Does rising corporate social responsibility promote firm tax payments? New perspectives from a quantile approach

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Abstract

The linkage between CSR and firm tax payments is often investigated through mean regression approaches and focuses mainly on developed economies. Using panel data from Vietnamese firms, this study finds that CSR has insignificant effects on firm tax payments when applying fixed-effect instrumental variable estimations. Using a quantile approach, however, this paper finds that CSR improves firm tax payment at a higher percentile but is negatively linked to enterprises with low tax payment, a result driven by several mechanisms. First, high adherence to CSR increases firms' compliance with the law. Also, although high adherence to CSR does not immediately promote transparency in the business environment, it does improve firm profitability and value added. This suggests that in the absence of effective institutions, firms can engage in the effort against tax avoidance and promote tax payment by applying CSR practices.

Key words: CSR, quantile approach, tax payment, instrumental variable regression.

JEL Classification*: G3, H2*

1. Introduction

Corporate social responsibility (CSR) has undeniably become an integral part of mainstream business practice (Cao, Liang, & Zhan, 2019). Various theories, for example legitimacy theory, stakeholder theory, and agency theory, have been used to explain the predictors and outcomes of CSR. On the one hand, agency theory (Jensen & Meckling, 1976) asserts that CSR produces no gains. Friedman (1970) was one of the first scholars to assert that CSR is a reflection of an agency problem in a firm. CSR observance may increase agency costs because managers in firms with symbolic CSR engagement may pursue short-term performance and neglect long-term development to avoid the risk of being fired due to underperformance (Porter, 1992). Also, corporate managers opportunistically engage in CSR activities to promote their own image, careers, or personal benefit, rather than the interest of shareholders (Friedman, 1970).

Furthermore, CSR adherence reduces profits because activities, such as forms of community support, are considered to be a 'donation' from shareholders to non-shareholders (Flammer, 2015). In addition, CSR activities put enterprises at a competitive disadvantage in comparison with their non-CSR counterparts (Aupperle, Carroll, & Hatfield, 1985). CSR programs, such as investments in environmental protection equipment, may increase firm costs without any immediate return. As a result, business resources reserved for CSR activities may decrease firm performance and also tax payments from firms.

On the other hand, this agency theory view of CSR has been challenged by stakeholder theory and legitimacy theorists, who suggest that firms implementing CSR are actually more profitable due to external factors, such as gains in legitimacy, better reputation and value, as well as internal factors such as better human resources. A firm's attentiveness to CSR helps improve customer satisfaction, enhances employee commitment and pleases investors in a way that benefits its market performance, operational efficiency, and innovation, which consequently lead to higher firm performance. Consistent with this argument, those who emphasize the importance of a firm's resources suggest that investments in CSR may help firms build a positive corporate reputation and investment efficiency (Branco & Rodrigues, 2006; Lin, Li, Cheng & Lam, 2021). Specifically, previous studies (e.g., Branco & Rodrigues, 2006; Lins, Servaes, & Tamayo, 2017) show that CSR practices bring firms intangible resources, such as competitive advantage and reputation. Such benefits are valuable, rare, unique, and non-substitutable because they take time to accumulate. These advantages of CSR, in turn, enhance the performance and tax payment of firms.

In view of these theoretical arguments, the relationship between CSR and tax payment generates a research interest. First, prior studies focus on how company claims of social responsibility are related to tax evasion. If firms are socially irresponsible, they will seek to reduce their tax payments (Schön, 2008) to the benefit of shareholders, but at the expense of the wider society (Graham & Tucker, 2006; Hanlon & Heitzman, 2010; Sikka, 2010). If firms avoid paying tax, they can increase their profitability. Carroll and Joulfaian (2005) find that corporate charitable contributions decrease tax costs and increase income. Firms that claim to be socially responsible and make use of off-shore financial centers can reduce their tax liability (Preuss, 2010).

The second line of research proposes that CSR and tax payments are alternatives rather than complementary. Davis, Guenther, Krull, and Williams (2016) find that there is a negative relationship between CSR and effective tax rates, and a positive relationship between CSR and tax lobbying expenditure.

The contributions of this study to the literature are several. First, as noted by Newman, Rand, Tarp, and Trifkovic (2020), research into the simultaneous effect of various types of CSR on firm performance is missing in the literature. Also, studies from developing countries focus merely on limited CSR issues because of difficulties in accessing CSR data. Consequently, there is a large gap between CSR *thinking* and CSR *doing* (Lin, Padliansyah, & Lin, 2020; Jamali & Karam, 2018). Using unique CSR panel data from Vietnam, this paper is one of the first attempts to study systematically the differences in types of CSR on tax payment in a transitional economy. Secondly, this study will enrich the current CSR literature dealing with firm behavior with regard to tax compliance. To date, the literature seems to be silent on the question of whether CSR matters for a firm's willingness to comply with tax laws in Vietnam. This paucity of research is surprising, since a firm's decision about CSR is also a function of country-level institutions (Ghoul, Guedhami, & Kim, 2017), and the findings from these studies may not be valid for other countries.

More importantly, previous studies often use a mean approach (e.g., OLS or GMM) to examine the linkage between CSR and firm tax payments. These approaches sidestep the potentially heterogeneous effects of CSR on tax payment at various quantiles and provide limited information about the relationship (Koenker & Hallock, 2001). Going beyond the current literature, this study applies a quantile regression approach for panel data in the transitional economy of Vietnam, and in this way fills the gap in the literature. As shown by previous studies (e.g., Kizhakethalackal, Mukherjee, & Alvi, 2013), quantile regression is robust to the existence

of outliers. This study finds that the link between CSR activity and tax payment is complementary at higher quantiles but this relationship is insignificant or negative at lower quantiles. These results have the potential to reconcile the mixed findings of earlier studies.

The remainder of the paper includes four sections. Section 2 presents the context of the research. Our data source and empirical strategy are discussed in Section 3. Section 4 outlines the empirical findings and Section 5 concludes and gives several policy implications.

2. Research context

In Vietnam, an increasing number of scandals have raised questions of business ethics, as businesses seek only profit maximization without concern for the effect on customer health or the environment. Numerous scandals featuring Vietnamese enterprises and the weakness of CSR practice have had serious consequences. In its relationship with its employees, for example, the Nike company was accused in 1997 of having long paid low salaries to its employees for high intensity work in an unhealthy environment and for enforcing contracts containing unfair provisos with Vietnamese local suppliers (Tencati, Russo, & Quaglia, 2010). Raising environmental concerns, the Thi Vai River was polluted by Vedan's waste for a long period of time, and the pollution caused by the Formosa Group has also had serious consequences (Ortmann, 2017). Other issues such as tax evasion by the Coca-Cola Company in 2012 attracted the attention of the media as well as the public, and the shirking of responsibility to customers by VN Pharma led to the import of fake medical products. In this context, the question as to how companies can improve business performance and at the same time be socially responsible has been brought to the forefront.

