez-Bolívar and López-Hernández 2017; Giroux and McLelland 2003; Laswad, Fisher and Oyelere 2005) confirm that municipal wealth is a variable positively related to the disclosure of public information. Along the same lines, Hameed (2005), shows that the most transparent countries are also those with higher economic level.

3. LOCAL GOVERNMENTS IN HONDURAS

The Honduran public sector is organized into three levels: Central State, Regional Governments (18 departments or regions) and local governments (298 municipalities). The relationship among them is based upon competences, not upon hierarchy.

Each municipality is ruled by a municipal corporation, endowed with legal personality and presided by a mayor, who is directly elected by the citizens. The electoral system is based on proportional representation. The municipal elections of more than 2,000 councilors are held every four years, according to the number of inhabitants per municipality. Municipalities with less than 5,000 inhabitants: 4 councilors, from 5,001 to 10,000 inhabitants: 6 councilors, from 10,001 to 80,000 inhabitants: 8 councilors and more than 80,000 inhabitants 10 councilors.

In Honduras, political parties at the national level (9) also operate at the municipal level, under an essentially bipartisan system. The oldest and most predominant political parties are the Liberal Party (Progressive) and the National Party (Conservative), which have shared national power alternatively since democracy came to Honduras. These two political parties represent around 75 per cent of the total number of councilors in our sample.

Municipalities are responsible for, among others: design and execution of municipal development plans, municipal sanitation, drinking water distribution, sewerage, public roads, provision of local public services.

In 2014, of the total of municipalities, 234 (79 per cent) are above the legal expenditure ceiling, 4 municipalities show balanced budgets and 60 (20 per cent) are below the legal expenditure ceiling. In addition, total transfers from central government to municipalities in 2014 account for around 1 per cent of GDP, while total municipal expenditures represent around 3 per cent of GDP.

Taking these data into account, municipalities are expected to be highly transparent about their financial condition. In addition, the law of municipalities of Honduras includes, as one of the objectives of the municipality, the promotion of the participation of the community in the decision making and requires the holding of, at least, five open council sessions per year.

4. METHODOLOGY

4.1. Sample and Variables

Our study considers the only 86 Honduran municipalities available, i.e., those that are included in the official government e-transparency website, for the years 2016 and 2017.

This section focuses mainly on the description of the variable "financial transparency", which is the only one constructed on purpose for this article. We built the variables on e-transparency by consulting data on the aforementioned website. We identify a global e-transparency index (*globtran*) as the addition of these three dimensions: accountability (*tran_acc*), finance (*tran_fin*) and budget (*tran_bud*). Each dimension accounts for the number of documents uploaded to the website. Table 1 shows the definition of the variables and their descriptive statistics and Table 2 reports correlations.

All explanatory variables are two-year lagged, i.e., they refer to 2014 and 2015. The reason is fourfold. First, there are no data on most of financial and budgetary variables for 2016 and 2017. Second, as indicated by Manski (1993), social forces act on the individual with a lag. Third, and

Table 1. Descriptive statistics

	Variable	Description	Mean	St. dev.	Min.	Max.
Dependent	globtran	tran_acc + tran_fin + tran_bud [a]	77.2849	56.1310	0	198
	tran_acc	Sum of the annual accountability reports posted on the web (operations, purchasing, revenues, expenditures, capital) [a]	15.5152	10.7735	0	38
	tran_fin	Sum of the annual financial reports posted on the web (balance, net income, transfers, non-financial investments, financial investments, debt and delinquency) [a]	40.1386	30.9999	0	113
	tran_bud	Sum of the annual budget reports published on the web (actual and budgeted expenditures and revenues) [a]	22.07831	17.2988	0	60
political	ideology	Political ideology of the mayor (2013 elections). Dummy variable with value 0 if leftist mayor and value 1 if conservative mayor. [b]	.6208	.4856	0	1
	majority	Whether the mayor's party holds majority in the municipal council (2013 elections). Dummy variable with value 0 if no absolute majority and value 1 if absolute majority. [b]	.6443	.4791	0	1
	mayor_gender	Dummy variable for mayor's sex. Value 0 for woman and 1 for man (2013 elections). [b]	.9362	.2445	0	1
financial	r_revenue1pc	Municipal direct tax + indirect tax per capita (2002 real Lempira). [c]	52.7595	84.9816	2.1946	1189.7450
	r_revenue2pc	Municipal direct tax + indirect tax + fees per capita (2002 real Lempira). [c]	89.3658	126.0047	2.9264	1222.9640
	r_debtpc	Municipal debt per capita (2002 real Lempira). [c]	28.1378	117.1818	0	1636
	r_deficitpc1	Municipal deficit per capita (2002 real Lempira). [c]	144.8869	297.2458	-402.4257	3094.847
	r_transfpc	Transfers received from central government per capita (2002 real Lempira). [c]	706.2522	708.3296	0	6947.7670
socio-economic	lnpopul	Population of the municipality (natural logarithm). [d]	9.5030	1.0107	7.0014	13.9897
	lnr_income	Municipal income per capita (2002 real Lempira). [d]	6.4987	.5009	5.0104	7.6843

