Determinants and Consequences of Corporate Social Responsibility: Evidence from the Revision of the Company Act in India

LEE Woong

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Executive Summary

India is the first country to introduce mandatory CSR spending for eligible firms, based on the revision of the Companies Act in 2013. In this paper, I explore the effects of the revision of the Companies Act in India on the likelihood of a firm's CSR participation and its profit. It is the first work to investigate the effects of the provision of mandatory CSR. The results show that the revision increased the eligible firms' CSR incurrence by 2.3 percentage points, compared to ineligible firms. The findings also indicate that the revision is effective to increase the eligible firms' profits by 3.5 percent, compared to the ineligible firms. Therefore, I suggest that profit-maximizing CSR and private provision of public goods through mandatory CSR are valid in India.

CONTRIBUTOR

LEE Woong

LEE Woong is a Research Fellow at the Korea Institute for International Economic Policy (KIEP). He holds a Ph.D. in Economics from the University of California, Irvine. His fields of research are macro-labor economics, industrial organization, institutions, and economic history. His research papers have been published at the Journal of Economic History, Asian Economic Papers, and other distinguished journals. Before joining KIEP, He served as an assistant professor at the University of Regina, Saskatchewan, Canada.

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Determinants and Consequences of Corporate Social Responsibility: Evidence from the Revision of the Company Act in India

LEE Woong

1. Introduction

Corporate Social Responsibility (CSR) is defined as activities to improve social agenda beyond requirements by law. CSR has been a mainstream activity in business and become an important public issue in the globe. Recently, people do care about enterprises' contribution to society, and hence CSR tends to influence people's decisions when purchasing goods.

Over decades, there have been a number of works to study CSR. Earlier research focused on the existence and disclosure of CSR (Kitzmueller and Shimshack 2012). Research has shifted to the determinants of CSR such as size of business, financial performance, tenure of a firm, industry nature, and so on (Crifo and Forget 2015). Most of works have explored CSR in advanced countries and only a small number of studies have been conducted in developing countries (Kansal, Joshi, and Batra 2014). In particular, CSR in India is interesting. Although India is a developing country, there is a long tradition of firms' contribution to society before the terminology of CSR was introduced. Most importantly, India is the first country to enact mandatory CSR in parliament. By the passage of a revision to the Companies Act in 2013, all firms meeting cer-

tain criteria must allocate at least 2 percent of their average net profit during the previous 3 years for CSR expenses. Since this is the first case in the world of a mandatory CSR provision being introduced, the consequences of the revised Act are being watched with keen interest. It seems obvious that the probability of a firm's CSR participation would become in response to the introduction of mandatory CSR by law. However, it has been reported that only 30 percent of the applicable firms by law have incurred some CSR expenditure in the first year of the revision coming into force (Ministry of Corporate Affairs, Government of India). Therefore, it is not evident whether the revision of the Companies Act is actually having an effective impact on the CSR expenditure of Indian firms.

In this paper, I examine the effect of the revision of the Companies Act in India on the likelihood of a firm's CSR participation and its profit. My research is the first work to explore the effects of the provision of mandatory CSR on a firm's participation and its performance. I extract the data from the Prowess database operated by the Center for Monitoring the Indian Economy (CMIE). The data structure is panel, cross-section unit is a firm, and time frequency is a year. The range of time is from 2012 to 2015. Following the revision of the Companies Act in 2013, I design the treatment and control groups as well as the period of policy change for a quasi-experimental analysis. Using the data from firms to which the revision of the Companies Act is applicable, my identification of difference in differences (DD) estimation compares the changes in outcomes across treatment-eligible firms to those in treatment-ineligible firms. I also examine the key identifying assumption of the DD specifications, which are common trends across treatment-eligible and ineligible firms.

The results show that the revision of the Companies Act that forces eligible firms to incur CSR expenses increased these firms' CSR participation by 2.3 percentage points, compared to ineligible firms. It is also shown that there was a differential of 3.5 percent in profits between eligible and ineligible firms after the new CSR provision was introduced. Overall, the findings indicate that the

revision of the Companies Act in India to impose mandatory CSR on applicable firms was effective in terms of increasing these firms' CSR participation as well as their profits. Therefore, these results suggest that the policy intervention of the Indian government by imposing mandatory CSR has been successful, which implies that not only profit-maximizing CSR but also private provision of public goods is valid in India.

The remainder of the paper is organized as follows: Section 2 discusses theoretical framework and prior literature, Section 3 describes the revision of the Companies Act in 2013, Section 4 includes data description and empirical strategy. Section 5 provides my results and Section 6 presents a discussion and conclusion to the paper.

