Regulation-induced CSR

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July 2022

Abstract

The Indian Companies Act of 2013, Section 135, mandated that companies spend 2% of their profits towards CSR. In response, the aggregate CSR spending reported increased substantially and most firms, even those with zero prior CSR expenditure, reported spending non-trivial amounts. We examine the extent to which such reported CSR spending translated into real societal impact by employing various strategies that try to compare similar districts receiving different levels of regulation-induced CSR spending. On average, INR 1 Mn expenditure in education-related CSR led to a 138 student-year enrollment increase. Furthermore, the number of teachers, infrastructure and other facilities at schools also improved. These non-trivial magnitudes suggest that the average rupee reported to be spent on CSR is not mostly being tunnelled away. Furthermore our results imply that CSR activities undertaken due to external pressure by inherently uninterested firms, even in absence of strong enforcement, can have a substantial positive real impact on society.

JEL Classifications: M14, G14, G24, D21, L21

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[§] We thank Vimal Balasubramaniam (discussant), Neeru Chaudhry (discussant), Shivaram Rajgopal (discussant), Arkodipta Sarkar (discussant), Lewise Tam (discussant), Clara Zhou (discussant), Qifei Zhu (discussant) and seminar participants at ABFER, Asia-Pacific Corporate Finance Online Workshop, AsianFA Annual Conference, CMI Field Workshop on Firm Finance, Emerging Markets Conference, Indian School of Business Summer Research Conference, FIRN Women Conference, and University of Technology Sydney for helpful comments.

1 Introduction

As the concept of "shared value" (Hart and Zingales, 2017) has become more accepted, firms across the world are being pressured to create value for society.[1] However this is yet to become the norm and not all firms act in accordance with this view. In 2013, the Parliament of India passed a regulation to softly coerce companies into spending for societal benefit and contribute to "nation-building". Specifically, according to Section 135 of the Companies Act of 2013, large and profitable companies had to spend 2% of their profits annually on Corporate Social Responsibility (CSR) activities.

Section 135 of the Act first came into force in 2014-15.[2] The regulation defined the allowed CSR activities, which included promotion of education, health, poverty reduction, environmental sustainability, and gender equality. Notably, it excluded activities that would benefit employees and their families and, in general, the idea was to exclude activities that directly benefits the firm or any person or entity linked to the firm. Furthermore, improvements that were directly related to a firm's business, e.g., pollution reduction measures, were also excluded. In that regard, the definition of CSR in the context of this regulation was a particular subset that is largely along the lines of corporate philanthropy.

In this paper we study whether this regulation had any real impact on society. A significant portion of the literature examining the impact of firm CSR activities focuses on its impact on firms themselves and their direct stakeholders (shareholders, employees, customers, suppliers, etc.). However, to get a holistic picture of the social welfare implications of CSR by firms one also needs an understanding of the impact beyond these direct stakeholders.[3] Our study contributes to this.

Prior to this regulation, most firms in India did not spend any money on CSR activities. In other words, absent this regulation most firms in India weren't inherently motivated to spend money for the purposes laid out in the regulation. Therefore, a natural first question is whether these companies paid any heed to the CSR-spending directive by the government.

[1] https://www.nytimes.com/2019/08/19/business/business-roundtable-ceos-corporations.html.

[2] The initial regulation was based on a comply-or-explain framework – firms that did not spend the 2% had to explain in their annual report filings why they were unable to do so. Failure to spend as well as to provide an explanation could result in fines on the firm as well as officers, although actual punishments were essentially non-existent.

[3] One paper that examines this aspect is Naaraayanan, Sachdeva, and Sharma (2021).

We find that they did – there was a large increase in total reported CSR spending in fiscal year 2014-15, which is precisely when the regulation went into force.[4] Specifically, the total annual reported CSR spending across all the firms in our sample right after the regulation is about INR 100 Billion more than, and about three times that of, the aggregate annual amounts just prior to that. Furthermore, the distribution of the ratio of a firm's CSR spending to its three-year-average profits shows a "bunching" around 2%, the fraction required by the regulation. Tellingly, this bunching is seen only in the years after the regulation comes into effect but not before. Taken together, these patterns clearly show that the regulation did have a large impact on the reported CSR spending by firms.

Even if the companies *report* much higher spending after the regulation, this may not necessarily translate into a real impact on society for at least three reasons. First, in a weak legal environment like India, the reported CSR spending may not reflect actual spending. Managers may find ways to inflate the reported CSR spending or tunnel money back to their companies or themselves (Bertrand, Mehta, and Mullainathan, 2002).[5] Misreporting CSR spending could be easier because these were not subject to an external audit unlike other expenditures. Some anecdotal evidence suggests that this indeed has been happening to some extent.[6]

Second, even if the companies do spend money on actual CSR activities, they could spend it on projects that maximize the private benefits to the managers of the firm without regard for societal impact. Since the regulation did not have any requirement that the CSR spending by companies create impact (probably because it would be very difficult to define and verify that), the money might be spent on projects with minimal real impact. Third, even if most of the money were spent on projects that do have a significant real impact, these activities might crowd out other similar activities by the government, non-profit sector, or

[4]Dharmapala and Khanna (2018) also find a similar pattern.

[5]Interestingly, while the regulation allowed the option to simply donate money to specific government charity funds, we find that almost none of the companies take this route. On the one hand, this could be because claiming to spending the money themselves allows for greater flexibility in inflating the figures and tunnelling. However, it could also be that spending the money themselves allows a clearer association of the company's name with a philanthropic initiative, which is likely to be better in terms of reaping any reputational rewards from such activities.

[6]https://economictimes.indiatimes.com/news/economy/finance/how-indian-companies-are-misusing-public-trusts-to-launder-their-csr-spending/articleshow/49474584.cms

philanthropy by private individuals (Bekkers and Wiepking, 2011; List, 2011). Therefore the *net real impact* of CSR spending by firms could still be small even if the direct impact were sizeable.

If one does find a substantial net real impact of the reported CSR spending, as we do, then at the very least, this rules out most of the reported CSR spending not reflecting actual spending. Furthermore, an evaluation of the size of such real impact is an important element in the assessment of the aggregate social welfare implications of coercing firms into spending on CSR, especially when the direct effects on the firm value seems to be negative (Manchiraju and Rajgopal (2017) show that this regulation caused a reduction in the market value of firms). In this paper, we take advantage of the requirement of annual disclosure of the locations, amounts, and type of CSR projects that firms supposedly engaged in. The largest category of aggregate reported CSR spending is in education, which accounts for 35% of the total. Since detailed school-level data on various outcomes for elementary schools is available from a long-standing annual data collection exercise by the education department of the government, combining these datasets allows us to study the impact of CSR spending in education on elementary school outcomes.

To start off, we employ OLS regressions with *District* and *State* $\times$ *Economic Development Quintile* $\times$ *Year* fixed effects. In other words, our regressions compare changes in outcomes for a district after and before the regulation with that of other districts that are in the same state, year, and at a similar stage of economic development (measured by urban-rural population mix). We find that CSR expenditure on education is associated with a significant increase in elementary school enrollment. Specifically, INR 1 million (equivalent to USD 15,000 approximately) of additional education-CSR spending in a district is associated with 138 additional students enrolled in a year. While these associations may not accurately reflect the causal effect, if they did, then the above magnitudes translate into the marginal cost of keeping one child in a school for a year being INR 7,246 (around USD 115). In comparison, Bordoloi et al. (2020), a study by Accountability Initiative India, find that the median amount spent per student by the government across eight states in India was INR 16,569 and INR 24,433 in 2014-15 and 2017-18, respectively. Therefore, these estimates are comparable, if not slightly higher, in terms of impact-per-rupee of reported CSR spending when compared

with the median amount spent by state governments on elementary education.[7] Importantly, the increased enrollment due to CSR by companies is not associated with a decrease in the quality of education, measured by the number of students repeating a grade. In addition, the CSR spending by companies is associated with improvements in the number of teachers and school facilities, such as toilets, computers, and books. Specifically, a INR 1 million spending is associated with an addition of 6 new teachers and 4 new toilets in a year.

As mentioned, the above estimates are from regressions that control for time-invariant district characteristics as well as differential time trends of districts within a state depending on their stage of economic development. Nevertheless, the results from these regressions may not accurately reflect a causal effect on CSR spending on outcomes. One possible reason is that CSR spending might have been directed towards districts that were set to do better anyway, e.g., the CSR investments were concurrent with other investments being directed to those districts at that time. In that case, the improvement in educational outcomes could simply reflect the growing economic prosperity of the people there and not the causal effect of CSR spending. Therefore, the expected economic growth of a district could be an omitted variable of concern. Another such potential omitted variable is the government spending to support education in these districts. We address this in two ways.

Our first approach is a difference-in-differences strategy that takes advantage of two aspects of the CSR rules – i) since the regulation required firms to contribute 2% of average profits over the last three years towards CSR activities, three-year average profits and reported CSR spending by firms is significantly positively correlated after the regulation, and ii) firms tend to direct their spending to their local districts which, in part, could be because the regulation explicitly encouraged companies to do so. Thus, districts with high aggregate profits across firms located there, measured much before the regulation, would be expected enjoy a larger increase in CSR spending once the regulation kicks in relative to other districts with lower aggregate profits of firms there. Notably, this jump in CSR spending is expected to occur precisely when the regulation come into effect but not in the years before

[7] A caveat to this comparison is that our estimate captures the *marginal* impact of CSR spending while the estimate from the Accountability Initiative India is an estimate of the *average* impact of government spending. Nevertheless, we believe that the latter does provide a reasonable benchmark for gauging the size of our estimates.

that. Our identification strategy for the D-i-D, therefore, compares the changes in outcomes just before and after the regulation (2014-15) in districts that rank in the top 10% in terms of average 2009–2011 profits of firms headquartered there with other districts in the same state and year with a similar level of economic development. Furthermore, we examine the year-by-year differential in outcomes between the treated and the control districts and find a positive effect of CSR spending on school enrollment precisely in the year 2015 and later, i.e., only once the CSR rules came into force, but not before that. This helps assuage concerns about the treatment and control districts having differential trends. To be precise, our identifying assumption for the D-i-D analysis is this — in absence of the regulation the education outcomes we examine would have trended similarly in the treated and control districts and any differences that we observe is due to the difference in CSR spending on education across these districts. The estimates from our D-i-D strategy yield economic effects of comparable magnitude to that obtained from the OLS regressions with fixed effects mentioned earlier.