[a] Retrieved from the Honduras municipal transparency portal (https://portalunico.iaip.gob.hn/). [b] Obtained from the Honduras Supreme Electoral Court. [c] From the Honduras Ministry of Finance. [d] Taken from the Honduras Statistics National Institute.

as pointed out by Edmark and Ågren (2008), in municipal data, lagged values of all economic and demographic covariates may be considered. Fourth, some of the reports uploaded to the website by the municipalities refer to previous years.

In accordance with the literature revised in section 2, the determinants of the municipal financial transparency are political, financial and socio-economic. Our variables have been classified accordingly. The political variables stem from 2013 municipal elections in Honduras: mayors' political ideology (*ideology*), political strength of the municipal government (*majority*) and the mayor's gender (*mayor_gender*). The indicators of financial condition include: transfers received per capita (*r_transfpc*), taxes collected per capita (*r_revenue1pc* and *r_revenue2pc*), municipal debt per capita (*r_debtpc*) and deficit (*r_deficitpc*). The socio-economic features considered are population (*lnpopul*) and income per capita (*lnr_income*).

Table 2. Correlations

	globtran	tran_acc	tran_fin	tran_bud	ideology	majority	mayor_gender	r_revenue1pc	r_revenue2pc	r_transfpc	lnpopul	r_debtpc	lnr_income
tran_acc	**0.9272**	1											
tran_fin	**0.9823**	**0.9033**	1										
tran_bud	**0.9198**	**0.7779**	**0.8441**	1									
ideology	-0.1544	**-0.2190**	-0.1600	-0.1058	1								
majority	-0.0791	-0.0808	-0.0883	-0.0809	0.0405	1							
mayor_gender	0.1170	0.0430	0.1101	0.1623	**-0.1190**	0.0643	1						
r_revenue1pc	**0.4299**	**0.4077**	**0.4632**	**0.2829**	-0.0936	-0.0803	-0.0020	1					
r_revenue2pc	**0.4092**	**0.4044**	**0.4392**	**0.2639**	-0.1249	-0.0591	0.0285	**0.9150**	1				
r_transfpc	**-0.2851**	**-0.2502**	**-0.3043**	**-0.2462**	-0.0539	**0.2556**	0.0373	**-0.1592**	**-0.1519**	1			
lnpopul	**0.4129**	**0.3588**	**0.4511**	**0.3406**	-0.0357	**-0.3252**	0.0061	**0.3947**	**0.4560**	**-0.7282**	1		
r_debtpc	0.0510	0.0451	0.0746	-0.0090	-0.0397	-0.0762	0.0503	0.1235	**0.1754**	-0.0259	**0.1733**	1	
lnr_income	**0.2287**	**0.2740**	**0.2452**	0.1523	-0.0640	**-0.1728**	0.0827	**0.3552**	**0.4177**	**-0.2598**	**0.4490**	**0.1728**	1
r_deficitpc1	0.0495	0.0097	0.0323	0.0745	-0.0186	**0.1702**	0.0543	0.0589	0.0708	**0.6668**	**-0.3451**	-0.0262	-0.0987
Bold numbers indicate significance £ 0.01													

4.2. Main Model and Robustness Checks

Regarding the econometric model, we run ordinary least squares (OLS) for the main regression and the first robustness check and two-stage least squares (2SLS) regressions for the second and third robustness checks.

The reason for using 2SLS lies in the possible endogeneity of one variable: *r_transfpc*. If a municipality is very transparent, it may enhance the willingness of the donor government to provide more transfers to the recipient government. We must bear in mind that one of the usual requirements recipient governments must achieve is to provide full disclosure to the donor government. In agreement with the usual econometric procedures, we have taken several lags of *r_transfpc* and the remaining independent variables.