2. Theoretical Framework and Literature Review

A simple definition of Corporate Social Responsibility (CSR) is "the responsibility of enterprises for their impacts on society."[1] More specifically, CSR is defined as the actions that firms perform in order to "integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis."[2] From an economic perspective, CSR is defined as sacrificing profit in social interest,[3] private provision of public goods (Baron 2001), or activities to promote social agenda which is beyond required by law (Siegel and Vitaliano 2007). The most famous argument for a negative view of CSR is stated by Milton Friedman (1970), the Novel Prize Laureate in Economic Sciences in 1976. It is interpreted that private corporations should devote themselves to the business of making a profit while the government should handle public goods and externalities (Besley and

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[1] European Commission.
[2] Commission of the European Communities (2001).
[3] Reinhardt, Stavins, and Vietor (2008).

Ghatak 2007, p. 3).

Although many economists hold a skeptical view on CSR, others assert that firms are involved in profit-maximizing CSR (e.g., Seigel and Vitaliano 2007). They argue that firms are involved in CSR because they anticipate a benefit from it. On the other hand, firms incur CSR expenses to avoid potential political costs (Healy and Palepu 2001).

There are quite a number of studies on CSR. Earlier literature focused on the existence and disclosure of CSR (Kitzmueller and Shimshack 2012). Research subjects have shifted to determinants of CSR disclosure such as size of business, financial performance, tenure of a company, industry nature, and so on (Crifo and Forget 2015). In the economic perspective, Kitzmueller and Shimshack (2012) extensively surveyed CSR literature not only on theoretical but also empirical papers. Crifo and Forget (2015) also provide a deep overview of the economics of CSR. Since my study is related to determinants of CSR disclosure, the link between profit and CSR, and CSR in India, I briefly introduce prior studies on these three issues.

Regarding determinants of CSR, it is shown that a firm's attributes affect CSR disclosure and probability of CSR participation. There have been many studies regarding the link between CSR and firm performance. Overall, either participation or expenses of CSR is positively associated with financial performance, such as the profitability and market value of a firm. For example, Gamerschlag, Möller, and Verbeeten (2011) examine determinants of CSR disclosure in Germany. Their findings show that CSR disclosure is affected by the factors of political costs. In addition, they find that size, profit, and industry membership of a firm affect the amount of CSR spending. Jo and Harjoto (2011) investigate the effects of elements on a firm's CSR participation and the impact of CSR incurrence on a firm's performance. The results show positive relationship between CSR participation and firm value. Focusing on the context of India, despite its long tradition of CSR, only a few studies analyzed the determinants of CSR and its economic performance (Kansal, Joshi, and Batra 2014).

My paper differs from previous literature in the sense that I investigate the effect of mandatory CSR, through the revision of the Companies Act, on the likelihood of CSR participation. I also examine the impact of the revision of the Companies Act on a firm's profit. Since India is the first country to introduce mandatory CSR by law, my analysis will contribute to the literature on CSR as well as policy evaluation. In addition, I have not found any quantitative works on the issues of CSR in India, related to the subjects of this paper. Thus, the importance of this paper's research questions as well as the country of interest, which provides a key motivation for this paper, should be emphasized.

3. The Revision of the Companies Act in India in 2013

It seems unusual that the importance of CSR would receive attention in a developing country like India. This may be due to the long tradition of CSR in India. The industrial families promoted CSR by establishing charitable institutions for society and community development in the pre-independence period (Ernst & Young LLP 2013). It is also noticeable that Mahatma Gandhi influenced rich corporate owners to share their wealth for the poor and society during the period of independence (Balakrishnan, Malhotra, and Falkenberg 2015). Currently, it is well known that all leading corporates in India are involved in CSR activities.

Most importantly, it is India that enacted mandatory CSR into law for the first time in the globe. The revision of the Companies Act including new CSR requirement was passed by both houses of the Parliament and received the assent of the President of India on August 29, 2013. The Companies Act, revised in 2013, includes a provision to require that a certain amount of CSR must be incurred by firms meeting the criteria by the law.4

According to Section 135 of Chapter IX, a company with a net worth of 5

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4 The Indian Companies Act of 2013.

billion Rupees (approximately USD 75 million) or more, or turnover of 10 billion Rupees or more or net profit of 50 million Rupees or more must constitute a CSR committee of the board that consists of at least three directors. The committee must ensure that the company spends at least 2 percent of the average net profit of the company earned during the three immediately preceding financial years, in pursuance of its CSR policy. The revised Companies Act also provides further that if a firm fails to meet the requirement, the committee must report the reasons for not spending the amount in its annual report.

Consequently, this revision has been in effect from April 2014, and thus, the firms that are applicable to the criteria must incur at least 2 percent of their net profit for CSR activities and disclose the amount and contents of CSR activities on their annual reports from the 2014/2015 fiscal year.