Second, we examine effects across different types of schools – those that are either supported by or run by the government and those that are not. We find that almost all of the above effects of CSR spending arises from the subset of private unaided schools instead of government run or government supported schools. This is true both for our results based on OLS regressions with fixed effects as well as the difference-in-difference design. These findings suggests that government spending is unlikely to be driving the association between CSR spending and out outcomes, since if that were the case, then the effects should have largely been concentrated in the government supported and government run schools. Furthermore, the effects of many other potential omitted variables of concern, such as improvements in the general economic conditions of the districts, would also be expected to affect enrolment improvements in government run and government supported schools. Since our results do not show any evidence of this, we believe this helps assuage concerns about such omitted variables significantly influencing our estimates.

On the whole, our analysis suggests that firms in India were successfully goaded into spending money for corporate philanthropic purposes through Section 135 of the Companies Act of 2013. Furthermore, our estimates suggest that, on average, the money spent across all firms on education related CSR activities did have a substantial impact on societal outcomes

with a reasonably high efficiency of impact. This was at least in the same ballpark, if not higher, than the efficiency of government spending for similar purposes. This also implies that, although the firms were inherently unmotivated before the regulation, the large increase in reported spending on CSR due to the regulation did mostly reflect genuine and effective spending.

The rest of the paper is organized as follows. Section 2 describes the existing literature discusses how our paper relates to it. Section 3 describes the institutional background. Section 4 describes our data and provides summary statistics. In Sections 5 and 6 we present our results and robustness checks. Finally, in Section 7 we conclude.

2 Literature

CSR has become a "catch all phrase" (Benabou and Tirole, 2010) for all good corporate actions undertaken by the firm that can potentially help the environment or the welfare of people. In this paper, we study the effect of one particular policy experiment implemented in India. We find that corporate philanthropy that was due to a soft push from the government has real effects on improving primary education outcomes in India despite the fact that firms could potentially find ways to get out of doing so by engaging in tunneling and lobbying. On the one hand, where we find a positive effect of CSR firms could engage in pro-social behavior to curry political favors (Bertrand et al., 2020). In this case, the outcome of CSR on welfare might be ambiguous on account of future distortions in laws and regulation. In our context, although firms could have used the "Prime Minister Relief Fund" as a way to lobby we do not find evidence of that.[8] Given the real improvements we observe, one cannot but wonder whether the Indian experiment can serve as a template for other developing countries that suffer from limited state capacity.

Our study complements the existing literature on the effect of CSR. Some studies find that firms can benefit from their CSR activities by building up trust with stakeholders, improving its visibility, and increasing shareholder return (Edmans, 2011; Servaes and Tamayo, 2013;

[8]Only 1.8% of total CSR spending went to the Prime Minister Relief Fund as compared to education which received 35% of total CSR investment.

Dimson, Karakaş, and Li, 2015; Lins, Servaes, and Tamayo, 2017). Other studies document that CSR spending is a manifestation of agency issues, and it is detrimental to firm value (Masulis and Reza, 2015; Cheng, Hong, and Shue, 2016).

In the Indian setting, Manchiraju and Rajgopal (2017) find that the market response to the passage of the Indian Companies Act 2013 is negative. Specifically, using the 2% profit cutoff, their paper compares firms that would be forced to comply with the regulation relative to a control sample and finds that treated firms experienced a 4.1% decrease in stock prices around key legislative announcements. The decline in stock prices is also accompanied with a decline in Tobins Q for firms that would be forced to spend on CSR. In addition to the negative stock price reaction to the Companies Act of 2013, Dharmapala and Khanna (2018) find that firms that were spending more than 2% of their profits on CSR before the enactment of the law reduced their spending once the law was imposed. Like Dharmapala and Khanna (2018), Rajgopal and Tantri (2022) also find that in a difference-in-difference setting high CSR firms experience a 27.8% decline in CSR as compared to low CSR firms in the post-mandate period. This translates into an economically large decrease of INR 26.42 million in CSR related spending for pre-mandate high CSR firms. Textual analysis of CSR disclosures suggest that firms might have been using CSR expenditure to signal quality of the firm before the mandate. In our paper, we are not trying to assess the effect of the Companies Act of 2013 on CSR expenditure but rather whether any CSR spending leads to desirable social outcomes. Arguably, mandatory CSR expenditure can crowd out CSR spending of some firms but as long as total CSR spending is positive we can assess its effect on outcomes.

Our paper speaks to the literature on corporate philanthropy given the spirit in which the regulation was designed. As suggested by (Benabou and Tirole, 2010) corporate philanthropy can be motivated by shareholders or insiders wanting to contribute but can also be a reflection of agency problems that the CEO's might want to cover up. Masulis and Reza (2015) and Liang and Renneboog (2017) find evidence of the latter.

Our focus on school enrollment as our outcome variable also connects us to the research that studies the impact of activism and ESG disclosure policies on the environment. Naaraayanan, Sachdeva, and Sharma (2021) find that targeted environmental activist in-

vesting reduces toxic chemical releases by 13%. Similarly, Yang, Muller, and Jinghong Liang (2021) find the Greenhouse Gas Reporting Program (GHGRP) led power plants in the US to reduce carbon dioxide emissions by 7%. Chen, Hung, and Wang (2018) also find improvements in the environment on account of mandatory disclosure. Krueger et al. (2021) find that mandatory ESG disclosure prevents negative ESG incidences.[9] On the one hand, our paper is related to these papers in the sense that we are examining the real effects of CSR spending where the difference is that our outcomes are education related. On the other hand, our paper differs as the CSR mandate in India did not target specific outcomes. The Companies Act of 2013 provided some general guidelines as to preferred sectors of CSR investment but was not targeted like the environmental policies.

3 Companies Act of 2013

The Companies Act of 2013 was a landmark regulation that made India one of the first countries to make CSR spending mandatory. Clause 135 of the Act specified that a firm with either (i) a net worth of Indian Rupees (INR) 5,000 million or more; or (ii) sales of INR10,000 million or more, or (iii) a net profit of INR50 million would be required to spend 2% of its average profits of the last 3 years on CSR related activities. The Act came into effect in April, 2014 with a comply-or-explain feature. Specifically, firms that did not comply with the regulation were required to explain their reasons for non-compliance.

Since the implementation of the initial CSR policy the Indian regulators have strengthened its enforcement [10].

The rules as they stand are prescriptive and provide guidance on how firms are to achieve their CSR goals. Boards are responsible for achieving CSR targets. They approve CSR policies and ensure their implementation and disclosure. Companies were required to have

[9]The environmental economics literature on the effects of disclosures on financial and environmental performance is extensive. Some of the papers in this line of research include Kanashiro (2020), BEL (2020) and Fisk and Good (2019).

[10]The Companies (Amendment) Act of 2019 made the regulations significantly more stringent. Company's that could not use the prescribed CSR amount in three years, were required to transfer the unspent amount to a fund set up by the government within 30 days after the end of the third financial year. If the unspent amount is related to an ongoing project, the company had six years to spend it and after three years, the unspent amount would be transferred to a separate account dedicated to CSR activities.

a CSR board committee consisting of three or more directors and at least one independent director that would suggest and monitor CSR spending.

The regulation also clearly defined the scope of the CSR activities. Health, education, gender equality, environmental sustainability, and poverty reduction were some of sectors where CSR investment was encouraged.[11] From its inception, the government has been actively updating the definition of CSR in the Companies Act of 2013. For example, it added contribution to the Clean Ganga Fund set up by the Central Government as one of the prescribed activities as of October 2014.[12] Interestingly, the definition of CSR activities did not include spending that would directly benefit employees. Lastly, firm would be required to disclose an official policy on CSR activities as well as their preferred areas to operate.

4 Data and summary statistics

Our project-level CSR data is from PRIME, an Indian data provider on capital markets. The data covers CSR activities of all listed companies on NSE. The data is available from 2014-15 to 2017-18. The Companies Act of 2013 required companies to disclose their CSR policies and activities in their directors' reports, which are PRIME's data source. Since the school data only contains elementary schools, we remove projects that are not for these schools by filtering the project descriptions. First we remove non-education related projects. Next, all projects related to development of vocational skills, universities, museums and other educational institutions are filtered out of the sample. Projects of which the descriptions are not very informative, for example, education, are regarded as projects for elementary schools. About 81% of educational projects are classified as projects for elementary schools.

The PRIME data includes both the actual CSR spending as well as the prescribed CSR spending (i.e., 2% of profits). Additionally, it includes descriptions and locations of CSR projects. Our next step is to map locations of CSR projects into the districts. Districts in India are equivalent to counties in the U.S. The merge between district and CSR location data results in a final sample that captures 57% of total CSR spent by NSE companies

[11] The full list is in Table A2.

[12] The Clean Ganga Fund was a charity fund started by the government in 2015 that encouraged donations from both private and public sector companies and individuals

(Figure A4).[13] If a project is in more than one district, we assume that each district receives CSR expenditure in proportion to its population.[14]

During our sample period, the Indian government created new districts. Specifically, the number of districts increased from 641 in 2011 to 731 in 2019.[15] To take this into account we manually adjust districts that changed their boundaries to ensure changes in CSR spending or education outcomes are not because of changes in district boundaries. For example, Kra Daadi in state of Arunachal Pradesh was carved out of Kurung Kumey in 2015. For our purposes Kra Daadi and Kurung Kumey would be considered as one district. We exclude all districts in Telangana, a newly formed state, due to the large changes in district boundaries.In the final data step, we aggregate project-level CSR data to the district-level data.