The main model follows this ordinary least squares (OLS) regression:

$$y_{it} = \gamma + \mathring{a}\, \beta_j\, x_{jit} + c_i + \varepsilon_{it} \tag{1}$$

where y_{it} represents municipal e-transparency indicators (*globtran*, *tran_acc*, *tran_fin*, *tran_bud*). γ is the intercept, x_{jit} is the vector of explanatory variables and β_j is a vector of parameters to be estimated. To control for fixed regional effects, we introduce c_i (18-1 dummy variables accounting for the 18 Honduran regions). The error term is ε_{it}. Subscripts i and t represent municipality (1 to 86) and time (2016 and 2017), respectively.

Additionally, we run three robustness checks. The first one is run also under OLS and tests the stability of our model under a different measurement for municipal revenues (*r_revenue1pc* vs. *r_revenue2pc*). Honduran legislation makes transfers from central government conditional upon the submission of specific municipal financial reports to the central government. This legislation makes us assume a potential endogeneity of the variable *r_transfpc*. Therefore, the second and third robustness checks deal with both *r_revenue1pc* and *r_revenue2pc* plus the endogeneity of transfers, which is controlled through this instrumental variables regression:

$$y_{it} = \gamma + \mathring{a}\, \beta_j\, x_{jit} + \beta\, r\_transfpc_{it} + c_i + \varepsilon_{it} \tag{2}$$

$r\_transfpc_{it}$ instrumented with = $lnpopul$, $r\_revenue1pc$, r_debtpc, $r\_deficitpc1$ lnr_income, $ideology$, $majority$, $mayor\_gender$, $dept*$, lagged $r\_transfpc$

5. RESULTS AND DISCUSSION

Table 3 shows the coefficients of the main OLS regression and the first robustness check. Table 4 presents the second and third robustness checks, both with instrumental variables. There are only slight differences in the coefficients of these four models. These results confirm that, after controlling for different specifications of municipal revenues and for the endogeneity, coefficients hardly change, which confirms the robustness of our main model.

Table 3. Main regression and first robustness check

dep. variable		Transparency				transparency (robustness check #1)			
		globtran	tran_acc	tran_fin	tran_bud	globtran	tran_acc	tran_fin	tran_bud
political	ideology	**-20.4112 -1.68	-3.1694 -1.29	**-11.4721 -1.79	-5.6846 -1.46	**-18.9789 -1.56**	-3.0139 -1.22	-10.5498 -1.63	-5.2359 -1.34
political	majority	-2.0132 -0.15	-1.1724 -0.42	-.7220 -0.10	-.0967 -0.02	**-.0033 -0.00**	-.9627 -0.34	.4025 0.05	.5908 0.13
political	mayor_gender	15.8949 0.68	-3.5083 -0.75	3.9139 0.32	***15.3040 2.06	**13.6515 0.58**	-3.7436 -0.79	2.5356 0.20	**14.4687 1.94
financial	r_revenue1pc	.0794 0.65	.0106 0.43	.0717 1.10	-.0026 -0.07				
financial	r_revenue2pc					**-.0083 -0.13**	.0001 0.01	.0068 0.19	-.0147 -0.68
financial	r_debtpc	-.0092 -0.32	.0003 0.05	.0008 0.05	-.0102 -1.11	**-.0124 -0.44**	-.0000 -0.01	-.0012 -0.08	-.0109 -1.19
financial	r_deficitpc1	.0051 0.22	-.0038 -0.82	-.0019 -0.15	.0108 1.45	**.0098 0.42**	-.0033 -0.70	.0007 0.05	.0124 1.63
financial	r_transfpc	***.0825 2.53	**.0111 1.67	***.0444 2.56	***.0268 2.54	****.0905 2.76**	**.0119 1.80	***.0493 2.82	***.0288 2.74
socio-economic	lnpopul	***29.39534 3.06	**4.4510 2.28	***16.3814 3.20	****8.5139 2.73	***34.5738 3.34**	**5.0084 2.39	***19.4144 3.51	***10.015 3.01
socio-economic	lnr_income	**34.0727 1.99	*6.1262 1.77	14.9648 1.64	**12.9010 2.33	**37.5440 2.22**	*6.5233 1.91	*17.2512 1.90	**13.5859 2.49
	Adjusted R^2 Prob > F	0.4255 0.0000	0.3286 0.0006	0.4677 0.0000	0.4077 0.0000	**0.4217 0.0000**	0.3266 0.0006	0.4577 0.0000	0.4120 0.0000
	Maximum VIF	6.82 / 4.32 [a]				7.86 / 4.32 [b]			