However, according to the Ministry of Corporate Affairs, among the 10,475 firms that are obligated to spend CSR expenses by the Companies Act of India during the 2014/15 fiscal year, 7,334 firms submitted their annual report with CSR activities as of January 31, 2016, but out of these 7,334 firms, only 3,139 (30 percent of total applicable firms) incurred some CSR expenditure.[5] A substantial portion of the eligible firms did not incur CSR expenditures. This is mainly due to the fact that the revised Act is weakly binding. Again, when an eligible firm does not succeed in meeting the legal requirements of CSR, it is only required that the CSR committee of the board reports the reasons for not performing CSR in its annual report. Thus, it is not certain whether the revision of the Companies Act, which imposes mandatory CSR on the group of firms meeting the requirements by law, is effective in practice.

Therefore, using the structural break of the revision of the Companies Act, I investigate how the likelihood of a company's CSR participation and its profit changed in response to the revision of the Companies Act. In the next section, I turn to the data and research design used to explore these questions.

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[5] Ministry of Corporate Affairs, the Government of India.

4. Data and Identification Strategy

4.1. Data

Firm-level data for my analysis was collected from the Prowess database provided by the Centre for Monitoring the Indian Economy (CMIE).[6] Specifically, I extracted the data from annual financial statements to construct the dataset.[7] Prowess is an online database, provided by CMIE, which covers financial data for all listed and a considerable number of unlisted firms in India. The Prowess database includes all information for operating firms required to disclose in their annual reports such as annual financial statement (Mitra *et al.* 2016). The usefulness of Prowess database is confirmed by the facts that the firms in the database cover approximately 70 percent of the industrial production and the sum of corporate taxes collected from these firms are 75 percent of total corporate taxes in India. Moreover, excise taxes paid by these firms occupy approximately 95 percent of the total excise taxes collected in India (Alfaro and Chari 2009, p. 14).

The annual dataset that I constructed includes total assets; current ratio; profits before depreciation, interest, tax and amortization (PBDITA); social and community expenses; National Industrial Classification (NIC) code; state code, ownership code; and stock market registrations for the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE).

Total assets refer to the sum of all current and non-current assets held by a firm during a year. It is adopted to represent a firm's size.[8] Current ratio is the

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[6] CMIE Prowess Database (accessed on October 1, 2016).

[7] The description of the variables collected from the Prowess database refers to CMIE (2017).

[8] I also employed total sales and total income for measuring the size of a firm. For profit, I utilized the data for Return on Assets (ROA) and profit after tax. For a measure of risk, I adopted total liabilities, and debt to equity ratio. Of all the information, I selected total assets for size, PBDITA for profit, and current ratio for risk of a firm, based on economic intuition and the number of observations. In estimation, I used the above variables as well but the differences

ratio of current assets to current liabilities. It is a financial ratio to measure a firm's ability to meet its short term obligations, i.e. to pay off its short term liabilities. It is selected to stand for a firm's risk. PBDITA is a measure of profit. PBDITA is generated by adding depreciation, interest payments, amortization, and taxes to profit after tax. The social and community expenses disbursed by a firm are the expenses for benefit of the society and community in general. These expenses may be a type of expenses for social occasions. NIC code is the numeric code of the official National Industrial Classification of India (2008).[9] I used the twenty-one sections of NIC classification to identify an industry that a firm belongs to. State code identifies where a firm's headquarter is located. Ownership code identifies a firm's ownership. Using this code, I generated two ownership variables. One categorizes a firm as a private, public, or private-public partnership (PPP) enterprise. The other divides the firms in the sample into domestic and foreign firms. The Prowess database also provides information identifying if a firm's security is exchanged in the stock markets in India, either BSE or NSE or both. Using this information on stock markets, I generated a variable that identifies if a firm is listed in stock markets in India.

Although The Prowess database provides the amount spent on CSR activities as well as CSR participation by a firm during a year, it is only available from the year of 2015. To deal with this problem, I adopted the social and community expenses as a proxy for CSR. This variable is useful and reliable in that the correlation between the CSR amount and social and community expenses incurred by a firm is 0.990.[10] Using this proxy, I constructed a dummy variable, which takes the value of one if a firm incurs a certain amount for CSR and zero otherwise.

I converted the variables in nominal Indian Rupee into real values by using a

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between the estimates in this paper and those with the variables above are trivial.

[9] Central Statistical Organisation, Government of India (2008).

[10] The correlation is calculated by the author.

GDP deflator from the World Bank's World Development Indicator.[11] The data structure is unbalanced panel and the sample period is from 2012 to 2015. The cross-section unit is a firm and time frequency is one year.