The education data is from the District Information System for Education (DISE). DISE is an annual census of elementary and secondary schools in India released by the National Institute of Educational Planning and Administration (NIEPA). Though NIEPA aimed to survey all schools, in practice some schools were not covered by the DISE data. It is especially true for private schools (Kingdon, 2017). However, it is reasonable to believe that companies cannot influence the data collecting process, and the under-representation of private schools is unlikely to bias our results. DISE data have been checked by independent agencies for the entirety of our sample period. Our sample consists of elementary (Classes I-VIII) schools. We do not include secondary schools as DISE started to collect this data only from 2013-14 therefore not giving us a pre-period to compare outcomes with.

DISE provides both school-level data and district-level data, however we use school-level data and aggregate it to the district-level rather than using the district-level data aggregated by DISE. The main reason to do this is the district-level data aggregated by DISE is not available for 2017-18.[16] Also aggregated DISE data does not provide some school information

[13]Unmatched projects include nationwide projects (28%), statewide projects (15%), projects that are missing location information or projects that have location information but cannot be mapped into districts (0.1%). The reason we do not match some CSR projects that have location information is because there are very few projects in those areas (typically less than 10).

[14]Our main results are robust if we assume that CSR expenditure is allocated equally among districts, as shown in Tables A4 and A5.

[15]`https://en.wikipedia.org/wiki/List_of_districts_in_India`

[16]We cross check our district-level data against the Statistical Year Book India, 2018 published by the Ministry of Statistics and Programme Implementation and exclude 330 district-year observations (269 in 2011-212 and 61 in 2012-13) in which there are large discrepancies.Our main results are similar if we include

(like whether a school is new or is a government aided school) that we use in our analysis.

We construct various school outcome variables like enrollment, the number of schools, the number of teachers, other measure of school facilities (e.g. number of toilets, computers and books) and the number of students repeating a grade. Our sample consists of both government and private schools. The government schools include schools managed by the department of education, tribal/social welfare department, or central government. Private schools are managed by private school management boards and can be further divided into government aided and private unaided schools. Government aided schools are heavily governed by the government. Government aided school teachers receive similar salaries as teachers in government schools and the salaries are paid by the government treasury. Additionally, they share the same recruiting process as government schools (Kingdon, 2017). In contrast, private unaided schools are independent of the government.[17]

We collect the financial data from the April 2019 version of Prowess data, which is maintained by the Centre for Monitoring Indian Economy (CMIE). Prowess data has been widely used in studies on Indian companies (Bertrand, Mehta, and Mullainathan, 2002; Manchiraju and Rajgopal, 2017). Besides the standard financial information, we can construct a proxy for CSR from three expenditure variables in Prowess which include donations, social and community expenses, and environment-related expenses. This CSR measure is available before the CSR regulation came into being, but its definition does not match that of the Companies Act of 2013. For example, donations for social causes would be considered as CSR according to the Companies Act of 2013, but donations to a political party would not. Prowess data does not include information on location and type of CSR spending. Therefore, we only use the CSR measure from Prowess when we compare the CSR spending patterns before and after the CSR regulation. For the rest of our analysis, we use the CSR measures created from the PRIME data.

We obtain district-level population and urban population data from 2011 Census. Our nightlights data is based on cleaned Visible Infrared Imaging Radiometer Suite (VIIRS) nightlight data (Beyer et al., 2018). The nightlights are measured as the average monthly

these district-year observations. See Tables Tables A4 and A5.

[17]Private unaided schools include schools that are flagged as unrecognized schools in DISE. Unrecognized schools are private schools that are not certified by the Indian government.

nightlights in a district divided by the area of the district.[18] We collect quarterly deposits and credit data from Reserve Bank of India and aggregate them to annual data. Deposits are the total amount of deposits in scheduled commercial banks in a district; credit is the bank credit of scheduled commercial banks in a district.

Although the PRIME data provides project level information the project descriptions only include specific sectors (e.g. health or education) investment information rather than specific projects like a school that they invest in. A more accurate description of the project level data would be that they provide a sectoral breakdown of CSR spending by firms. Therefore, any analysis requires us to aggregate the data to the district level to understand the effects of CSR spending.

In the end our final data consists of 609 districts and covers the the time period from 2011-12 to 2017-18, giving us data for three years before and four years after the CSR regulation came into effect.

Table A2 shows CSR spending by different sectors. As mentioned before, the CSR ruling provides a broad guideline as to the kinds of investments that would be considered as CSR spending. We find that education is one of the largest sectors in terms of CSR spending. About 39% is spent in the education sector. Our motivation to focus on outcomes in the education sector lies in these statistics.

Table 1 shows summary statistics of our sample. The average annual CSR spending in a district from all firms is around INR 30 million. Of this, INR 9 million is in education related CSR investments. This translates to about INR 3,800 per school in a year. An average district has 2,308 schools, 138 enrollment per school and 6 teacher per school.

In terms of the geographic distribution of education related CSR spending, we find that most of the CSR spending tends to be concentrated in a few states like Gujarat, Karnataka, Tamil Nadu, Maharashtra, and Rajasthan. CSR per school shows the largest amount of CSR goes to Maharashtra and Gujarat as well. Figure A5 shows heat maps of the distribution of CSR levels and CSR per school across the districts in India. Although CSR tends to be concentrated in a few states we still find significant variation across districts. In addition to the heatmaps of CSR, we include the heatmaps of the distribution of economic activity as

[18]We thank Robert C.M. Beyer from the World Bank for kindly sharing their data.

measured by nightlights (Panel C) and distribution of schools (Panel D) across India.

Table 2 also shows the distribution of CSR spending per school by different economic indicators. We find that CSR activities tend to concentrate in districts with more economic activities. We use urban ratio, measured by the population in urban areas over total population in a district from Census of India 2011, to proxy for economic activities.[19] Specifically, in the areas with lowest level of urban population the average annual CSR spending is INR 2 million as compared to the CSR spending of INR 23 million in the areas with highest level of urban population. This trend is also true for districts with higher literacy, nightlights, credit, deposits and more roads. These statistics suggest that CSR activity might correlate with economic development across districts. Our panel regressions address some of this concern by including state × year × urban ratio quintile fixed effects. Urban ratio quintile fixed effects are measured from the quintile distribution of urban ratio across districts as of 2011-2012. The discrete version of urban ratio is then interacted with the state × year fixed effect.

5 Empirical results

5.1 Compliance with the CSR regulation

Should a comply-or-explain CSR law induce companies to spend on CSR activities? The answer to this may not be in the affirmative as firms can find ways to lobby or explain why they do not spend on CSR. However, we find that more and more firms comply over time and were spending 2% of their profits or more on CSR investments. In this section, we describe how firms complied with the CSR regulation.

We first examine the CSR spending before and after the regulation. Since the spending in the before period is only available in the Prowess data, we present histograms showing the distribution of the ratio of CSR to profits measured in the Prowess data in Figure 1b. The CSR amount is measured by the sum of three types of expenditures in Prowess: Donation, social and community expenses, and environment-related expenses. To make the

[19]Census of India 2011 defines a place is urban if it is with a municipality or satisfies certain criteria of population, population density, and share of population who are engaged in non-agricultural activities.

figure readable, CSR ratios greater than 4% are set to 4%. Firms that are not required to spend on CSR activities are excluded from the sample. For consistency of sampling criterion across years, the threshold requirements of the Act in terms of net worth, profits, and assets are applied to all the years, including the years prior to the Act. Figure 1b shows a clear change in CSR spending pattern starting in 2015. From 2010 to 2013, the spending on CSR was essentially zero for around 60% of firms. After 2015, less than 20% of firms fall in this category. When examining the distribution of the ratio of CSR to profits, we see a "bunching" around 2%, starting in 2015 and becoming slightly more pronounced in the later years.

As mentioned earlier, since the CSR proxy variable constructed from Prowess does not perfectly match the definitions under the Act, we now focus our analysis on the data provided by PRIME. Next, we examine CSR spending patterns after 2015 in the PRIME data, which is compiled from the information of the Act-approved CSR spending as disclosed by the firms. Figure A1a shows the rate of compliance of firms. Panel B shows that 80% of firms were spending more than 50% of the prescribed amount (2% of profits) on CSR related activities by 2019 as compared to 58% in 2015. Interestingly, the number of firms spending more than 80% of the required amount grew from 46% to 70% from 2015 to 2019 (Panel C). By 2019, only a few firms (less than 6%) chose not to spend on CSR at all. These numbers taken together, show the trend towards compliance with the law by 2019. Table 1 confirms this trend. By 2019 about INR 115 billion was being directed towards CSR while the aggregate of the prescribed amount across firms in our sample was INR 116.3 billion. Some firms spend more than 2% of profits on CSR, which counterbalances the deficit from firms that spend below the prescribed level. In fact, Figure A2b suggests that firms that were the top 10% contributors to CSR in 2012-13 continued to spend more than 2% of their profits on CSR after the regulation become effective.[20]

So far we document that companies did comply to a large extent with the CSR spending rules. Next we examine in which sectors companies spend and through whom they invest

[20]We find the same pattern when examining spending by companies that were the top 10% contributors in 2011-12. A seeming drop in CSR for the highest spenders seems to be due to a mean reversion from the sorting-year effect – firms that spend unusually high or low amounts in one year are likely to revert back to their normal levels in the subsequent year.

their CSR expenditure. We find that firms are primarily making CSR investments in the health and educator sectors. About 35% of total CSR spending went to education related projects. As mentioned earlier the objective of the regulation was to get firms involved in "nation building" but it set up outlets (e.g. Prime Minister's National Relief Fund) where firms could donate and it get counted towards their CSR spending. As we see from Table A2 firms did not choose that route and only about 2.9% of projects and 1.8% of CSR spending went to the Prime Minister's National Relief Fund.[21]

In Table A2, we report CSR spending through the most popular implementing agencies. A company could invest in CSR spending directly, through it own non-profit institution or through a third party institution. Our dataset reports over 6000 agencies.[22] About 40% of projects are missing agency information. Only 9.1% of projects with non-missing agency information are invested through agencies that have been used by more than 10 companies in our sample period. This suggests that most companies didn't choose to invest through well-known third party agencies, which would require considerably less effort.