As in many developing countries, corruption in general and tax corruption in particular are widespread in Vietnam. Many stakeholders have considered corruption to be one of the most important challenges for doing business in Vietnam (Vu, Tran, Nguyen, & Lim, 2018). According to CIEM (2016), nearly 50% of all firms had to make “informal payments” in the 2010-2015 period.

Although CSR in Vietnam made its appearance remarkably late after the Doi Moi period with the introduction of FDI enterprises, many businesses have implemented CSR and achieved initial results. The trend to apply CSR in Vietnam began from the time when shoe factories and

the textile industry began to comply with CSR codes of conduct, due to pressure from multinational corporations in developed countries (importing countries) (Newman, Rand, Tarp, & Trifkovic, 2018)**.** Subsequently, efforts to improve working conditions and protect the environment have been promoted by the Vietnamese government as part of Vietnam's Agenda 21. Reflected in Figure 1 below, CSR activities in Vietnam have changed significantly during the course of the research period. This context motivates us to consider the question whether CSR influences a firm's tax payments.

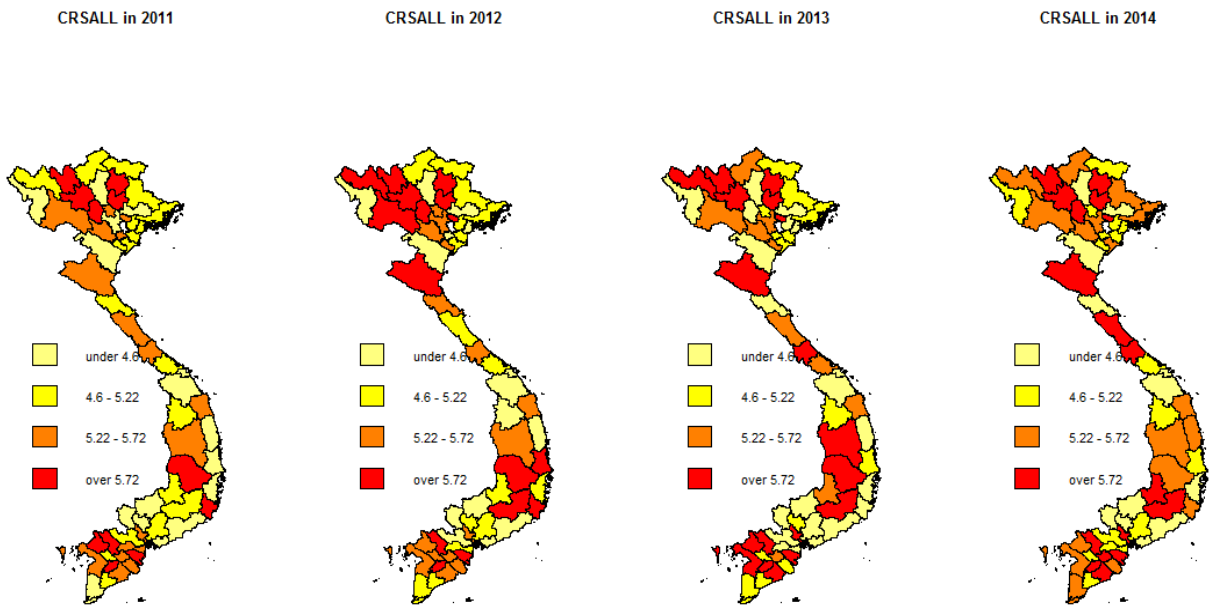

Figure 1: Changes in CSR through the research period

3. Data and methodology

3.1 Data source

This study uses three data sources. The first is the annual Enterprise Census conducted from 2011 to 2014 by the General Statistics Office of Vietnam. All registered businesses must fill out a questionnaire which provides information about business characteristics, ownership type, business activities, employment, profits, revenue, assets and tax payment. Second, the Vietnam Technology and Competitiveness dataset surveys the competitiveness level of firms and their CSR practices. Combining the two datasets leaves us with a balanced panel dataset of over 4500 manufacturing firms every year.

The third data source is Vietnam's Provincial Competitiveness Index (PCI). This index has been compiled annually by the Vietnam Chamber of Commerce and Industry (VCCI) since 2007 with the support of USAID. The PCI is a weighted average of ten component indicators, each measuring a different aspect of business environment quality. The survey covers all 63 provinces in Vietnam. The Provincial Competitiveness Index includes annual government surveys, assessments and ratings of public governance aimed at creating a favorable business environment for private sector development in Vietnam. The PCI is made up of 10 subgroups, which reflect the areas of economic governance that affect the development of the local private sector.

The combination of the above datasets provides unique panel data at the provincial and enterprise levels. This panel data allows researchers to measure not only the impact of CSR and business characteristics but also the quality of the business environment for firm tax payments in Vietnam.

3.2 Methodology

How does CSR influence a firm's tax payments? We will analyze this question in two steps. First, estimating CSR is discussed in *a, "*the measurement of CSR", below. Then, a firm's tax payments are considered with changes in CSR and other firm-specific characteristics in *b, "*the role of CSR on tax payment".

a. **The measurement of CSR**

Although there has been much research into CSR, clear definitions are lacking (Argandoña & von Weltzien Hoivik, 2009). For example, some studies describe CSR as obligations relating to a company's employees, community, and the environment that go beyond existing legal requirements (Newman et al., 2018). In developing countries with weak law enforcement, however, UN Global Compact (2013), ISO 26000 guidance, and Schwartz and Carroll (2003) suggest that CSR should be defined as firm compliance with legal principles and expectations. According to previous studies on Vietnamese firms (e.g., Newman et al., 2018, 2020), we construct a composite definition of CSR based on three components: CSR management, CSR compliance, and CSR within the community.

CSR management (CSRa) measures management practices that respect social and environmental responsibilities. This index records whether a firm has a committee overseeing CSR activities or if enterprises have a written CSR policy. Furthermore, the CSR management index

reports whether a firm has a CSR-type certificate or has become a member of any group promotes CSR practices.

The CSR compliance category (CSRb) includes various scales to determine whether enterprises have a written labour contract with their employees or if there is a local trade union. Other aspects of this index record whether employees are paid social insurance or health insurance.