Since the introduction of mandatory CSR is exogenous to firms and the data structure is panel, it is possible to implement a "difference in differences" (DD) research design. Using the binding conditions for mandatory CSR expenses by the revision of the Companies Act in India, I constructed the variables for treatment and control groups and pre- and post-policy intervention. Firms having a net worth of 5 billion Rupees or more; turnover of 10 billion Rupees or more; or net profit of 50 million Rupees or more belong to the treatment group. The years of 2014 and 2015 are considered as the period of policy intervention.

Table 1 presents a description of the raw data and Table 2 displays summary statistics of the main variables used in this paper. Regarding a firm's CSR participation, there is a clear pattern. After implementing mandatory CSR by law, the probability of incurring CSR increased and the magnitude is much higher in the treatment group. The treatment group's likelihood of CSR participation was 2.1 percent on average before imposing mandatory CSR requirements but it increased to 17.1 percent after the post-treatment period. The probability of CSR participation by the control group in the pre-treatment period was 1.6 percent and it increased to 4.1 percent on average. These statistics imply that the effect of mandatory CSR could lead to more incurrence of firms' CSR activities. However, it is not certain that there has been an effect of the revision of the Companies Act on a firm's profitability, due to the fact that both treatment and control groups' profits increased by similar proportion in the post-treatment period.

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[11] World Bank, data.worldbank.org/indicator/ (accessed on October 1, 2016).

Table 1. Variable Description

Variable name	Description	Unit
Total Assets	Sum of all current and non-current assets held by a firm during a year.	Million Rupees
Current Ratio	Ratio of current assets to current liabilities.	Times
PBDITA	PBDITA (profits before depreciation, interest, tax and amortization) during a year.	Million Rupees
Social and Community Expenses	Expenses for benefit of the society and community in general during a year.	Million Rupees
Industry Code	Numeric code of the official National Industrial Classification of India.	Number
State code	Identification of States and Union Territories in India.	Number
Ownership Code	Identification of private, public, and PPP firms or of domestic and foreign firms.	Number
Listed	Identification of a firm which is listed in stock markets in India.	Number or symbol
CSR	It takes 1 if a firm incurs Social and Community Expenses and 0 otherwise.	Dummy

Source: CMIE (2017).

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Table 2. Descriptive Statistics

VARIABLE	Treatment Group						Control Group					
	Pre-Treatment			Post-Treatment			Pre-Treatment			Post-Treatment		
	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs
CSR	0.021	0.144	22,727	0.171	0.377	16,904	0.016	0.125	16,782	0.041	0.197	12,416
Total Assets	16567.3	183175.3	22,409	24862.4	258073.7	16,684	903.3	2323.0	16,781	1233.8	3420.5	12,414
PBDITA	1699.7	16330.6	19,320	2540.1	21476.9	14,472	34.4	236.7	16,782	44.2	625.9	12,416
Current Ratio	30.7	467.2	19,493	28.8	480.4	14,689	8.7	119.7	16,534	7.6	90.0	12,238

Note: CSR is a dummy variable taking one if a firm incurs CSR and zero if it does not. The units of total assets and PBDITA are million Rupees. The unit of current ratio is times..

Source: Author's calculation.

4.2. Empirical Specifications and Methodology

I adopted a quasi-experimental approach to identify the impacts of the revision of the Companies Act on the probability of CSR incurrence and profit. This identification relies on both the existence of firm-year panel data with and without policy intervention, and the provision of treatment by law. Here, a firm's treatment eligibility can be expressed by the interaction between $Treat_i$ (i.e., whether a firm's performance meets the criteria of CSR-related provisions in the Companies Act) and $Post_t$ (i.e., being observed in the post-treatment period). My approach to estimate the effect of the revision of the Companies Act (i.e., imposition of mandatory CSR) on the CSR participation of a firm is based on DD specification of the following form:

$$Prob(CSR_{it}) = f(Size_{it}, \pi_{it}, \ Treat_i, \\ Post_t, (Treat \times Post)_{it}, \varepsilon_{it}) \tag{1}$$

CSR_{it} is a dummy variable taking the value of 1 if a firm's CSR expenses are positive. $Size_{it}$ represents a firm's size and total assets are used in the analysis. To deal with potential endogeneity, that is profit-maximizing CSR, an instrumental variable technique is used. For instrument, a measure of a firm's risk is appropriate due to the fact that risk seems not to directly affect a firm's decision of participating in CSR but rather it influences CSR incurrence through the channel of profit. There are several candidates of a firm's risk such as total liabilities, current liabilities, or debt to equity ratio. I chose current ratio, based on the estimates from the first stage regressions of instrumental variable approach.[12]

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[12] Following the convention in the literature (e.g., Siegel and Vitaliano 2007, p. 782), I also adopted lagged profit as an instrumental variable. However, it turned out that lagged values of profit are weak instrument in my analysis. Hence, I did not use lagged profits for instrumental variable.