5.2 Elementary School Enrollment

We next examine whether the CSR reported by firms have an impact on school related outcomes with enrollment being are primary focus. It seems most firms were not inherently willing to spend money on CSR as most of them spent nothing before the Companies Act came into force. One might expect that such firms might i) find ways to report that they are spending without actually spending the money, or ii) spend the money but manage to channel most of it back to some other purpose, or iii) spend the money on CSR projects that are very inefficient since the Act merely specifies the amount of money they need to spend but does not require them to produce any particular level of output or impact. In any of these scenarios, we should expect to find low or almost no real impact of CSR activities.

[21]MCA committee reports suggest that the regulators discouraged investment in the Prime Minister's National Relief Fund as it did not "inculcate a sense to involvement and responsibility in the corporate sector for social development by utilizing not just their funds, but also their capabilities and management skills."

[22]In this figure, we do not account for the fact that the same agency might be reported under slightly different name. A conservative method using the first word in a reported agency as its name gives us about 3600 agencies, which is likely to be an underestimate.

On the other hand, once the firms decide to spend money on CSR, they may do so as fruitfully and efficiently as possible in order to maximize the benefits. For example, charitable projects have been shown to help firms attract better employees (Greening and Turban, 2000; Krueger, Metzger, and Wu, 2020) and make existing employees more engaged and perform better (Jones, 2010). Similarly, such projects could enhance the firms' reputation in product markets, leading to higher sales. It is likely that spending the money more efficiently - for example, building two schools in two different villages by using the same amount of money instead of just one school in a village - would increase the benefits from the money spent.

To assess the real impact, we focus on CSR spending related to elementary education, because we have detailed annual school-level data covering the entire country. Our main school outcome variable is enrollment. We also examine other related school outcomes like teachers, schools, toilets, computers, and books.

We aggregate the outcomes and explanatory variables at the district level. To create CSR spending at the district level, we sum up the firm level CSR spending based on disclosures provided by the PRIME data. Likewise, the school level data in DISE is aggregated to the district level. Therefore, we end up with a district-year panel.

We then regress the elementary school enrollment of a district on CSR spending. We scale both the outcome variables as well as CSR spending by the number of schools in the district as measured in 2011-12, which is the first year in our sample. The reason for doing so is twofold. First, we would like to include time fixed effects to control for shocks that could affect enrollment in different districts at the same time. If a positive shock increases enrollment, we would expect that the absolute number of students would go up more in a larger district (that has 100,000 students, say) compared to a smaller district (that has 1,000 students). Scaling the number of students by some variable that captures the size of the district allows the time fixed effects to more effectively control the unobserved common shock across districts. The second reason is that such scaling dampens the tendency of a few very large districts to dominate the regression estimates.[23]

Different states might be subject to different shocks in the same year that affect education

[23]In Tables A4 and A5 we run our main regressions using district population, measured in 2011, as the scaler and find similar results.

outcomes. This can be accounted for by including State × Year fixed-effects. However, this would still not account for the possibility that districts with higher economic development (such as cities and urban areas) might follow a different trajectory from districts in the same state with lower economic development. To account for this, we interact the urban population ratio quintile of a district, measured in 2011, with the state × year fixed effects. We also include district fixed effects in all our regressions to control for time invariant district trends.

Since it is possible that CSR activities could have an effect on outcomes with a bit of a lag, we include one-year lagged CSR expenditure as an additional explanatory variable in all regressions. Lastly, all standard errors are clustered at the state level.

5.3 Enrollment: Panel Regressions

Table 3 Panel A shows our baseline regression results. The outcome variables are the total students enrolled in a district. Additionally, we also study enrollment broken down by school type. Since both the LHS and RHS variables are scaled by the same proxy for size of the district (number of schools in 2011-12), we can interpret the coefficients directly as the effect of one unit change in CSR spending (INR 1 million) on the outcome variable. We find that CSR expenditure is associated with economic as well as statistically significant increase in enrollment. Specifically, column (1) shows INR 1 million spent in CSR translates into a 49 student-year increase in enrollment contemporaneously and a increase of 89 student-year in the following year. Therefore, the cumulative effect of INR 1 million CSR spending is 138 more students being enrolled for one year. Bordoloi et al. (2020), a study by Accountability Initiative India, found that the median amount spent per student by the government across eight states in India was INR 16,569 and INR 24,433 in 2014-15 and 2017-18, respectively. Additionally, an earlier study of 20 states, the estimated median amount of government spending per student was INR 12,769 in 2011-12. Based on our estimates, the marginal cost of keeping one child in a school for a year is INR 7,246. Our estimates are therefore comparable if not slightly larger than the per student government expenditure.

Our baseline result in column(1) suggests that CSR investment has a positive association with enrollment. However, it is also possible that the relation observed is due to some

omitted variables. For example, suppose companies directed CSR expenditure in districts that are expected to do better economically. Since economic growth is likely associated with better education outcomes, we would see a positive association between CSR expenditure and education outcomes. Another possibility is that companies direct their education-related CSR spending in districts where the government is likely to increase its spending. This could also lead to a spurious relation between CSR and education outcomes.

We address these concerns by first implementing a difference-in-difference regression which we discuss in the next section and then by examining the effect of CSR on private and government aided schools.

There are three types of elementary schools in India: a) schools run and fully funded by the government – government schools, b) schools run privately but receiving significant financial support from the government – government aided schools, and c) schools run privately and receiving no support from the government – private unaided schools. Though the latter two categories are managed privately, private unaided and government-aided private schools differ in fundamental ways in their modes of operation. Although Government-aided schools are nominally run by their private management boards, they are heavily governed by the government and receive financial support from the government (Kingdon, 2017). Private unaided schools, on the other hand, are much less constrained and are run independently.

When a new school is started by a company or any private party, it is almost surely going to be an unaided private school. It takes some time to go through the process of getting approved to become an government aided school. Moreover, not every private school can become an government aided school and certain strict criteria need to be met. Therefore, if CSR by companies has an effect on education outcomes, we should expect most of it to show up in the subset of private unaided schools and not so much in the other two categories. On the other hand, if government spending leads to an improvement in education outcomes, we should see all of the effects in government-run and government aided schools. Economic development of the region causing an improvement in education outcomes should affect all types of schools in the region.

Columns (2)-(4) of Table 3 Panel A present the panel regression results of CSR expenditure on enrollment in different types of schools. We find that CSR has a positive and

statistically significant effect on enrollment only in private unadied schools. As shown in Column (2), INR 1 million of CSR expenditure is associated with 153 more enrollment-years in private unaided schools. We also see a slightly negative effect, though not statistically significantly different from zero, on government-aided schools in column (3).[24]

While we do not have the precise estimate of the impact that spending of INR 1 million by the *government* would have had, we can rely on studies of government expenditure on primary education to benchmark the above numbers. For example, Bordoloi et al. (2020), a study by Accountability Initiative India, found that the median amount spent by the state government across eight states in India was INR 21,179 *per student*. This implies that INR 1 million spent by the state governments supports 47.21 students. This is comparable to our estimate based on the contemporaneous per year effect of CSR and smaller than the cumulative effect of CSR over two years. It is also worth pointing out that the calculations for the state government capture the *average* effect of spending INR 1 million. The *marginal* spending required by the state government to enrol *additional* students could be different. For example, the marginal student could either be easier or more difficult to keep in school than the average student.

Our results so far suggest an association between CSR spending and education outcomes at the district level. This can be best thought of a correlation. To get an estimate that one can interpret as close to the causal effect, we use a difference-in-differences approach.

5.4 Enrollment: Difference-in-difference regression

Our identification strategy is motivated by two aspects of the CSR rules. As per the regulation, firms are required to contribute 2% of average profits towards CSR spending. This would suggest that profitable firms should have high CSR spending. Additionally, the regulation encourages companies to invest in CSR in the areas where it operates. Thus, a district with higher aggregate profitability of firms located (headquartered) there would receive a much higher boost CSR funding right when the regulation comes into force.

Using this idea, we create a dummy variable *Top district*, that takes a value 1 for districts

[24]In Table 3 Panel B, the sum of coefficients on *ESG CSR (scaled)* in columns (4)-(6) is not equal to the coefficient on *ESG CSR (scaled)* in column (3) is due to winsorzation.

that are in the top 10% in terms of scaled total profits measured over 2009-2011 of firms which are headquartered there. We scale the aggregate firm profits in a district by the number of schools in 2012. It is important to note that the 2009-2011 period precedes the start of our sample period in the study and therefore profits are being calculated from a period before the law became effective. This is to ensure that the district characteristic being identified preceded the regulation announcement, and therefore, cannot be related to any heterogeneous economic growth or other variables that districts experienced right after the law change. Since the average profits in the CSR rules are the average cross three years, we use the same window length, 3 years, to calculate the aggregated firm profits.

We first check whether districts with more profitable firms indeed received more CSR funding. Figure 2 shows the increase in both CSR spending on all activities and CSR spending on elementary schools for top districts. As we see in Panel A and B of Figure 2 total CSR and education related CSR starts going up in profitable districts after 2014 when the CSR law was enacted. In a regression setting, columns (1) and (2) of Table 3 Panel B suggest that there is a strong statistical and economic association between top district indicator and CSR spending after controlling for our state $\times$ year $\times$ urban ratio and district fixed effects. The regression specification excludes 2014 as it is the year immediately before the regulation came into effect. For the top districts in 2015 and 2016, the changes in total CSR per school is INR 50,000 higher than the changes in non-top districts, and they continued to increase in 2017-2018 to about INR 63,000. A similar trend is seen in CSR spending in elementary schools, which is shown in column (2). In 2015 and 2016, schools in top districts received about INR 12,000 and in 2017-2018 they received INR 16,000 more CSR funding than schools in non-top districts.

A relevant question to ask here is whether *Top district* measured in terms of firm profits is correlated with enrollment through channels other than CSR spending? One could argue that firms don't randomly choose their headquarters. The districts with profitable firms are likely to be on a different development trajectory as compared to districts with few profitable firms or no firms at all. School outcomes are therefore likely to be correlated with economic development and therefore the exclusion restriction will not be satisfied.