Finally, the CSR community (CSRc) refers to firms' ethical responsibilities, both domestic and global. This index records firm activities that contribute to the local community. The CSR community component includes activities relating to environmental protection, education, infrastructure development, healthcare services, youth programs, poverty alleviation, local heritage protection, and sporting events. For each CSR category, a scale with a score of 0-16 is used to measure each CSR activity practiced (for more detail, see Newman et al., 2018).

b. The role of CSR on tax payment

Panel analysis of the effects of CSR on tax payment is based on a reduced-model specification, as below:

$$Y_{it} = \beta_1 + \beta_2 * CSR_{it} + \beta_3 * X_{it} + + \beta_4 * HH_{it} + e_{it} \quad (1)$$

Where *i* and *t* denote a firm and a time trend, respectively. The dependent variable is tax payment of firms, and CSR_{it} indicates the main interest variables measured by several covariates, including composite CSR (CSR_{all}) or types of CSR (CSR_a, CSR_b, and CSR_c). According to the literature (e.g., Newman et al., 2020), several control variables are added to the model, including firm size, innovation, and types of ownership (X_{it}). The model also controls for an index measuring industry competitiveness (HH_{it}), based on the fact that there is a lower rate of CSR adoption when firms operate in a more highly competitive environment.[1] Furthermore, sectors and time dummies are included to control for industry characteristics and time trends that may influence firm tax payment. Finally, e_{it} represents error terms.

The mean approach (e.g., OLS, FE or GMM estimation) is often used when considering the role of CSR on firm tax payment (e.g., Davis et al., 2016). However, mean approach estimates

[1] In the industry competitiveness index ($HH_i = \sum_{i=1}^{n} m_{ipst}^2$), $m_{(ipst)}$ is the market share of firm i in province p, in industry s and year t.

have never proven satisfactory for studying heterogeneous populations (Buchinsky, 1994, p. 453). For example, as shown in Figure 2, when populations are heteroskedastic, the regression line used in the average approach is not parallel to the lines for the 25th and 75th quantiles at different values of X.

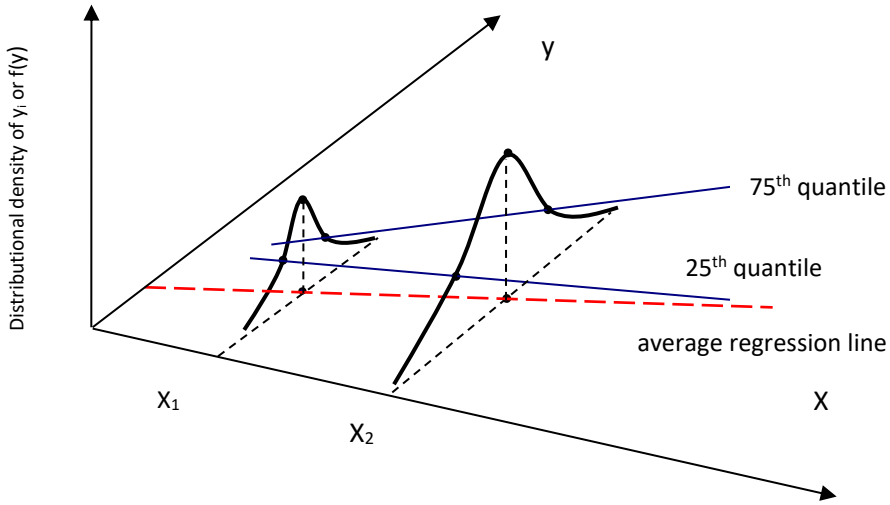

Figure 2: Description of the quantile regression

The specified reduced-form model at the q[th] – quantile (0< q<1) is as follows:

$$Q_q(Y_{it}) = \alpha_q + \beta_q * CSR_{it} + \theta_q * Z_{it} + \mu_q * \varepsilon_{it} \quad (2)$$

Where Y_{it} is a dependent variable and is defined as in Equation (1). The vector of CSR_{it} includes various types of CSR, while Z_{its} represents other control variables, as indicated in Equation (1).

The q[th] quantile regression for Equation (2) is estimated on the basis of the minimization of the absolute residual value, as below:

$$Q(\beta_q) = \min_{\beta} \sum_{i=1}^{n} [|y_{it} - \beta_q * CSR_{it} - \theta_q * Z_{it}|] = \quad (3)$$

$$min \left[\sum_{i:\, y_{it} \geq x_i\beta} q|y_{it} - \beta_q * CSR_{it} - \theta_q * Z_{it}| + \sum_{i:\, y_{it} < x_{it}\beta} (1-q)|y_{it} - \beta_q * CSR_{it} - \theta_q * Z_{it}| \right]$$

To capture unobserved factors, this study uses a two-step approach (e.g., Canay, 2011; Roger Koenker, 2004). First, the conditional mean of ε_{it} is estimated. Then, the quantile regression is estimated with a new dependent variable measured as the subtraction the conditional mean of ε_{it} from the original dependent variable.

Confounding factors also, such as business culture or management quality, may affect independent variables simultaneously. These common econometric problems may bias the empirical estimate of Equation (1) if using the OLS approach. In this study, we will use an instrumental variable (IV) approach for panel data to address the endogeneity issue as well as unobserved factors. Specifically, we propose CSR practice networks as an instrumental variable for types of CSR for each firm. A firm operating in an environment with a higher level of CSR practice means a higher probability that that firm will apply CSR in their own business practice. This is also a typical approach in the literature when using the importance of networks as an IV in impact evaluation (e.g., Wellalage & Fernandez, 2019; McKenzie & Rapoport, 2007). Hence, the first-stage equation would be as follows:

$$CSR_{it} = \alpha_0 + \alpha_1 IV + \alpha_2 X_{it} + \alpha_3 HH_{it+} \varepsilon_{ij} \quad (4)$$

Specifically, CSR networks (IV) will be calculated as average CSR practice per firm at district and sector level through time. Then, the estimated value of CSR is put in the equation in the second stage, replacing the actual value of CSR in Equation (1).

4. Empirical results and discussion

4.1 Main findings

As displayed in column 1 of Table 1, differences in tax payments between CSR firms and non-CSR firms are insignificant. However, use of the mean approach may cloud the role of CSR in tax payments at various quantiles, and therefore the quantile treatment approach is used to re-investigate this relationship. Interestingly, the results in Table 1, columns 2-6, and the graphs in Figure 3 reveal that statistically positive linkages between CSR and tax payment are observed only at high percentiles, but a negative relationship for enterprises characterized by low efficiency is observed at the 10^{th} percentile. These results imply that the role of CSR in firm tax payments is hidden if one uses the mean approach. Here, the findings suggest that when comparing firms that

observe CSR activities with firms that do not, the benefits are realized for highly efficient firms or firms whose tax payments are in the 70th and 80th percentiles. For firms with low profits or that make tax payments in the 10th percentile, these advantages may be absorbed by costs relating to CSR activities. Thus, these results help to reconcile the mixed findings in the literature. Specifically, several scholars suggest that firms engaged in community activities are less likely to resort to tax evasion (e.g., Lanis & Richardson, 2012). However, other studies show that there is a negative link between CSR and tax payment (e.g., Huseynov & Klamm, 2012).