D_i represents cross-section fixed effects or other time-invariant characteristics of a firm. The variables to describe a firm's attributes in estimation are $Industry_i$, $State_i$, $Ownership\_1_i$, $Ownership\_2_i$, and $Listed_i$. $Industry_i$ represents the dummy variables classifying firms in the sample into the twenty-one sections, based on the official National Industrial Classification of India. $State_i$ indicates the dummy variables for the States and the Union territories in India. $Ownership\_1_i$ stands for the dummies to identify if a firm is public, private, or a private-public partnership. $Ownership\_2_i$ represents the dummies to identify if a firm is domestic or foreign. $Listed_i$ is a dummy variable for the firms who are listed in stock markets in India. $Treat_i$ is a dummy variable if the observation is in the treatment group, which indicates the firms that are required for mandatory CSR expenditure. $Post_t$ is the post-treatment dummy including the years of 2014 and 2015. The coefficient of the interaction term, $(Treat \times Post)_{it}$, is the parameter of interest in my analysis. The coefficient of $(Treat \times Post)_{it}$ identifies average treatment effect of mandatory CSR through the revision of the Companies Act. ε_{it} is a mean-zero stochastic error terms.

I used a dummy variable to indicate a firm's CSR participation, instead of the amount of CSR expenses, due to the fact that I performed a DD approach. When CSR expenses are used, the analysis is involved in censored regressions together with DD analysis, which complicates interpretation for the coefficients. Thus, the results of DD analysis do not reflect the degree to which the amount of CSR changes, but do indicate the level to which the probability of a firm's CSR participation changes. To avoid multicollinearity due to conflict between the post-intervention period (years of 2014 and 2015) and each year (years of 2012, 2013, 2014, and 2015), time-fixed effects were not controlled.

Next, to examine the effect of mandatory CSR on a firm's profit, I utilized a reduced form of profit function as shown in Equation (2):

$$\pi_{it} = g(Size_{it}, Risk_{it}, D_i, Treat_i, Post_t, (Treat \times Post)_{it}, \xi_{it}) \qquad (2)$$

where ξ_{it} is an error term. In the same fashion, the coefficient for $(Treat \times Post)_{it}$ is the key parameter to be estimated.

For Equation (1), I estimated a conventional probit model with firm's characteristics. To address a potential endogeneity due to reverse causality between CSR and profit, I employed a two-step maximum likelihood estimation procedure using instruments. For convenient interpretations, I also adopted a linear probability model (LPM). When using this LPM, I used four specifications: LPM with firm's characteristics; LPM of 2SLS with firm's characteristics; panel LPM with firm-fixed effects; and panel LPM of 2SLS with firm-fixed effects. For Equation (2), I employ a conventional OLS with firm's attributes and panel regression with firm-fixed effects.[13]

The most critical issue with the DD estimator is the parallel trend assumption. In the context of my study, without the revision of the Companies Act to impose mandatory CSR on the treatment group, the trends in the probability of a firm incurring CSR and in the profit of a firm would have been the same in the treatment and control groups. To the best of my knowledge, there is no formal way to prove that the treatment and control groups would have moved in parallel due to the fact that the counterfactual case, i.e. what would have happened to the treatment group in the absence of policy intervention, cannot be observed.