To address this concern, we interact the *Top District* with time dummies around when

the CSR rules came into effect. Therefore, the effect of CSR spending is identified from the cross-section of districts which would get the most spending interacted with the exact timing of the law. Under this identification strategy, we expect to see an increase in spending in highly profitable districts exactly at the time when the law came into force. If the results are driven by different economic development trajectories or any other unobserved factors in top and non-top districts, we expect to observe a trend before the CSR rules came into force. However, under our hypothesis, we should expect to see improvement in education outcomes from the year when the CSR mandate came into effect, but not in the prior years.

Following this identification strategy, we use two difference-in-differences specifications. In the first specification, our main independent variables are the interaction terms between the top district indicator and year indicators. Figure 2 illustrates the results on enrollment from the first set of difference-in-differences regressions (see Table A7 for the regression results). 2 Panel C shows that enrollment of schools in top districts starts to rise from 2015, the year when CSR rules came into force, although the differences in the first two years in the post-period are not statistically significant. From the third year in the post-period, the difference becomes statistically significant. Importantly, we find that in the pre-period, the patterns of enrollment in schools in top districts and non-top districts are similar.

In the second specification, our main independent variables are the interaction terms between the top district indicator and two dummies indicating the periods right after the law came into effect. Figure 2 Panel C shows our main findings. First, there are no trend in enrollment before the regulation became effective and therefore we use the pre-period as the left out group. Secondly, the effect on enrollment right after the enactment of the law (2015 and 2016) is on an upward trend but is much weaker in comparison to 2018 and 2019. Motivated by this in our regression setting we break down the post period into two dummies capturing the 2015-2016 and 2017-2018 effect. In columns (3)-(5), we present the results on enrollment from our second set of difference-in-differences regressions.

Column (3) of Panel B presents the effect on enrollment scaled by the number of schools in top districts. We observe the coefficient on top district $\times$ 2017-2018 year dummy is significant. The coefficient implies the changes in enrollment per school in top districts is 4.134 higher than the schools in non-top districts. Based on the aggregated CSR spending in

education projects and improvement in enrollment in all four years after 2015, we estimate the cumulative effect of INR 1 million spent in CSR leads to keeping 221 children in school for a year. In other words, the marginal cost of keeping one student in school for one year is about INR 4,524. Out estimate may not fully account for the potential effect of the CSR spent during our sample period since the effect may occur with a lag or after the end of our sample period. On the other hand, CSR spending in non-education projects, such as projects to improve health, can also affect school outcomes. Using the aggregated CSR spending in all projects rather than in education projects, we estimate that INR 1 million spent leads to keeping 55 children in school for a year.

Also, CSR spending in non-education projects can potentially improve school outcomes as well. For example, a project that is aimed to reduce poverty, improve health outcomes for mothers and children, and create jobs can potentially lead to more students in schools. Using total CSR spending in all projects, we estimate the cumulative effect of INR 1 million spent leads to a 55 student-year enrollment increase. This can be thought of as the lower bound impact estimate.

In Table A6 we break down the difference-in-differences analysis into year by year dummies. The coefficients on *Top district* interacted with year 2012 and 2013 dummies are insignificant in column (3), suggesting that top districts and non-top districts have a similar trend before 2015. The coefficients on the interaction terms start to increase exactly at the time when the CSR rules became effective, and the effect on enrollment continues in 2016, 2017 and 2018. The pattern is also shown in Figure A6 Panel C, which plots the coefficients in column (3) of Table A6. Again, there are no pre-trends in the enrollment across top and non-top districts and all of the increase in enrollment comes after 2015 when the CSR law came into being in top districts relative to the non-top districts.

In columns (3)-(5) of Table 3 Panel B, we break down our analysis by types of school. Similar to the panel regressions, we find the effect on enrollment is in private unaided schools in the years 2017 and 2018. Specifically, a INR 1 million CSR investment leads to a 5.034 increase in enrollment in private unaided schools in top districts as compared to non-top districts. We do not observe the same for government and government aided schools where the effect is statistically insignificant. Figure 2 Panel D, presents the difference-in-difference

coefficients of broken down year-by-year. Comparing the trends in government aided, government and private unaided schools suggest that most of the effects in top districts in enrollment are coming from private unaided schools where we see a greater relative growth in enrollment post 2015. Table A6, columns(4) to (6) also present the same.

An advantage of our current difference-in-difference setting is that we do not need to worry about whether the effect on enrollment is coming right after the enactment (2016) or from the following years because we are capturing the cumulative effect of CSR investment. Often times in evaluating the real outcomes, it is difficult to assess for example whether spending in t-1 will have an effect on outcomes in t or t+1. Therefore in our OLS specifications we include lagged CSR spending. Given the small time series inclusion of multiple lags may not be informative. In the difference-in-differences regressions if the effects of high CSR spending converts to real outcomes one year or two year out it will be all captured in the year by year effects. However, a downside of our methodology is that we cannot distinguish between contemporaneous effects and lagged effects and as to when exactly the lagged effects will kick in.

5.5 Other School Outcomes

The directed CSR investment might have an effect on other school related outcomes. In addition to enrollment, the DISE dataset provides the number of teachers and detailed information on school infrastructure facilities. We next examine the effect of CSR on other additional school outcomes. Focusing on other outcomes also alleviates another concern of data quality. DISE data is self-reported and government schools might overstate enrollment (Group, 2016) for financial gains. If we find similar results with outcomes other than enrollment then it cannot be on account of self reporting biases. We can only measure the CSR investments in schools as a whole and we don't know how the money is spent. For example, we don't know if the money is used for building a new school or adding a new toilet. Therefore, any effect documented here should be interpreted as in addition to the improvements reported in our main results.

Table 4 Panel A presents results on the effect of CSR on other school outcomes. In Panel A we present our panel regression results where we control for lagged CSR spending and

state × year × urban ratio and district fixed effects. First, we see that that increased CSR spending is associated with an increase in the number of teachers. Specifically, a INR 1 million spending is associated with an addition of 6 new teachers in a year. The increased CSR spending is also associated with an increased provision of infrastructure and supplies in elementary schools. Column (2) and (3) of Table 4, Panel A that CSR spending is associated with higher provision of toilets. Provision of toilets for girls has been an issue for many schools in India (Adjukia, 2017). To that end, INR 1 million in CSR leads to provision of at least 4 new female or male toilets (columns (2) and (3)) in a year. We also find that CSR investment has a significant effect on the number of computers and books provided, as shown in column (4) and column (5). INR 1 million in CSR provides, in addition to all of the effect documented earlier, also provides for 7 computers and 1,022 new books across all the schools in a district in a year. In Panel B of Table 4 we present the results from our difference-in-differences estimation for the additional school outcomes. We find improvement in school facilities from 2015.

Additionally, we break down our difference-in-differences estimates year by year in Table A7 and plot the coefficients in Figure 3. Our year-by-year results suggest that all of the effect of CSR spending in top districts on teachers, toilets, books and computers come after the enactment from the law starting in 2015.

Table A10 breaks down our additional outcomes by type of school. Similar to enrollment, we find that most of the effect on teachers, toilets and school supplies are in private unaided schools.

Our results, taken together, suggest that CSR spending leads to an improvement in enrollment and other school related outcomes in India. These results also alleviate concern of data quality. As mentioned earlier, DISE data are self-reported and therefore some schools, especially government supported schools, have incentive to overstate their enrollment. However, they have less incentive to overstate school facilities because government support are mainly associated with enrollment.

5.6 Number of Schools

In this section we study whether CSR spending is associated with an increase in the number of schools. Table 5 presents our OLS and DID regressions and we find weak evidence of the effect of CSR spending on the number of schools.

In column (1) Panel A, we regress scaled CSR spending on the number of schools. We find a INR 1 million spending is associated with 0.2 more schools in a year. This effect is statistically significant. In column (1) Panel B, we test the effect on the number of schools in the DID setting. The coefficients on the interaction terms between Top district dummy and Post dummies are positive, but they are statistically insignificant.

In column (2) we examine the effect of CSR on the number of new schools. We regard a school as new if the school enters into DISE data during our sample period and the year of entry is within three years from the reported year of establishment. Column (2) shows no association between CSR spending and the number of new schools. In column (3), the dependent variable is the number of existing schools, and we find a positive association between CSR spending and the number of existing schools. A school with few students is no longer economically viable and it may be shut down or merged with another school. For example, Group (2016) mentions that in 2014-15, 23,700 government schools were merged or closed down in Rajasthan, Maharashtra and Chhattisgarh. The result in column (3) suggests that CSR spending helps preventing some schools from shutting down.[25] These results suggest that the improvement in enrollment is from existing schools.

5.7 Grade Repetition

Our results suggest that mandatory CSR investment leads to positive increase in enrollment and other related outcomes. It is possible that the increased enrollment could reduce the focus on the quality of education. To that end, we next study the effect of CSR on the number of students who have to repeat a grade. We think of grade repetition as an indicator of success in educational outcomes.[26]

[25]The sum of coefficients on *Edu CSR (scaled)* in columns (2) and (3) is not exactly equal to the coefficient on *Edu CSR (scaled)* in column (1) due to winsorization.

[26]DISE also reports the number of students who received distinction or who passed exams in class V or class VIII. But this information is missing for the earlier part of our sample period. The only measure of

Table 6 Panel A presents these results. We do not find any evidence that CSR expenditure increases the number of students, both boys and girls, that had to repeat a grade. Note that this is despite the fact that the total enrolments go up due to CSR. Our difference-in-difference results presented in Table 6, Panel B and Table A9 corroborate these findings. These results are indicative of the fact that mandatory CSR investment is not negatively affecting the educational success of a school by shifting the goals away from academic achievement.[27]

6 Robustness

6.1 Alternative specifications

In this subsection, we check whether our baseline results on enrollment hold up in alternative regression specifications.

In column (1) of Table A4 we add the second lagged term of *Edu CSR (scaled)* as an additional control variable. Given our outcome variable is enrollment, real effects of CSR might take some time to have an effect. We find that the second lagged term of *Edu CSR (scaled)* is statistically significant. Specifically a INR 1 million CSR investment is associated with an 108 student-year enrollment.