Ordinary Least Squares
Financial variables in 2002 real Lempira. Below each coefficient, t value is reported. Sig.: **10%, ***5%, ****1%.
All models include:
· A constant (not reported).
· Dummy variables $dept*$(departments or regions), which account for each municipality's department (not reported).
[a] Initial VIF 6.82. After dropping $r\_revenue1pc$, VIF drops to 4.32 and values and significances of coefficients hold, except $ideology$, which significance is weak, as we indicated in the text.
[b] Initial VIF 7.86. After dropping $r\_revenue2pc$, VIF drops to 4.32 and values and significances of coefficients hold.

5.1. Political Factors

The political variables that impact on the municipalities' financial e-transparency are the mayor's ideology (*ideology*) and mayor's gender (*mayor_gender*).

Table 4. Robustness checks

dep. variable		*transparency* (robustness check #2)				*transparency* (robustness check #3)			
		globtran	*tran_acc*	*tran_fin*	*tran_bud*	*globtran*	*tran_acc*	*tran_fin*	*tran_bud*
political	*ideology*	**-20.5558 -1.69	-3.1686 -1.29	**-11.5295 -1.80	-5.7236 -1.47	**-19.0973 -1.57**	-3.0110 -1.22	-10.5910 -1.63	-5.2697 -1.35
political	*majority*	-2.0350 -0.15	-1.1723 -0.42	-.7276 -0.10	-.1005 -0.02	**.0144 0.00**	-.9632 -0.34	.4167 0.06	.6024 0.13
political	*mayor_gender*	16.2215 0.70	-3.5102 -0.74	4.0459 0.33	***15.3936 2.07	**13.9023 0.59**	-3.7498 -0.79	2.6214 0.21	**14.5392 1.95
financial	*r_revenue1pc*	.0737 0.60	.0106 0.43	.0685 1.04	-.0048 -0.12				
financial	*r_revenue2pc*					**-.0111 -0.16**	.0001 0.01	.0054 0.15	-.0158 -0.73
financial	*r_debtpc*	-.0111 -0.38	.0003 0.05	-.0003 -0.02	-.0110 -1.15	**-.0140 -0.48**	-.0000 -0.00	-.0021 -0.13	-.01167 -1.24
financial	*r_deficitpc1*	.0049 0.22	-.0038 -0.82	-.0020 -0.16	.0107 1.44	**.0097 0.41**	-.0033 -0.70	.0006 0.05	.0124 1.63
financial	*r_transfpc* [a]	***.0874 2.33	.0110 1.45	***.0473 2.38	***.0288 2.37	***.0948 2.50**	.0118 1.54	***.0516 2.57	***.0307 2.54
socio-economic	*lnpopul*	****30.3563 2.95	***4.4454 2.13	****16.9338 3.10	****8.8891 2.67	****35.4708 3.20**	***4.9862 2.23	****19.8886 3.38	****10.4045 2.94
socio-economic	*lnr_income*	***34.7960 2.01	**6.1220 1.75	**15.3661 1.67	***13.1736 2.35	***38.1498 2.23**	**6.5084 1.88	**17.5593 1.92	***13.8390 2.51
	Adjusted R² Prob > F	0.4253 0.0000	0.3286 0.0007	0.4674 0.0000	0.4074 0.0000	**0.4215 0.0000**	0.3266 0.0007	0.4575 0.0000	0.4117 0.0000
	Maximum VIF	7.81 / 5.31 [b]				**8.99 / 5.31 [c]**			

Instrumental variables regression. Financial variables in 2002 real Lempira. Below each coefficient, t value is reported. Sig.: *10%, **5%, ***1%.
[a] Instruments: *r_transfpc* is instrumented with all its 2002-2013 lags and with the remaining explanatory variables.
All models include:
  · A constant (not reported).
  · Dummy variables *dept*(departments or regions), which account for each municipality's department (not reported).
[b] Initial VIF 7.81. After dropping *r_revenue1pc*, VIF drops to 5.31 and values and significances of coefficients hold, except *ideology*, which significance is weak, as we indicated in the text.
[c] Initial VIF 8.99. After dropping *r_revenue2pc*, VIF drops to 5.31 and values and significances of coefficients hold.