A common way to check the validity of parallel trend is to compare changes in outcomes for the treatment and comparison groups before policy intervention. Parallel movement of the outcomes before policy is implemented provides confidence that outcomes would have changed in parallel in the post-treatment period. Figure 1 displays the trends of average probability of CSR participation and Figure 2 presents the trends of average PBDITA in natural logarithm over time. In both cases, the outcomes of treatment and control groups reveal the
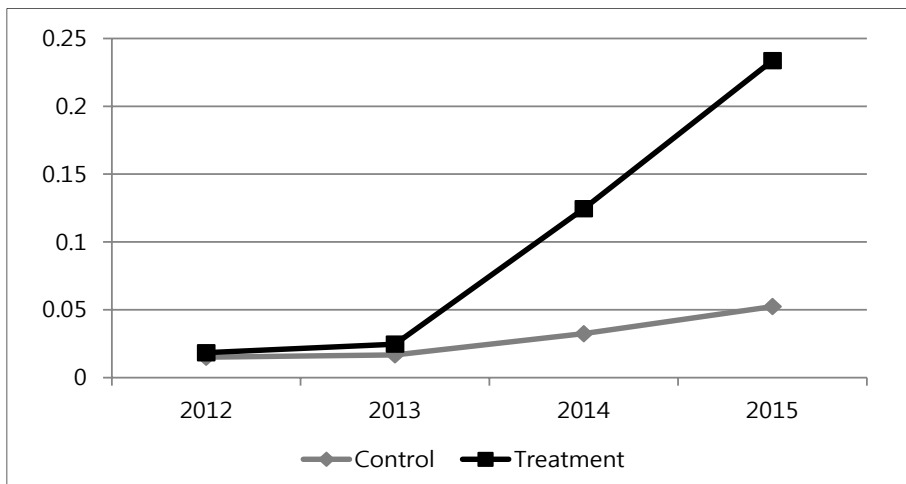
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[13] To decide between fixed- and random-effects model, I performed a Hausman test for Equations (1) and (2) and the Chi-squared statistics of the Hausman test were in favor of fixed-effects model in both cases.
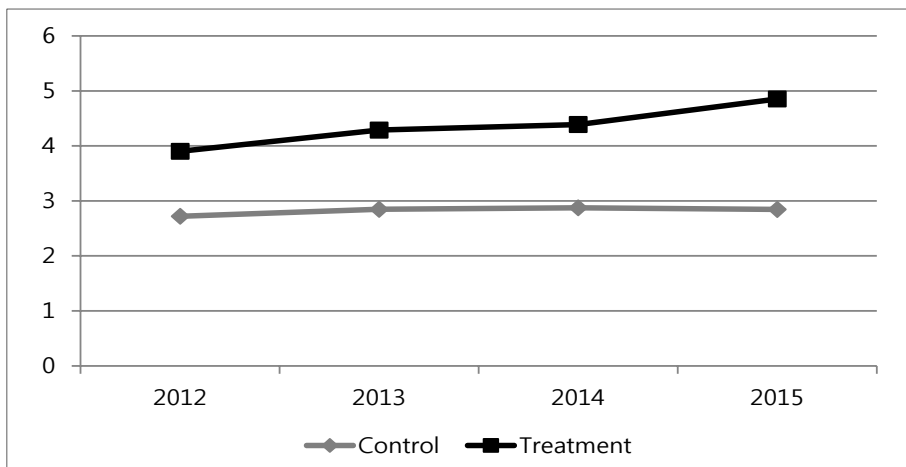
same trends as before the revision of the Companies Act, during the years of 2011 and 2012. Thus, the assumption of parallel trend for DD may not be violated.

Figure 2. Average ln(PBDITA)

Another concern is a possibility of other policy intervention that affects a firm's behavior and its outcome. In India's case, similar to the United States, respective states have their own authority over economic issues, such as labor legislation. An important issue concerning my analysis is corporate taxes across states. Fortunately, there are no local, state, or provincial level corporate taxes in India at present.[14]

5. Results

I start presenting the results by examining the effect of the revision of the Companies Act in India, i.e., mandatory CSR provision, on the probability of incurring CSR expenses by a firm, as shown in Table 3. Columns [1] and [2] present the results from a probit model and probit model with two-step estimation using instruments. Columns [3] to [6] show the results that are estimated by using LPM. Column [3] is the results by a conventional LPM; column [4] shows the estimates by performing 2SLS; column [5] presents the outcomes from implementing panel regression with fixed effects; and column [6] shows the results from estimating panel regression with fixed effects and instrumental variables.

The estimates for *ln(Total Assets)* indicate that a firm's size has limited effect on CSR participation. In probit estimation without using instrument, the estimate for total assets is positive and statistically significant at 10 percent level. However, when instrumental variable is used for profit, the estimate turns to be negative in line with a considerable increase in the estimate for *ln(PBDITA)*. When focusing on the results from LPM as shown in columns [3] to [6] in Table 3, the findings show that the effect of a firm's size on CSR is minimal. Column [3] indicates that an increase in total assets of 1 percent, on average, leads to an increase of 0.007 percentage points in the likelihood of a firm's CSR par-

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14 PWC, http://taxsummaries.pwc.com/ID/India-Corporate-Taxes-on-corporate-income.

ticipation. This simply indicates that 100 percent increase in total assets is associated with 0.7 percentage point increase in the probability of a firm's CSR participation. When firm-fixed effects are added and instrumental variables are utilized, the estimate for total assets becomes statistically insignificant.[15] The estimates for profit, expressed as *ln(PBDITA)* are positive and statistically significant in most cases but magnitude are trivial, as illustrated by very small values of the estimates in Table 3.