In column (2) - (4), we control for alternative metrics of economic development. As discussed earlier, one of the concerns with our baseline regressions would be omitted variables like economic development that can lead to both an increase in enrollment as well as CSR investment. Inclusion of district and state *times* year *times* urban fixed effects might mitigate this problem to some extent however economic trends can still have an effect on enrollment and CSR investment. To address this concern to some extent we include economic development indicators in our regressions. In column (2) we control for nightlights which is measured as..... In column (3) we include total amount of deposits of all commercial banks as an alternative economic indicator. Lastly, in column (3) we include credit

academic achievement that is available for all years in our sample period is the number of students who repeat a grade.

[27]The sum of coefficients on *ESG CSR (scaled)* in columns (2) and (3) is not equal to the coefficient on *ESG CSR (scaled)* in column (1) is due to winsorzation.

from all commercial banks as an additional control variable. None of these are statistically significant.

In columns (5) and (6) we use an alternative measures of CSR expenditure in elementary schools. In our baseline regressions, for projects than span more than one district we allocate CSR spending based on proportion to the population. In column (5) we assume that CSR expenditure is equally distributed among these districts. Again the allocation of pan India projects does not effect the results.

In column (6), instead of the rupee value of CSR investment, we use the number of projects scaled by number of schools (2011-2012) as the main independent variable. This measures the intensity of CSR activities and does not need any additional assumptions about how to allocate across districts in creating the measure (each instance of a project in a district is considered a separate project). We find that number of projects is also strongly associated with enrollment with both number of CSR projects and the lagged number of projects being statistically significant.

As mentioned before, we exclude 330 observations from the sample used for our main tests because of large discrepancies between DISE data and the Statistical Year Book India data. In column (7), we remove this restriction and rerun our baseline specification. Our results are qualitatively similar to our baseline regressions. Last, in column (8), we use the district-level population to scale both enrollment and CSR expenditure. Again our results suggest that similar to our baseline regressions.

In Table A5, we present the same robustness checks for the difference-in-differences regressions. Again our results are robust to inclusion of additional economic indicators (columns (1)-(3)), exclusion of the 330 discrepant observations (column (5)) and scaling by population instead of the number of schools (column (5)). In sum, our results suggest a robust causal association between CSR investment and elementary school enrollment.

7 Conclusion

We study whether the effect of CSR spending by firms in response to a regulation on real outcomes in the education sector. Our experiment is set in India, where the Companies

Act of 2013 required firms to spend 2% of their profits on CSR. The law took the form of a comply-or-explain regulation, and firms that did not spend the mandated 2% of profits could get away by explaining their reasons for non-compliance. What was considered as an acceptable explanation was not specified and there were no instances of firms being punished for non-compliance during our sample period. Given the nature of the regulation, it would not be surprising if firms decided to avoid the regulation or do CSR simply as a "window dressing" exercise. However, we find that firms did engage in CSR projects as laid out in the guidelines of the Companies Act. Further, we find that this directed philanthropy helped increase the number of schools, the number of teachers, and enrollment. INR 1 million of directed corporate philanthropy led to 138 new students. We also find that CSR investments led to significant improvement in other school-related outcomes in a district, such as number of teachers, provision of toilets, books, and computers. These findings suggest that corporate philanthropy, even when undertaken in response to a regulatory push, can indeed have the desired effect, especially in a resource constrained country like India.

One caveat to our results is that we cannot assess the welfare effects of increased enrollment. For example, does increased enrollment lead to negative social consequences in terms of crowding out of other types of government investment? Also, as some districts grow faster with an increase in CSR investment as compared to other districts this could potentially increase inequality. This question though important is beyond the scope of the paper.

Our focus is related to another big policy issues as to whether investment in vital sectors like health and education should be funded through increased corporate taxation or coercing firms to make CSR investments. In India, improvement in welfare has traditionally been conducted through a tax based system. However the fact remains that the inefficiencies and the flawed tax system (George and Reddy, 2015) does not allow for resources to be allocated to the marginalised section of society. Added to this is the corruption that is deeply embedded in the Indian system. Again, comparing a tax and its effectiveness to the mandate allowing firms to make their own CSR investments is a difficult comparison to make in our setting.

The success of the CSR regulation in India could potentially serve as a road map for many other developing countries that are trying to motivate the private sector to invest in

sectors like education and health. These findings might also be of interest to non-government entities, such as association of ESG-focused institutional investors, who are interested in increasing the breadth of firms that engage in CSR activities.

References

2020. 'the scarlet letters': Information disclosure and self-regulation: Evidence from antibiotic use in denmark. *Journal of Environmental Economics and Management* 104:102385–.

Adjukia, A. 2017. Sanitation and education. *American Economic Journal: Applied Economics* 9:23–59.

Bekkers, R., and P. Wiepking. 2011. A literature review of empirical studies of philanthropy. *Nonprofit and Voluntary Sector Quarterly* 40:924–73. ISSN 0899-7640. doi: 10.1177/0899764010380927.

Benabou, R., and J. Tirole. 2010. Individual and corporate social responsibility. *Economica* 77:1–19.

Bertrand, M., M. Bombardini, R. Fisman, and F. Trebbi. 2020. Tax-exempt lobbying: Corporate philanthropy as a tool for political influence. *American Economic Review* 110:2065–102. doi:10.1257/aer.20180615.

Bertrand, M., P. Mehta, and S. Mullainathan. 2002. Ferreting out tunneling: An application to indian business groups. *The Quarterly Journal of Economics* 117:121–48.

Beyer, R. C. M., E. Chhabra, V. Galdo, and M. G. Rama. 2018. Measuring districts' monthly economic activity from outer space. *Working Paper* 1–31.

Bordoloi, M., S. Pandey, V. Irava, and R. Junnarkar. 2020. State education finances.

Chen, Y.-C., M. Hung, and Y. Wang. 2018. The effect of mandatory csr disclosure on firm profitability and social externalities: Evidence from china. *Journal of Accounting and Economics* 65:169–90.

Cheng, I.-H., H. Hong, and K. Shue. 2016. Do Managers Do Good with Other People's Money? Working paper, National Bureau of Economic Research, Inc.

Dharmapala, D., and V. Khanna. 2018. The impact of mandated corporate social responsibility: Evidence from india's companies act of 2013. *International Review of Law and Economics* 56:92–104.

Dimson, E., O. Karakaş, and X. Li. 2015. Active Ownership. *The Review of Financial Studies* 28:3225–68.

Edmans, A. 2011. Does the stock market fully value intangibles? employee satisfaction and equity prices. *Journal of Financial Economics* 101:621–40.

Fisk, J. M., and A. Good. 2019. Information booms and busts: Examining oil and gas disclosure policies across the states. *Energy Policy* 127:374–81.

George, R., and Y. Reddy. 2015. Corporate tax in emerging countries: some aspects of india. *International Journal of Law and Management* 57:357–66.

Greening, D. W., and D. B. Turban. 2000. Corporate social performance as a competitive advantage in attracting a quality workforce. *Business Society* 39:254–80. ISSN 0007-6503. doi:10.1177/000765030003900302.

Group, W. B. 2016. Value for money from public education expenditure on elementary education in india. doi:10.1596/24954.

Hart, O., and L. Zingales. 2017. Companies should maximize shareholder welfare not market value. *Journal of Law, Finance, and Accounting* 2:247–74.

Jones, D. A. 2010. Does serving the community also serve the company? using organizational identification and social exchange theories to understand employee responses to a volunteerism programme. *Journal of Occupational and Organizational Psychology* 83:857–78. ISSN 09631798. doi:10.1348/096317909X477495.

Kanashiro, P. 2020. Can environmental governance lower toxic emissions? a panel study of u.s. high-polluting industries. *Business Strategy and the Environment* 29:1634–46.

Kingdon, G. G. 2017. The private schooling phenomenon in india: A review. *DoQSS Working Papers* .

Krueger, P., D. Metzger, and J. Wu. 2020. The sustainability wage gap. *SSRN Electronic Journal* ISSN 1556-5068. doi:10.2139/ssrn.3672492.

Krueger, P., Z. Sautner, D. Y. Tang, and R. Zhong. 2021. The effects of mandatory esg disclosure around the world. *European Corporate Governance Institute–Finance Working Paper* 21–44.

Liang, H., and L. Renneboog. 2017. Corporate donations and shareholder value. *Oxford Review of Economic Policy* 33:278–316.

Lins, K. V., H. Servaes, and A. Tamayo. 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance* 72:1785–824.

List, J. A. 2011. The market for charitable giving. *Journal of Economic Perspectives* 25:157–80. ISSN 08953309. doi:10.1257/jep.25.2.157.

Manchiraju, H., and S. Rajgopal. 2017. Does corporate social responsibility (csr) create shareholder value? evidence from the indian companies act 2013. *Journal of Accounting Research* 55:1257–300.

Masulis, R. W., and S. W. Reza. 2015. Agency problems of corporate philanthropy. *Review of Financial Studies* 28:592–636. ISSN 14657368.

Naaraayanan, S. L., K. Sachdeva, and V. Sharma. 2021. The real effects of environmental activist investing. *European Corporate Governance Institute–Finance Working Paper* .

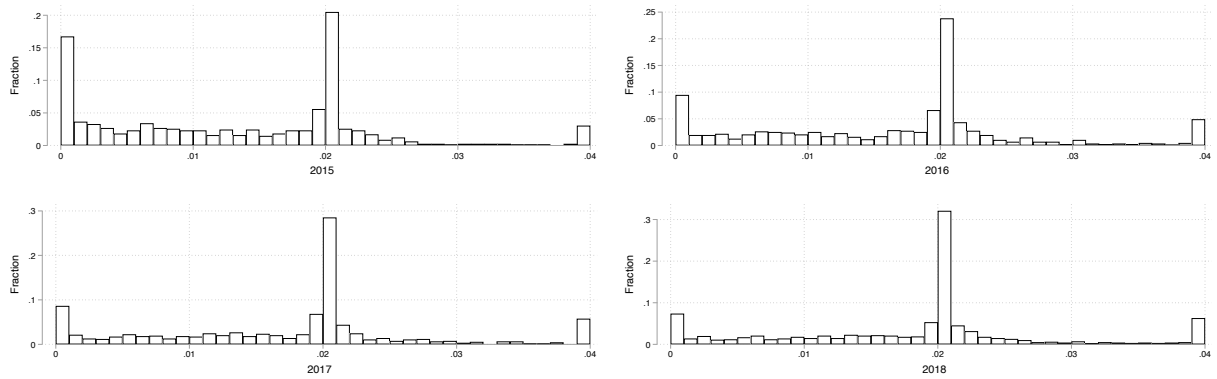
Rajgopal, S., and P. L. Tantri. 2022. Does mandated corporate social responsibility reduce intrinsic motivation ? evidence from india.