Table 1: The effects of CSR on total tax payment

VARIABLES	FE	FE-Quantile				
		q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRall	0.0077	-0.0135**	0.0011	0.0074**	0.0161**	0.0271**
	(0.005)	(0.004)	(0.002)	(0.001)	(0.002)	(0.004)
HHI1	-0.4317*	-0.3624*	-0.3386**	-0.3885**	-0.3733**	-0.6023**
	(0.173)	(0.181)	(0.097)	(0.043)	(0.086)	(0.171)
Foreign	0.1487	0.0419+	0.1083**	0.1601**	0.2166**	0.2568**
	(0.211)	(0.024)	(0.015)	(0.009)	(0.016)	(0.024)
State	0.0553	0.1559**	0.0871**	0.0717**	0.0248	0.0100
	(0.080)	(0.041)	(0.029)	(0.014)	(0.024)	(0.044)
RD	-0.0062	-0.0166	-0.0189	-0.0098	0.0136	0.0057
	(0.023)	(0.032)	(0.015)	(0.009)	(0.017)	(0.029)
Export	0.0139	-0.0066	-0.0052	0.0077	0.0201	0.0641**
	(0.028)	(0.022)	(0.013)	(0.006)	(0.013)	(0.023)
Small firms	0.0317+	-0.0737**	-0.0238**	0.0255**	0.0710**	0.1594**
	(0.018)	(0.020)	(0.008)	(0.004)	(0.008)	(0.019)
Medium firms	0.2001**	-0.1547**	0.0291*	0.1925**	0.3682**	0.5543**
	(0.025)	(0.026)	(0.013)	(0.006)	(0.012)	(0.026)
Large firms	0.3581**	-0.2560**	0.1172**	0.3682**	0.6479**	0.9374**
	(0.044)	(0.042)	(0.026)	(0.011)	(0.022)	(0.041)
Constant	1.4736**	0.7586	2.2070**	2.8982**	3.2869**	4.2478**
	(0.251)	(0.580)	(0.252)	(0.117)	(0.371)	(0.633)
Observations	18,785	18,785	18,785	18,785	18,785	18,785
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.010					

Notes: *Standard errors are bootstrapped with 1000 replications; * significant at 10%; ** at 5%; *** at 1%. While micro firms are the base category of size, private firms are the base category of ownership.*

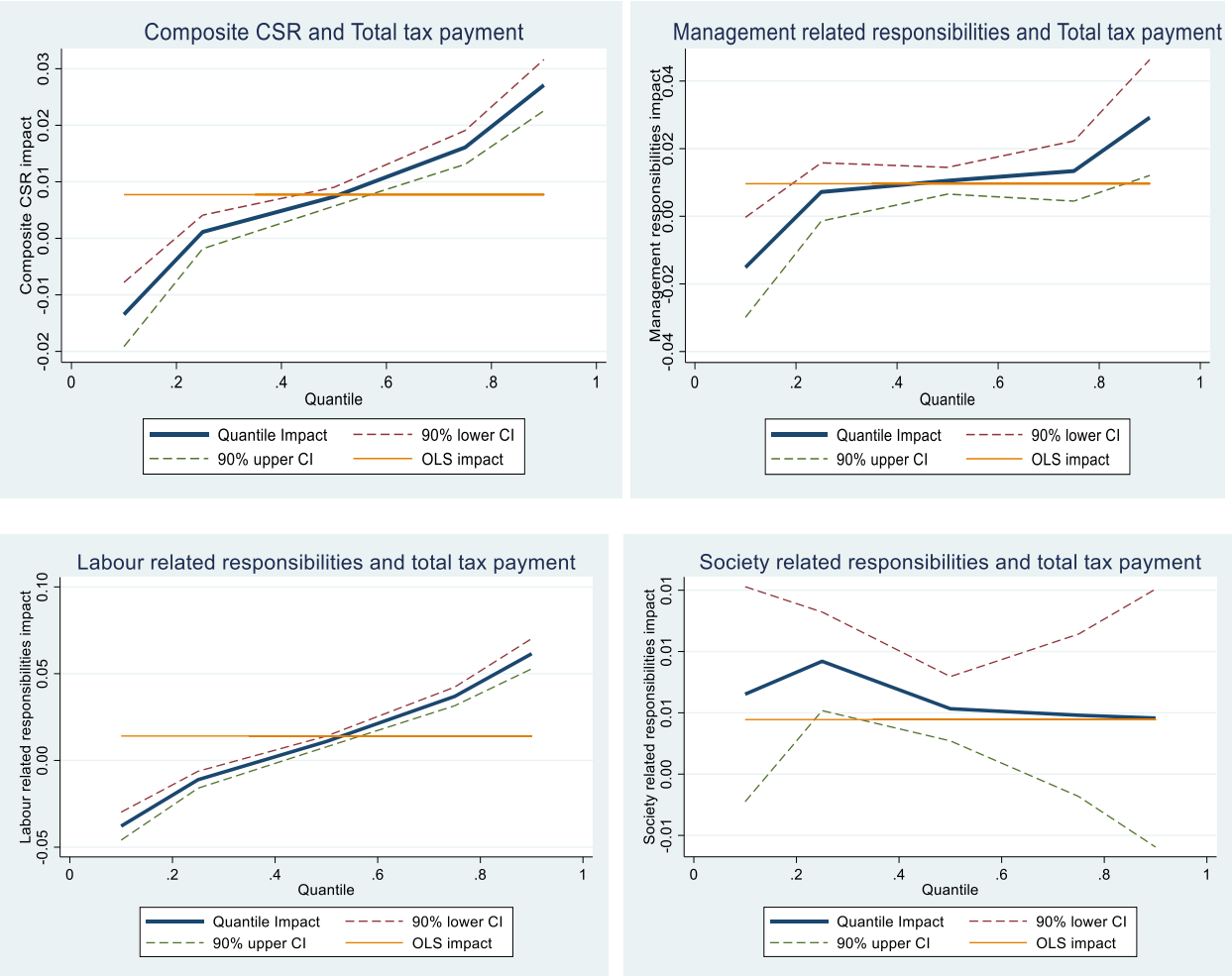

Figure 3: Slope and 90% coefficient intervals for quantile regression treatment

Regarding other factors, while larger firms are more likely to pay more tax, firms operating in industries with high-level competition pay less tax. These results are in line with other research (e.g., Desai & Dharmapala, 2006, 2009). As these studies have shown, enterprises doing business in highly competitive industries need to maintain a strong cash flow and business fundamentals to compete with their rivals, and these in turn push firms to engage in tax avoidance.