Table 3. Effects of Mandatory CSR by Law on Probability of CSR Participation

INDEPENDENT VARIABLE	[1] Probit	[2] IV_Probit	[3] LPM	[4] IV_LPM	[5] LPM_FE	[6] LPM_FE_IV
ln(Total Assets)	0.021 *	-1.017 **	0.007 ***	-0.020 **	0.027 ***	-0.018
	(0.012)	(0.461)	(0.001)	(0.010)	(0.004)	(0.019)
ln(PBDITA)	0.179 ***	1.269 ***	0.016 ***	0.045 ***	0.002	0.070 **
	(0.012)	(0.485)	(0.001)	(0.011)	(0.001)	(0.028)
Post	0.423 ***	0.462 ***	0.024 ***	0.025 ***	0.021 ***	0.021 ***
	(0.038)	(0.044)	(0.002)	(0.002)	(0.002)	(0.003)
Treat	-0.257 ***	-0.642 ***	-0.013 ***	-0.028 ***	-0.077 ***	-0.106 ***
	(0.044)	(0.184)	(0.002)	(0.005)	(0.006)	(0.012)
DD	0.999 ***	0.867 ***	0.199 ***	0.204 ***	0.218 ***	0.226 ***
	(0.049)	(0.079)	(0.005)	(0.005)	(0.006)	(0.006)
Industry Dummies	Yes	Yes	Yes	Yes		
State Dummies	Yes	Yes	Yes	Yes		
Ownership_1	Yes	Yes	Yes	Yes		
Ownership_2	Yes	Yes	Yes	Yes		
Listed	Yes	Yes	Yes	Yes		
Firm-Fixed Effects	No	No	No	No	Yes	Yes
Observation	47,233	45,937	47,279	45,983	48,444	47,138

Note: Dependent variable is the CSR dummy that takes one if a firm incurs CSR expenses and zero if it does not. A F-test for all firm fixed effects being zero is rejected. A Hausman test is in favor of fixed-effects model. Year fixed effects or year dummies are not controlled to avoid multicollinearity between Post (equals 1 if year = 2014 or 2015) and year dummies. Standard errors in the parenthesis are robust standard errors. Asterisks denote statistical significance as follows: *** 1 percent, ** 5 percent, and * 10 percent significance level.

Source: Author's estimation.

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[15] F-test for all firm-fixed effects being zero is rejected.

Most importantly, Table 3 shows that the estimates for *DD* are positive and statistically significant. Focusing on LPM, the estimates indicate that the effect of mandatory CSR on the firms in the treatment group is approximately 2.0 to 2.3 percentage points. Again, the treatment group includes the firms meeting the CSR requirements of the revised Companies Act, and hence legally required to allocate CSR expenses. Thus, the estimates for *DD* indicate that the revision of the Companies Act forced the treatment group to increase involvement in CSR activities by 2.3 percentage points, compared to the control group that includes the firms whose CSR incurrence are not mandatory.

Next, I present the results from estimating a reduced-form profit function that incorporates *DD* estimator, with the main findings displayed in Table 4. The estimates for *ln(Total Assets)* show that the association between profit and size of firms is positive, which is a valid result. The findings also indicate a reasonable sign of the estimates for current ratio, which implies a negative effect of risk on profit. However, the magnitude of the relationship between risk and profit is trivial.

Table 4 shows that the estimates for *DD* are positive and statistically significant.[16] The estimates indicate that the revision of the Companies Act that imposes the provision of mandatory CSR to the eligible firms increases their profits by 3.5 to 11.8 percent, compared to the ineligible firms whose CSR spending is not binding by law. Therefore, it can be inferred that the introduction of mandatory CSR provisions did improve profits of firms that belong to the treatment group in comparison with the control group. This result supports the theory of profit-maximizing CSR. It also implies that policy intervention by the Indian government toward firms' CSR activities has been successful.

For a robustness check, I performed the same analyses for CSR participation and profit with the data narrowed down to two adjacent years, 2013 and 2014: just before and after the periods of policy intervention. Although there is

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[16] F-test for all firm-fixed effects being zero is rejected.

a little differential, implications from the results stay the same as those from the full period, from 2012 to 2015, inclusive.

	[1]	[2]
Table 4. Effects of Mandatory CSR by Law on Profits		
INDEPENDENT VARIABLE	OLS	FE
ln(Total Assets)	0.948***	0.671***
	(0.004)	(0.027)
Current Ratio	-0.000***	-0.000***
	(0.000)	(0.000)
Post	-0.030*	0.006
	(0.016)	(0.012)
Treat	0.369***	0.358***
	(0.017)	(0.023)
DD	0.118***	0.035**
	(0.024)	(0.016)
Industry Dummies	Yes	
State Dummies	Yes	
Ownership_1	Yes	
Ownership_2	Yes	
Listed	Yes	
Firm-Fixed Effects	No	Yes
Observation	45,983	47,138

Note: Dependent variable is the CSR dummy that takes one if a firm incurs CSR expenses and zero if it does not. A F-test for all firm fixed effects being zero is rejected. A Hausman test is in favor of fixed-effects model. Year fixed effects or year dummies are not controlled to avoid multicollinearity between Post (equals 1 if year = 2014 or 2015) and year dummies. Standard errors in the parenthesis are robust standard errors. Asterisks denote statistical significance as follows: *** 1 percent, ** 5 percent, and * 10 percent significance level.