Servaes, H., and A. Tamayo. 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science* 59:1045–61.

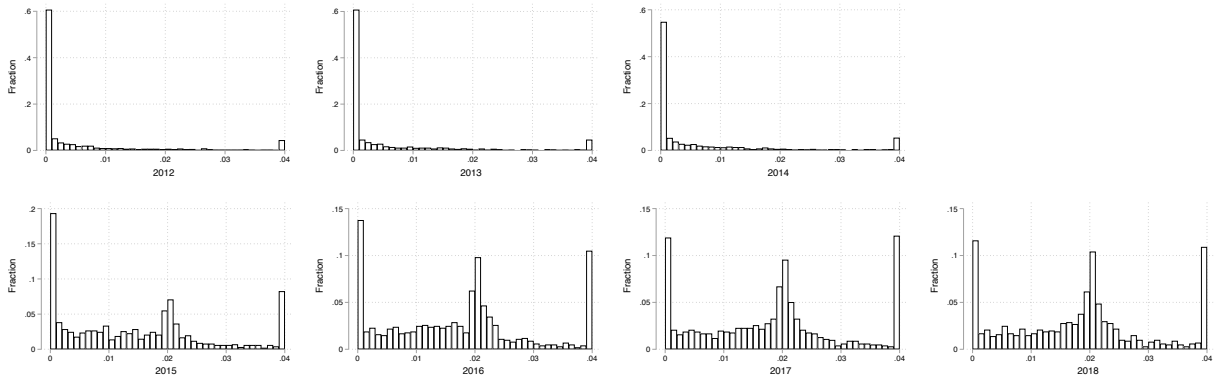
Yang, L., N. Z. Muller, and P. Jinghong Liang. 2021. The real effects of mandatory csr disclosure on emissions: Evidence from the greenhouse gas reporting program. Working Paper 28984, National Bureau of Economic Research.

Figure 1: **CSR spending**

(a) CSR spending trend in PRIME data
This figure shows firm level CSR spending scaled by profits from 2015-2018. The definition of CSR spending in PRIME matches that of the Companies Act of 2013. The sample consists of firms that are listed in NSE and meet the CSR spending rules. Profits are average profits measured three years prior to CSR spending.



(b) CSR spending trend in Prowess data
This figure shows firm level CSR spending scaled by profits from 2012-2018. The sample consists of firms that are listed in NSE and meet the CSR spending rules. The CSR spending rules came into effect in 2015 and in the period before 2015 the rules are applied retroactively. CSR is defined as the sum of donations, social community, and environment related expenditures. Profits are average profits measured three years prior to CSR spending.



(c) Aggregated CSR over time
This figure presents the aggregated CSR spending in Prowess data. CSR proxy in Prowess is the sum of donations, social community, and environment related expenditures (INR million) and does not meet the definition of CSR spending in the Companies Act of 2013. Prowess covers both public and private firms. CSR spending by all firms in Prowess is included.

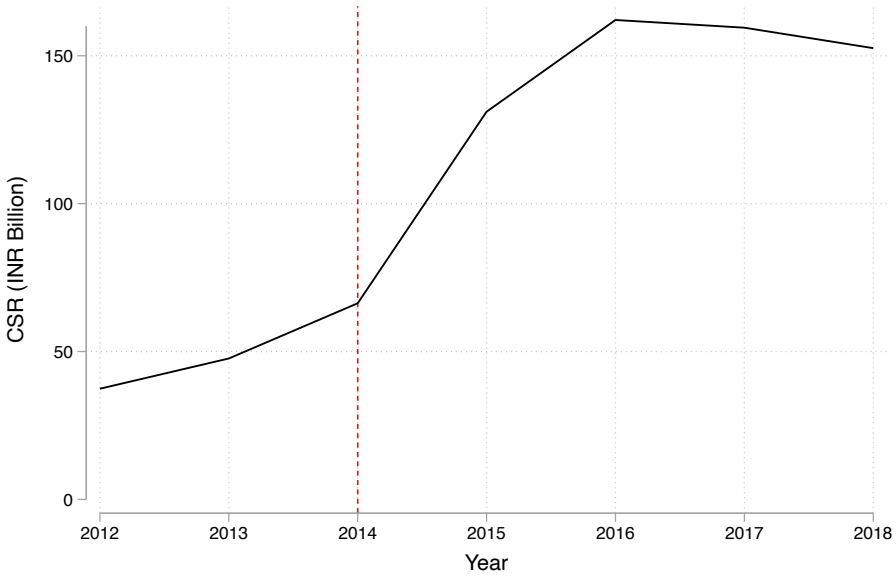
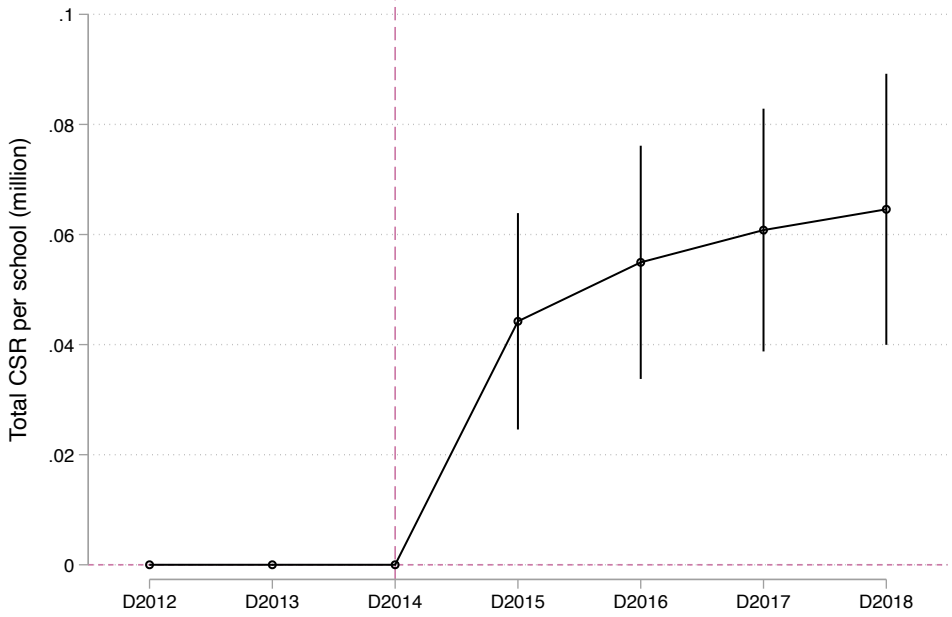
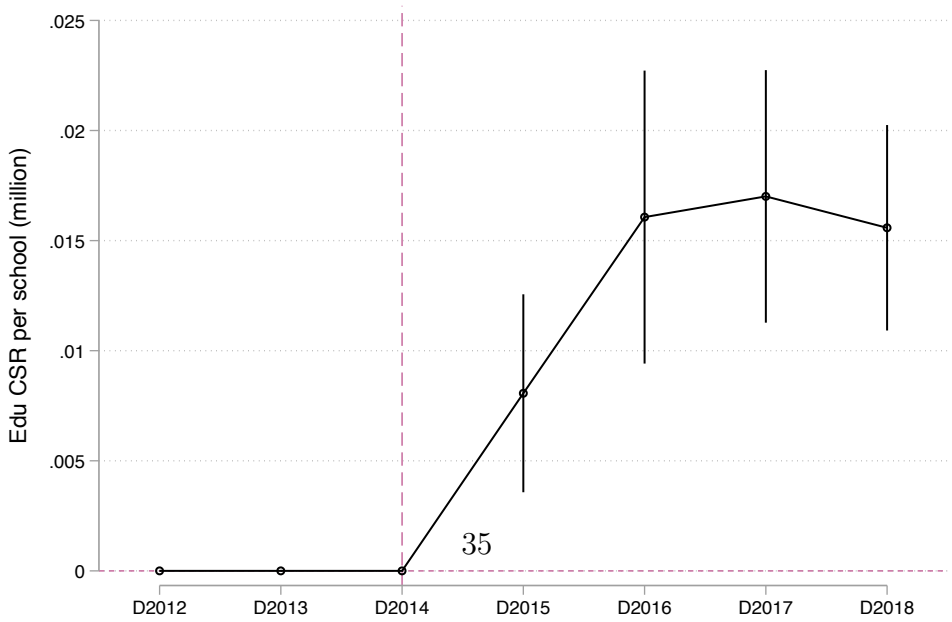


Figure 2: **CSR expenditure and enrolment in districts with most profitable firms** This figure plots estimates from the Difference-in-Differences regressions in Table A6. Panel A plots the coefficients in column (1); Panel B plots the coefficients in column (2); Panel C plots the coefficients in columns (3); Panel D plots the coefficients in columns (4)-(6). They illustrate the CSR expenditure and enrollment in districts with most profitable firms in comparison with these in the other districts across years. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *D2012*, *D2013*, *D2014*, *D2015*, *D2016*, *D2017*, and *D2018* are interaction terms between *Top district* and year indicators.