All coefficients of the variable *ideology* are negative in each and every regression. Plus, there is slight significant impact in two of the main model and two of the second robustness check. Considering the nature of the data reported by Honduran municipalities, we cannot test the first of the theoretical assumptions of Piotrowski and van Ryzin (2007) and Lee (2017), i.e., that conservative parties prioritize e-transparency on security. The second assumption of these authors is that progressive governments focus on transparency on good governance, which is the kind of data reported through the official transparency website. Therefore, acknowledging that the significance is not strong, the data are in line with this second assumption of Piotrowski and van Ryzin (2007) and Lee (2017), i.e., leftist governments' transparency is greater, which impacts the good governance.

Regarding the impact of majority on e-transparency, our data do not show statistical significance. Therefore, we cannot confirm the previous literature that posits that governments with strong majorities have little incentives to be transparent (Arbatli and Escolano 2015; Berliner and Erlich 2015; Bearfield and Bowman 2017).

As far as mayor's gender impact on e-transparency is concerned, it appears that female mayors show less e-transparency than their male counterparts. Anyway, the impact of male mayors on e-transparency is weak and only significant in the budget e-transparency regressions. In this point, we must bear in mind that the percentage of female mayors only represents 6.38 per cent of the total sample. For these two reasons, we cannot unambiguously confirm that male mayors hold greater levels of e-transparency. Future research should confirm this hypothesis, provided that the sample

of female mayors increases. This aspect will take time in the case of Honduras, since the implication of women in municipal governance is even decreasing.

5.2. Financial Determinants

The municipal e-transparency in Honduras is not determined, in general, by some of the financial indicators pointed out by the literature: tax revenue ($r\_revenue1pc$, $r\_revenue2pc$), debt (r_debtpc) and deficit ($r\_deficitpc1$). If we focus now on deficit, our data do not confirm the literature, that posits that an adequate transparency of deficit would cause positive effects in the social debate, by showing the role of government in the economy (Reviglio 2001). Regarding debt, our results would be in line with Brusca, Manes Rossi and Aversano (2016) and García-Tabuyo, Saez-Martin and Caba-Perez (2017), whose findings indicate no relationship between debt and transparency level. As far as taxes are concerned, both definitions, i.e., taxes or taxes+fees, show no impact on e-transparency. What we were expecting was a positive impact, so that greater tax burden leads to higher e-transparency, as a way to account for the larger amount of resources taken from taxpayers. In the case of Honduran municipalities, such a relationship does not exist. Tax revenue ($r\_revenue1pc$, $r\_revenue2pc$), deficit ($r\_deficitpc1$) and debt (r_debtpc) confirm both the *Fiscal Illusion* and *Agency Theories* (Alesina and Perotti 1996). Municipalities imposing greater tax burden on taxpayers and incurring into larger debt per capita are not increasing e-transparency on those items. On the one hand, higher taxes are hidden from citizens' scrutiny, who are the principals according to the *Theory of Agency*. Taxpayers want to know how their taxes have been spent. Consequently, limited transparency can increase the gap for the misappropriation of tax revenues, i.e., corruption (Tsani 2015). On the other hand, deficit financed through debt creates the fiscal illusion on taxpayers that they can enjoy greater public expenditure without bearing the fiscal cost, if they do not have information to internalize the future tax burden necessary to service de debt (*Fiscal Illusion Theory*).

Our data show a clear pattern, the greater the transfers received ($r\_transfpc$), the greater the e-transparency. According to the agency's theory, the central governments funds received by local governments oblige them to report and disclose information on the use of these funds, with the aim of showing that public officials have managed the funds properly. Besides, we must bear in mind the possible endogeneity of this variable, which was controlled for on Table 4 regressions. After controlling for endogeneity, $r\_transfpc$ significantly impacts on budget e-transparency (*tran_bud*), which is the one connected with the documents that report how transfers were used in the recipient municipality's budget. The endogeneity, as we explained above, corresponds with the legal requirement in Honduras of higher disclosure for municipalities that receive transfers. Our empirical results on transfers are in line with Alcaide-Muñoz, Rodríguez-Bolívar and López-Hernández (2017), Brusca, Manes Rossi and Aversano (2016), García-Tabuyo, Saez-Martin and Caba-Perez (2017) and Reinikka and Svensson (2005).