Empirical results concerning the role of CSR on tax payment may be sensitive to the way CSR is measured (e.g., Goerke, 2019). Accordingly, to further examine the main result, Table 2 displays the results of re-estimating Equation 1 with the alternative measure of CSR. The results from Table 2, row 1, reveal that the majority of types of CSR have a negative or insignificant

impact on tax payment at the lower quantiles. However, positive linkages between CSR practices and firms with higher efficiency or tax payment are observed at higher percentiles. Combined, these findings accord with the main results, implying that firms engaging in more socially responsible activities pay more taxes at higher percentiles.

Table 2: The effects of types of CSR on total tax payments

VARIABLES	FE	FE-Quantile				
	a1	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRa	0.0096	-0.0151+	0.0072	0.0105**	0.0134**	0.0292**
	(0.010)	(0.009)	(0.005)	(0.002)	(0.005)	(0.010)
CSRb	0.0141	-0.0379**	-0.0111**	0.0109**	0.0369**	0.0615**
	(0.010)	(0.005)	(0.003)	(0.002)	(0.003)	(0.007)
CSRc	0.0044	0.0065	0.0092**	0.0053**	0.0048	0.0046
	(0.007)	(0.005)	(0.003)	(0.002)	(0.003)	(0.006)
HHI1	-0.4302*	-0.3729**	-0.3612**	-0.3810**	-0.3855**	-0.6154**
	(0.173)	(0.135)	(0.079)	(0.046)	(0.091)	(0.186)
Foreign	0.1487	0.0589**	0.1138**	0.1607**	0.2079**	0.2420**
	(0.210)	(0.022)	(0.013)	(0.008)	(0.017)	(0.026)
State	0.0543	0.1609**	0.0830**	0.0689**	0.0213	-0.0127
	(0.080)	(0.047)	(0.028)	(0.015)	(0.028)	(0.047)
RD	-0.0064	-0.0219	-0.0244	-0.0111	0.0082	-0.0039
	(0.023)	(0.030)	(0.015)	(0.010)	(0.017)	(0.032)
Export	0.0134	0.0071	0.0084	0.0084	0.0139	0.0508+
	(0.028)	(0.020)	(0.012)	(0.006)	(0.014)	(0.027)
Small firms	0.0312+	-0.0571**	-0.0204*	0.0257**	0.0619**	0.1420**
	(0.018)	(0.018)	(0.008)	(0.004)	(0.008)	(0.019)
Medium firms	0.1997**	-0.1108**	0.0422**	0.1958**	0.3480**	0.5186**
	(0.025)	(0.025)	(0.012)	(0.007)	(0.013)	(0.029)
Large firms	0.3579**	-0.2197**	0.1358**	0.3713**	0.6300**	0.9034**
	(0.044)	(0.041)	(0.024)	(0.011)	(0.020)	(0.038)
Constant	1.4537**	0.8012	2.2149**	2.8834**	3.3422**	4.0881**
	(0.246)	(0.560)	(0.244)	(0.130)	(0.364)	(0.554)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,785	18,785	18,785	18,785	18,785	18,785
R-squared	0.010					

Notes: *Standard errors are bootstrapped with 1000 replications; * significant at 10%; ** at 5%; *** at 1%. While micro firms are the base category of size, private firms are the base category of ownership.*

4.2 Sensitivity analysis and robustness tests

As discussed in the methodology section, there is a consensus in the literature that CSR is not an exogenous variable. Thus, following previous studies (e.g., Lee & Li, 2012), the effect of CSR on firm tax payment is reexamined by using a two-step estimation strategy to address such endogeneity concerns. In the first stage, we regress endogenous variables (CSRall, CSRa, CSRb, CSRc) with instrumental variables to calculate the estimated values of the endogenous variable. In the second stage, the regression is conducted with the fitted values of endogenous variables from the first stage instead of the actual values of the CSR variables. The results shown in Table 3 indicate similar findings about a positive link between CSR and tax payment at higher percentiles but an insignificant link at lower percentiles.[2]

Table 3: The effect of CSR on firm tax payment in relation to the endogenous problem

VARIABLES	FE	FE-Quantile				
		q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRall (estimated)	0.0077	-0.0164**	-0.0022	0.0075**	0.0195**	0.0337**
	(0.005)	(0.005)	(0.002)	(0.001)	(0.003)	(0.005)
HHI1	-0.4317*	-0.3497*	-0.3436**	-0.3751**	-0.3626**	-0.5344**
	(0.173)	(0.161)	(0.085)	(0.045)	(0.095)	(0.138)
Foreign	0.1487	0.0464*	0.1086**	0.1581**	0.2174**	0.2499**
	(0.211)	(0.023)	(0.014)	(0.007)	(0.015)	(0.026)
State	0.0553	0.1475**	0.0934**	0.0724**	0.0252	-0.0023
	(0.080)	(0.041)	(0.027)	(0.015)	(0.026)	(0.045)
RD	-0.0062	-0.0125	-0.0143	-0.0104	0.0132	0.0063
	(0.023)	(0.030)	(0.016)	(0.010)	(0.015)	(0.035)
Export	0.0139	-0.0068	-0.0029	0.0090	0.0177	0.0660**
	(0.028)	(0.021)	(0.013)	(0.006)	(0.012)	(0.025)
Small firms	0.0317+	-0.0765**	-0.0233**	0.0260**	0.0673**	0.1558**
	(0.018)	(0.021)	(0.008)	(0.004)	(0.008)	(0.020)
Medium firms	0.2001**	-0.1562**	0.0327**	0.1956**	0.3672**	0.5546**
	(0.025)	(0.028)	(0.012)	(0.006)	(0.014)	(0.027)
Large firms	0.3581**	-0.2610**	0.1195**	0.3742**	0.6456**	0.9326**
	(0.044)	(0.044)	(0.022)	(0.011)	(0.021)	(0.044)
Constant	1.4736**	0.4709	2.1324**	3.0234**	3.5641**	4.7538**
	(0.251)	(0.609)	(0.249)	(0.137)	(0.398)	(0.640)
Observations	18,785	18,785	18,785	18,785	18,785	18,785
R-squared	0.010					

*Notes: Standard errors are bootstrapped with 1000 replications; * significant at 10%; ** at 5%; *** at 1%. Models also control for year and industry dummies. Micro firms are the base category.*

[2] For the effects of types of CSR on firm tax payments in relation to the endogenous problem, see Appendix 2.