Source: Author's estimation.

6. Discussion and Conclusion

In this paper, I investigated the effect of the revision of the Companies Act in India on firms' CSR participation and their profits. For the analysis, I per-

formed a quasi-experimental analysis by using the data collected from firms' annual financial statements. My identification strategies for difference in differences (DD) estimator were based on the newly introduced CSR requirements within Section 135 of Chapter 9 in the Companies Act of 2013. I also compared the movements in firms' CSR participation and profits between eligible and ineligible firms to check the assumption of common trends. It is the first original work that evaluates the effects of the revision of the Companies Act in India, i.e. the mandatory CSR provisions, on firms' behavior and performance.

I found that the revision of the Companies Act imposing mandatory CSR on the eligible firms leads to an increase in the probability of eligible firms' CSR incurrence, yet the impact is not remarkable. Although it is statistically significant, the difference between treatment and control groups is only 2.3 percentage points.

However, the evidence shows that there is a differential in profit between treated and controlled groups after the provision of mandatory CSR was introduced by the revision of the Act. The differential is 3.5 percent between eligible and ineligible firms. This finding implies that a policy intervention to introduce mandatory CSR improved profits of the firms to which the provision of mandatory CSR is applicable.

These findings support the effectiveness of the revision of the Companies Act imposing mandatory CSR. There are distinct differences between treatment and control groups in CSR participation and their profits. In this case, private provision of public goods and profit-maximizing CSR are valid. In short, I insist that the Indian government's policy intervention in exercising mandatory CSR has been successful.

However, the limited CSR participation by the eligible firms should be considered. The reason that there are only 2.3 percentage points of higher probability by applicable firms may be due to the weak legal binding force. Applicable firms that fail to meet the requirement of spending CSR expenses of at least 2 percent of net profit are only required to provide the reasons in their annual

reports. As presented by the Ministry of Corporate Affairs, only 30 percent of applicable firms by law spent CSR expenses during the first year of the revision, being in effect. If the provision was more binding or binding enough to induce a sufficient level of firms' CSR incurrence, then this mandatory CSR provision would have been more effective such that firms' CSR participation could have increased to a sufficient level and these applicable firms' profits could have been more substantially improved, thanks to their CSR involvement.

An important point to be noticed is that this study only investigates the extensive margin, which is the effect of mandatory CSR imposition on the probability of a firm's CSR incurrence. To evaluate the intensive margin of the revision of the Act, that is changes in the amount of CSR by a firm, further research should be performed and is under way by the author.

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국문요약

인도는 2013년 회사법을 개정하여 일정 수준 이상의 기업에 CSR을 의무화시킨 최초의 국가이다. 본 연구는 인도 기업에 대한 CSR 의무화가 기업의 CSR 참여도와 이윤에 미치는 영향을 실증분석하였다. 본 연구의 주요결과는 CSR 의무화 해당 기업의 CSR 참여도가 그렇지 않은 기업에 비해 2.3%p 높았다는 것이다. 또한 회사법 개정 이후 CSR 의무화에 해당되는 기업의 이윤이 해당되지 않는 기업에 비해 3.5% 높았음을 알 수 있다. 따라서 본 연구의 결과는 CSR의 법적 강제화를 통해 이윤추구를 위한 기업의 CSR 활동(profit-maximizing CSR)과 민간기업의 공공재 제공(private provision of public goods)이 유효함을 시사한다.

핵심용어: 기업의 사회적 책임(CSR), 인도 회사법, CSR 의무화

이 웅(李 雄)

미국 University of California, Irvine 경제학 박사
캐나다 University of Regina 조교수
대외경제정책연구원 아시아태평양본부 인도·남아시아팀 연구위원
(現, E-mail: wlee@kiep.go.kr)

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Determinants and Consequences of Corporate Social Responsibility: Evidence from the Revision of the Company Act in India

LEE Woong

India is the first country to introduce mandatory CSR spending for eligible firms, based on the revision of the Companies Act in 2013. In this paper, I explore the effects of the revision of the Companies Act in India on the likelihood of a firm's CSR participation and its profit. It is the first work to investigate the effects of the provision of mandatory CSR. The results show that the revision increased the eligible firms' CSR incurrence by 2.3 percentage points, compared to ineligible firms. The findings also indicate that the revision is effective to increase the eligible firms' profits by 3.5 percent, compared to the ineligible firms. Therefore, I suggest that profit-maximizing CSR and private provision of public goods through mandatory CSR are valid in India.