Considering all the financial variables, only transfers received impact on municipal e-transparency. This means that rather than increasing the legitimacy of their actions to their taxpayers (taxes, deficit and debt have no impact on e-transparency), municipalities are meeting legal requirements imposed by the central government. From the perspective of the *Theory of Legitimacy*, our findings suggest that politicians are more interested in achieving approval and legitimization of their actions from the central government in order to maintain or increase the level of transfers, instead of seeking the approval of citizens. We must bear in mind that, as we explained above, the *Theory of Legitimacy* posits the growing interest in transparency and accountability: people with access to information about government decision making are more likely to accept these decisions. Therefore, our data show no support for the *Theory of Legitimacy* among the Honduran municipalities.

5.3. Socio-Economic Factors

Municipal population (*lnpopul*) has a positive and significant impact on e-transparency in all regressions. This is the most robust coefficient from all the variables considered. First, this finding

confirms Cohen et al. (2017). Second, this relationship may be due to the probability that in larger municipalities there are more educated people demanding more information (Ingrams 2017). In fact, it is expected that larger municipalities have enough resources, both human and material, in order to render accounts to their inhabitants. Third, larger municipalities manage greater amounts of public funds and accordingly face higher pressures to account for it. Our data confirm previous literature such as Giroux and McLelland (2003), Alcaraz-Quiles, Navarro-Galera and Ortiz-Rodríguez (2015), Bearfield and Bowman (2017) and Navarro-Galera, Alcaraz-Quiles and Ortiz-Rodríguez (2016).

The per capita income (*lnr_income*) presents a clear pattern in all regressions. It impacts positively and significantly on municipal e-transparency. Our results agree with the mainstream of the literature, such as Pina, Torres and Royo (2010), Alcaide-Muñoz, Rodríguez-Bolívar and López-Hernández (2017), Giroux and McLelland (2003), Laswad, Fisher and Oyelere (2005) and Hameed (2005).

6. CONCLUSION AND FURTHER RESEARCH

This article studies the determinants of the municipal financial e-transparency in Honduras. We seek to fill the research gap in this area of the world, Central America, where e-transparency has not been addressed by the literature so far.

The political variables that appear to explain municipalities' financial e-transparency are ideology and mayor's gender. Leftist governments and male mayors present greater e-transparency. Left-wing governments defend a larger public sector, and therefore they are expected to enhance e-transparency. However, the low significance of coefficients prevents us from drawing conclusive findings here.

Turning to financial variables, municipalities receiving more transfers disclose more financial information and accordingly are more transparent. Nevertheless, taxes per capita, deficit per capita and debt per capita have no impact on e-transparency. Taking all financial variables together, our data confirm the *Theory of Fiscal illusion* and the *Theory of Agency*, since municipalities are not reporting greater levels of taxes, deficit and debt to their taxpayers. Here, Honduran municipalities are only concerned about meeting central government legal requirements about transfers paid to municipalities. The fact that municipalities do not increase e-transparency to be held accountable by their citizens is against the *Theory of Legitimacy*.

Population impacts positively on e-transparency. Larger municipalities manage higher amounts of resources and, thus, face higher pressures for accountability. Besides, in more populated municipalities, there will be more educated people requiring higher accountability. As a practical implication, Honduran government should support with human and material resources those smaller jurisdictions facing problems to increase financial e-transparency.

Another practical implication deserves future research. We refer to the need of expert analysis of the documents uploaded to the transparency web, so that they are processed and summarized in a way that people without financial background can understand. Thus, we plan to check whether more education means higher demands for transparency. Higher educated people will have greater interest in democratic values such as transparency, accountability and management of local finances. This will need a questionnaire based research to check this point.

Additionally, our future research will seek to assess whether e-transparency meets the *Theory of Legitimacy*. This means that transparency should be rational, offering users enough justifications for the actions carried out, instead of a massive disclosure related to decision-making. Large amounts of detailed information can be an overwhelming factor for the public, which can generate frustration and disappointment for users, and therefore, adverse consequences for perceived legitimacy. We will prove the need for experts processing the information, which sometimes is very complex, and publishing it so that people without financial backgrounds can understand the financial data. This is supposed to impact the trust citizens have on their governments, which is the last point we seek to investigate.

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