Alternative measures of tax payment

Table 4 shows that while insignificant linkages are observed between CSR firms and corporate income tax payments, several significant, positive relationships between firms with tax payments at high percentiles should be noted (for example at the 70th and 90th percentiles). In other words, more CSR-related activities contribute a larger amount to state revenue at higher percentiles.

Table 4: The effect of CSR on corporate income tax

VARIABLES	FE	FE-Quantile				
		q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRall	0.0014	-0.0053**	-0.0012*	0.0006+	0.0021**	0.0051**
	(0.004)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
HHI1	-0.2799	-0.2032**	-0.1934**	-0.2095**	-0.2444**	-0.2457**
	(0.212)	(0.074)	(0.028)	(0.014)	(0.028)	(0.078)
Foreign	0.0111	-0.2277**	-0.0821**	0.0225**	0.1113**	0.2644**
	(0.152)	(0.026)	(0.011)	(0.004)	(0.011)	(0.024)
State	0.0383	-0.1467**	-0.0461+	0.0453**	0.1294**	0.2016**
	(0.079)	(0.051)	(0.025)	(0.010)	(0.019)	(0.048)
RD	-0.0282	-0.0462*	-0.0288**	-0.0213**	-0.0160**	-0.0005
	(0.025)	(0.018)	(0.006)	(0.003)	(0.005)	(0.024)
Export	-0.0090	-0.0363**	-0.0172**	-0.0062**	0.0019	0.0117
	(0.020)	(0.011)	(0.004)	(0.002)	(0.004)	(0.013)
Small firms	0.0181**	0.0091+	0.0098**	0.0143**	0.0154**	0.0214**
	(0.006)	(0.005)	(0.002)	(0.002)	(0.002)	(0.004)
Medium firms	0.0636**	-0.0873**	0.0118**	0.0550**	0.0934**	0.2150**
	(0.018)	(0.013)	(0.004)	(0.002)	(0.005)	(0.014)
Large firms	0.2965**	-0.0736*	0.1585**	0.2861**	0.4439**	0.6914**
	(0.052)	(0.029)	(0.011)	(0.007)	(0.014)	(0.030)
Constant	0.7671**	0.5326	0.6479**	0.5707**	0.6875**	0.6591*
	(0.188)	(0.419)	(0.077)	(0.050)	(0.084)	(0.312)
Observations	13,815	13,815	13,815	13,815	13,815	13,815
R-squared	0.020					

*Notes: Standard errors are bootstrapped with 1000 replications; * significant at 10%; ** at 5%; *** at 1%. Models also control for year and industry dummies. Micro firms are the base category.*

Similar results are also found when considering different tax types. As indicated in Table 5, column 1, CSR firms have a positive relationship with VAT tax payments. For example, firms implementing CSR pay over 3% more VAT tax than their non-CSR counterparts in business operations at higher percentiles when other factors are constant. These results suggest that there is evidence of a positive, well-defined link between firm-level CSR activity and tax payments in the

high percentiles. In other words, CSR activities benefit firms with high profitability rather than enterprises with low efficiency.

Table 5: The effect of CSR on VAT payment

VARIABLES	FE	FE-Quantile				
		q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRall	0.0176**	0.0019	0.0118**	0.0176**	0.0247**	0.0303**
	(0.006)	(0.008)	(0.004)	(0.000)	(0.004)	(0.008)
HHI1	-0.5805	-0.7444**	-0.5517**	-0.5805**	-0.6399**	-0.1851
	(0.651)	(0.250)	(0.139)	(0.018)	(0.110)	(0.359)
Foreign	0.3494	0.3407**	0.3526**	0.3572**	0.3730**	0.4008**
	(0.333)	(0.032)	(0.017)	(0.005)	(0.018)	(0.032)
State	0.1716	0.2036**	0.1811**	0.1896**	0.1672**	0.1546**
	(0.136)	(0.063)	(0.029)	(0.013)	(0.034)	(0.051)
RD	0.0027	0.0455	0.0143	0.0027	0.0002	0.0256
	(0.048)	(0.051)	(0.026)	(0.004)	(0.025)	(0.052)
Export	0.0606*	0.0365	0.0522**	0.0606**	0.0572**	0.0608+
	(0.024)	(0.034)	(0.016)	(0.001)	(0.015)	(0.034)
Small firms	-0.0602	-0.1165+	-0.0936**	-0.0602**	-0.0301	0.0226
	(0.069)	(0.066)	(0.020)	(0.002)	(0.022)	(0.056)
Medium firms	0.1040+	-0.1692*	-0.0018	0.1040**	0.2206**	0.3710**
	(0.053)	(0.067)	(0.024)	(0.002)	(0.026)	(0.059)
Large firms	0.3044**	-0.1028	0.1869**	0.3051**	0.4687**	0.6988**
	(0.057)	(0.082)	(0.030)	(0.005)	(0.037)	(0.072)
Constant	1.8785**	1.2564	1.4544+	1.9560**	2.1160**	3.4816
	(0.662)	(1.636)	(0.825)	(0.117)	(0.694)	(2.194)
Observations	7,405	7,405	7,405	7,405	7,405	7,405
R-squared	0.016					

*Notes: Standard errors are bootstrapped with 1000 replications; * significant at 10%; ** at 5%; *** at 1%. Models also control for year and industry dummies. Micro firms are the base category.*

The literature indicates that CSR activities can act as a tool to reduce uncertainty or risk, and improve efficiency gains and employee motivation (e.g., Newman et al., 2020). Hence, Table 6 provides evidence illustrating some of the mechanisms which apply the possible benefits of CSR to a firm's potential tax payments.

Table 6: Mechanism of the effect of CSR on tax compliance/payment

VARIABLES	Compliance	Transparency	Profit share	Wage	Value added
	(1)	(2)	(3)	(4)	(5)
CSRall	0.071***	0.007	0.001**	0.011**	0.010**

	(0.004)	(0.007)	(0.000)	(0.004)	(0.005)
HHI1	-0.095	0.311**	-0.003	-0.282*	-0.037
	(0.104)	(0.134)	(0.027)	(0.155)	(0.230)
foreign	0.005	0.055	0.009	-0.001	0.016
	(0.115)	(0.136)	(0.018)	(0.224)	(0.132)
state	0.054	-0.101	0.009*	0.065	0.091
	(0.039)	(0.064)	(0.005)	(0.058)	(0.058)
RD	0.005	0.009	-0.001	-0.009	-0.020
	(0.012)	(0.016)	(0.002)	(0.021)	(0.025)
Export	0.028*	-0.031	0.001	0.057***	0.035
	(0.015)	(0.022)	(0.002)	(0.018)	(0.026)
Small firms	0.007	-0.017	0.007*	0.541***	-0.178***
	(0.013)	(0.028)	(0.004)	(0.039)	(0.050)
Medium firms	0.016	-0.040	0.013***	1.031***	-0.376***
	(0.019)	(0.032)	(0.004)	(0.046)	(0.059)
Large firms	0.052**	-0.092**	0.024***	1.433***	-0.527***
	(0.024)	(0.040)	(0.005)	(0.059)	(0.075)
Observations	17,928	17,928	16,893	17,928	17,041
R-squared	0.140	0.221	0.035	0.230	0.015
Number of panels	4,656	4,656	4,542	4,656	4,569
Instrumental variables	District - sector-year average of compliance with law	District -sector-year average of transparency	District - sector-year average of profit share	District - sector-year average of wage	District - sector-year average of value added
Weak identification test (Cragg-Donald Wald F statistic)	20676	20676	19663	20640	19409
[Stock-Yogo weak ID test critical value at 10%]	16.38	16.38	16.38	16.38	16.38

*Notes: Robust standard errors are in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1; Models also control for year and industry dummies. Micro firms are the base category.*

Column 1 of Table 6 shows that the adoption of CSR helps firms improve their compliance with the law. Furthermore, the research reveals that the adoption of CSR has a positive effect on profit share ratio. Finally, although the adoption of CSR systems does not immediately improve the transparency of the business environment, implementation of CSR may be accompanied by an improvement in wages and firm value added. Combined, these actions provide a basis for firms to contribute more to state revenue through CSR involvement.

5. Conclusion and policy implications

The study contributes to the literature by considering for the first time the question whether the implementation of CSR activities is related to corporate tax payments and if so, how. Using a mean

approach for a panel dataset of over 4,500 manufacturing companies over the 2011-2014 period, this study shows there is an insignificant relationship between CSR practices and tax payments. However, our results indicate that better CSR observance is more likely to be found among more profitable firms that pay higher tax at higher percentiles. There are insignificant or negative links at lower quantiles when using quantile approaches. These findings imply that using a mean approach can obscure the real impact of the adoption of CSR on firm tax payments.

The study also shows that the adoption of CSR activities is a useful tool for enterprises in developing countries like Vietnam, because these practices not only help enterprises to comply better with the law but also create a fairer business environment and higher profitability. In that respect, CSR activities could reduce the practice of paying bribes and contribute more to the revenue of the state.

Overall, this study contributes to the CSR and firm tax payment literature by extending the traditional methodology. Using a quantile approach, our findings provide new evidence suggesting that CSR improves firm tax payment at a higher percentile but is negatively linked to enterprises with low tax payment. However, there is a need for further research to consider if such linkages can also be discerned in other countries.

Appendices

Appendix 1: Statistical description of variables in the model

Variables	2010		2011		2012		2013	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total taxes	1.35	1.42	1.29	1.41	1.28	1.42	1.31	1.45
Corporate income tax	0.63	1.00	0.56	0.96	0.63	1.03	0.65	1.09
VAT tax	1.76	1.56	1.44	1.51	1.79	1.58	1.47	1.53
Compliance	0.51	0.50	0.51	0.50	0.51	0.50	0.57	0.49
Profit share	0.02	0.06	0.01	0.06	0.01	0.07	0.00	0.07
CSRall (CSR index)	5.07	2.26	5.17	2.25	5.20	2.26	5.31	2.21
CSRa (CSR management)	1.24	0.89	1.26	0.89	1.38	0.88	1.36	0.87
CSRb (CSR compliance)	3.06	1.17	3.08	1.15	3.06	1.18	3.19	1.13
CSRc (CSR community)	0.77	1.27	0.83	1.33	0.76	1.32	0.76	1.32
Log of wage	7.87	1.61	8.07	1.65	8.17	1.73	8.25	1.78
Log of value added	2.79	0.88	2.76	0.87	2.75	0.91	2.80	0.92
Transparency	6.08	0.52	6.12	0.48	6.01	0.63	5.67	0.47
HHI1	0.04	0.06	0.04	0.06	0.04	0.06	0.04	0.06
Foreign	0.27	0.44	0.27	0.44	0.27	0.44	0.27	0.44
State	0.05	0.21	0.04	0.20	0.04	0.20	0.04	0.19
RD	0.12	0.32	0.11	0.31	0.07	0.25	0.06	0.24
Export	0.38	0.48	0.40	0.48	0.41	0.49	0.41	0.49
Small firms	0.37	0.48	0.38	0.49	0.38	0.49	0.38	0.49
Medium firms	0.42	0.49	0.41	0.49	0.40	0.49	0.39	0.49
Large firms	0.18	0.38	0.18	0.38	0.18	0.38	0.18	0.38
Observations	4812		4705		4654		4657	

Appendix 2: The effect of types of CSR on firm tax payment in relation to the endogenous problem

VARIABLES	FE	FE-Quantile				
		q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
CSRa (estimated)	0.0096	-0.0322**	-0.0029	0.0087**	0.0185**	0.0524**
	(0.010)	(0.011)	(0.006)	(0.003)	(0.006)	(0.014)
CSRb (estimated)	0.0141	-0.0425**	-0.0137**	0.0123**	0.0413**	0.0801**
	(0.010)	(0.008)	(0.004)	(0.002)	(0.004)	(0.010)
CSRc (estimated)	0.0044	0.0152*	0.0109**	0.0055**	0.0037	-0.0042
	(0.007)	(0.006)	(0.004)	(0.002)	(0.004)	(0.007)
HHI1	-0.4302*	-0.3456*	-0.3643**	-0.3649**	-0.3932**	-0.5669**
	(0.173)	(0.139)	(0.085)	(0.045)	(0.090)	(0.158)
Foreign	0.1487	0.0610**	0.1118**	0.1605**	0.2093**	0.2359**
	(0.210)	(0.022)	(0.015)	(0.009)	(0.015)	(0.024)

State	0.0543	0.1491**	0.0898**	0.0739**	0.0221	-0.0226
	(0.080)	(0.047)	(0.027)	(0.016)	(0.029)	(0.048)
RD	-0.0064	-0.0193	-0.0169	-0.0113	0.0106	-0.0106
	(0.023)	(0.030)	(0.016)	(0.009)	(0.017)	(0.033)
Export	0.0134	0.0144	0.0131	0.0088	0.0108	0.0455+
	(0.028)	(0.019)	(0.012)	(0.006)	(0.014)	(0.025)
Small firms	0.0312+	-0.0697**	-0.0177*	0.0262**	0.0622**	0.1262**
	(0.018)	(0.017)	(0.008)	(0.004)	(0.009)	(0.023)
Medium firms	0.1997**	-0.1280**	0.0436**	0.1993**	0.3573**	0.5182**
	(0.025)	(0.022)	(0.011)	(0.006)	(0.014)	(0.031)
Large firms	0.3579**	-0.2329**	0.1313**	0.3784**	0.6376**	0.8932**
	(0.044)	(0.042)	(0.024)	(0.012)	(0.021)	(0.045)
Constant	1.4537**	0.2636	2.0298**	3.0731**	3.7341**	5.0158**
	(0.246)	(0.568)	(0.233)	(0.129)	(0.374)	(0.584)
Observations	18,785	18,785	18,785	18,785	18,785	18,785
R-squared	0.010					

*Notes: Robust standard errors are in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1; Models also control for year and industry dummies. Micro firms are the base category.*

References

Argandoña, A., & von Weltzien Hoivik, H. (2009). Corporate social responsibility: One size does not fit all. Collecting evidence from Europe. *Journal of Business Ethics, 89*(3), 221-234.

Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An empirical examination of the relationship between corporate social responsibility and profitability. *Academy of management Journal, 28*(2), 446-463.

Branco, M. C., & Rodrigues, L. L. (2006). Corporate social responsibility and resource-based perspectives. *Journal of Business Ethics, 69*(2), 111-132.

Buchinsky, M. (1994). Changes in the US wage structure 1963-1987: Application of quantile regression. *Econometrica: Journal of the Econometric Society, 62*(2), 405-458.

Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using stata* (Vol. 5). College Station, TX: Stata Press.

Canay, I. A. (2011). A simple approach to quantile regression for panel data. *The Econometrics Journal, 14*(3), 368-386.

Cao, J., Liang, H., & Zhan, X. (2019). Peer effects of corporate social responsibility. *Management Science, 65*(12), 5487-5503.

Carroll, R., & Joulfaian, D. (2005). Taxes and corporate giving to charity. *Public Finance Review, 33*(3), 300-317.

CIEM (2016). *Dac diem moi truong kinh doanh o Vietnam / Characteristics of the Vietnamese Business Environment: Evidence from a SME survey in 2016*. Hanoi, VietNam: CIEM.

Davis, A. K., Guenther, D. A., Krull, L. K., & Williams, B. M. (2016). Do socially responsible firms pay more taxes? *The accounting review, 91*(1), 47-68.

Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of financial economics, 79*(1), 145-179.

Desai, M. A., & Dharmapala, D. (2009). Corporate tax avoidance and firm value. *The review of Economics and Statistics, 91*(3), 537-546.

Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science, 61*(11), 2549-2568.

Friedman, M. (1970). A Friedman doctrine: The social responsibility of business is to increase its profits. *The New York Times Magazine, 13*(1970), 32-33.

Ghoul, S., Guedhami, O., & Kim, Y. (2017). Country-level institutions, firm value, and the role of corporate social responsibility initiatives. *Journal of International Business Studies, 48*(3), 360-385.

Goerke, L. (2019). Corporate social responsibility and tax avoidance. *Journal of Public Economic Theory, 21*(2), 310-331.

Graham, J. R., & Tucker, A. L. (2006). Tax shelters and corporate debt policy. *Journal of financial economics, 81*(3), 563-594.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of accounting and Economics, 50*(2-3), 127-178.

Huseynov, F., & Klamm, B. K. (2012). Tax avoidance, tax management and corporate social responsibility. *Journal of Corporate Finance, 18*(4), 804-827.

Jamali, D., & Karam, C. (2018). Corporate social responsibility in developing countries as an emerging field of study. *International Journal of Management Reviews, 20*(1), 32-61

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360.

Kizhakethalackal, E. T., Mukherjee, D., & Alvi, E. (2013). Quantile regression analysis of health-aid and infant mortality: a note. *Applied Economics Letters, 20*(13), 1197-1201.

Koenker, R. (2004). Quantile regression for longitudinal data. *Journal of Multivariate Analysis, 91*(1), 74-89.

Koenker, R., & Hallock, K. (2001). Quantile regression: An introduction. *Journal of Economic Perspectives, 15*(4), 43-56.
Lanis, R., & Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy, 31*(1), 86-108.
Lee, B. S., & Li, M.-Y. L. (2012). Diversification and risk-adjusted performance: A quantile regression approach. *Journal of Banking & Finance, 36*(7), 2157-2173.
Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance, 72*(4), 1785-1824.
Lin, Y.-C., Padliansyah, R., & Lin, T.-C. (2020). The relationship and development trend of corporate social responsibility (CSR) literature. *Management Decision, 58*(4), 601-624
Lin, Y. E., Li, Y. W., Cheng, T. Y., & Lam, K. (2021). Corporate social responsibility and investment efficiency: Does business strategy matter?. *International Review of Financial Analysis, 73*, 101585.
McKenzie, D., & Rapoport, H. (2007). Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico. *Journal of development Economics, 84*(1), 1-24.
Newman, C., Rand, J., Tarp, F., & Trifkovic, N. (2018). The transmission of socially responsible behavior through international trade. *European Economic Review, 101*, 250-267.
Newman, C., Rand, J., Tarp, F., & Trifkovic, N. (2020). Corporate social responsibility in a competitive business environment. *The Journal of Development Studies*, 1-18.
Ortmann, S. (2017). *Environmental governance in Vietnam: Institutional reforms and failures*: Springer.
Porter, M. E. (1992). Capital disadvantage: America's failing capital investment system. *Harvard business review, 70*(5), 65.
Preuss, L. (2010). Tax avoidance and corporate social responsibility: you can't do both, or can you? *Corporate Governance: The international journal of business in society, 4*(4).
Schön, W. (2008). Tax and corporate governance: A legal approach *Tax and corporate governance* (pp. 31-61): Springer.
Schwartz, M. S., & Carroll, A. B. (2003). Corporate social responsibility: A three-domain approach. *Business ethics quarterly*, 503-530.
Sikka, P. (2010). *Smoke and mirrors: Corporate social responsibility and tax avoidance*. Paper presented at the Accounting forum.
Tencati, A., Russo, A., & Quaglia, V. (2010). Sustainability along the global supply chain: the case of Vietnam. *Social Responsibility Journal*.
UN. (2013). The ten principles of the UN Global Compact. Retrieved from https://www.unglobalcompact.org/what-is-gc/mission/principles.
Vu, V. H., Tran, T. Q., Nguyen, V. T., & Lim, S. (2018). Corruption, types of corruption and firm financial performance: New evidence from a transitional economy. *Journal of Business Ethics, 148*(4), 847-858.
Wellalage, N. H., & Fernandez, V. (2019). Innovation and SME finance: Evidence from developing countries. *International Review of Financial Analysis, 66*, 101370.