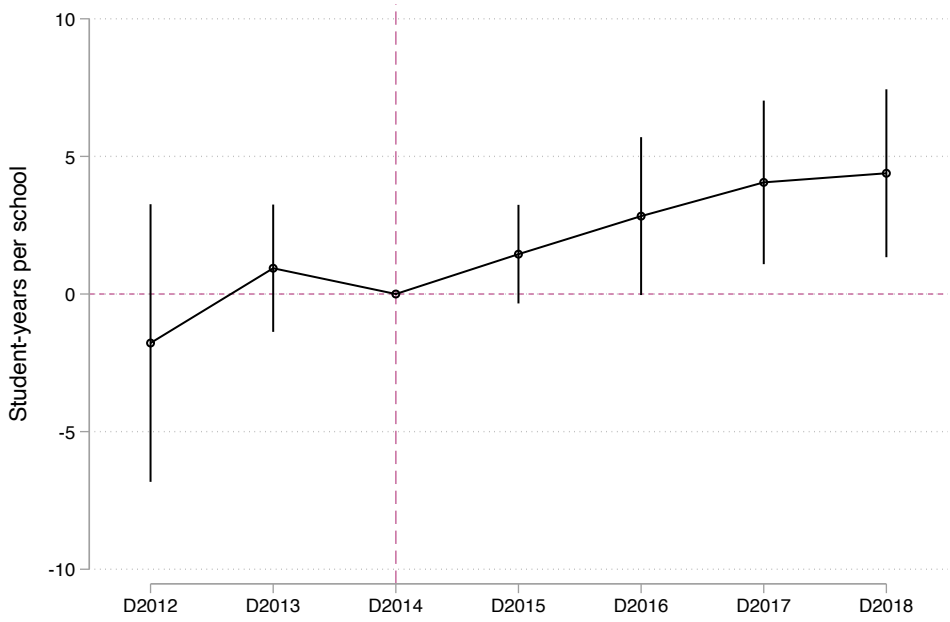
Panel A: Total CSR (scaled)



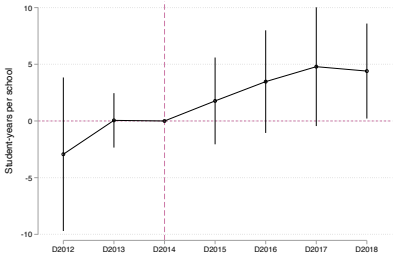
Panel B: Edu CSR (scaled)



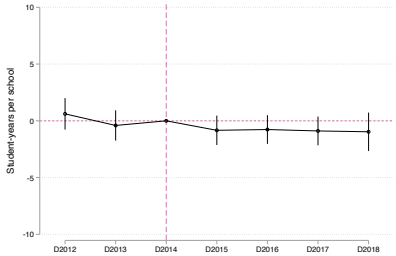
Panel C: Enrollment (scaled)



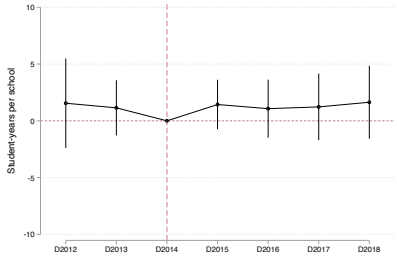
Panel D: Enrollment (scaled) by school type



(a) Prvt unaided

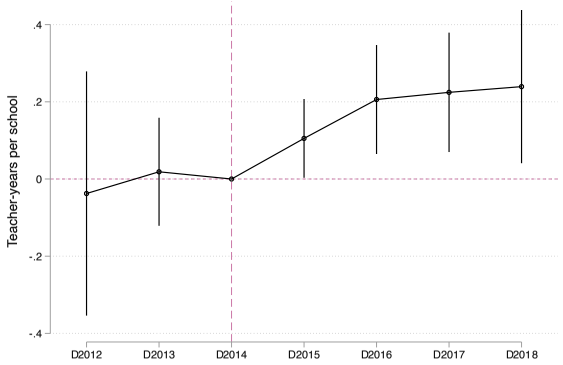


(b) Govt aided

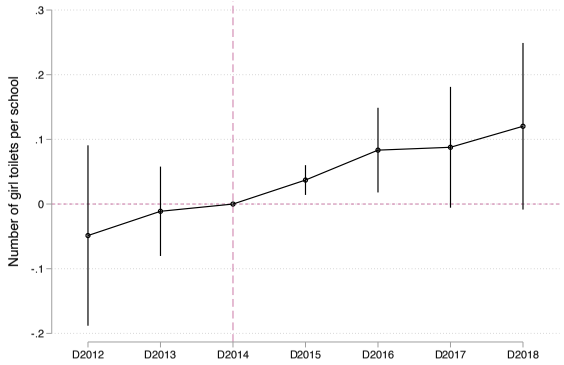


(c) Govt

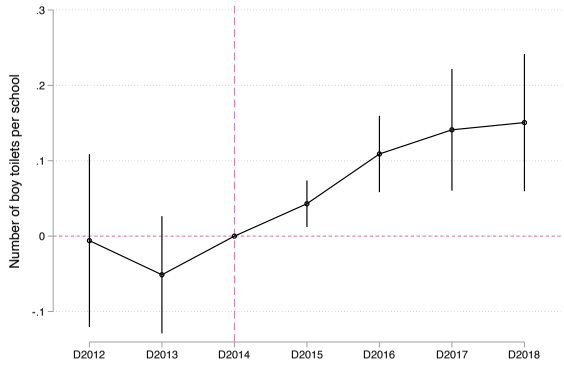
Figure 3: **Education outcomes in districts with most profitable firms**
This figure plots estimates from the Difference-in-Differences regressions in Table A7. Figures (a)-(e) plots the coefficients in column (1)-(5), respectively. They illustrate the number of teachers and school facilities in districts with most profitable firms in comparison with these in the other districts across years. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *D2012*, *D2013*, *D2014*, *D2015*, *D2016*, *D2017*, and *D2018* are interaction terms between *Top district* and year indicators.



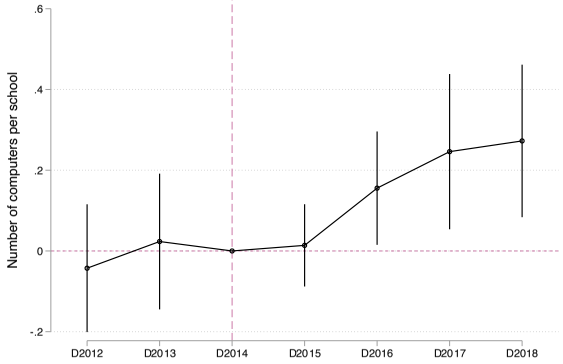
(a) Number of teachers (scaled)



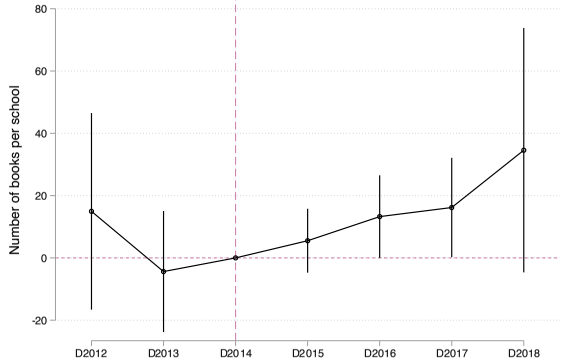
(b) Number of girl toilets (scaled)



(c) Number of boy toilets (scaled)

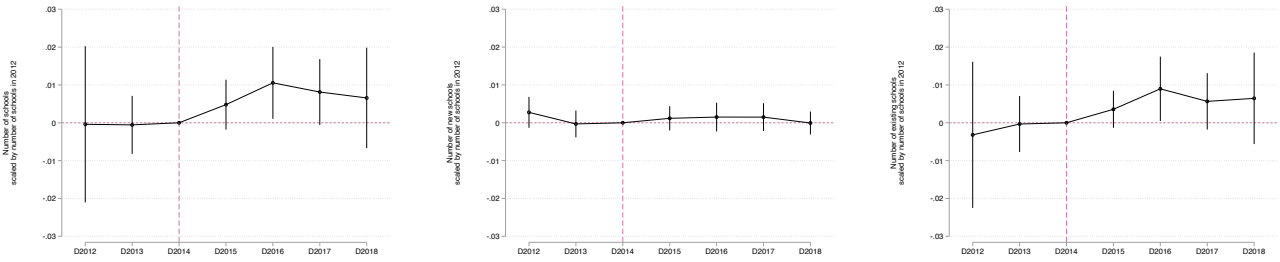


(d) Number of computers (scaled)



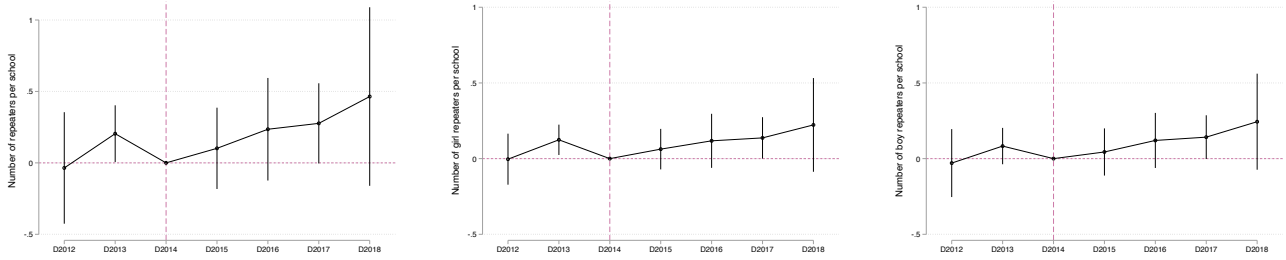
(e) Number of books (scaled)

Figure 4: **Number of schools in districts with most profitable firms**
This figure plots estimates from the Difference-in-Differences regressions in Table A8. Figures (a)-(c) plots the coefficients in column (1)-(3), respectively. They illustrate the number of schools, number of new schools and number of existing schools in districts with most profitable firms in comparison with these in the other districts across years. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *D2012*, *D2013*, *D2014*, *D2015*, *D2016*, *D2017*, and *D2018* are interaction terms between *Top district* and year indicators.



(a) All schools (b) New schools (c) Existing schools

Figure 5: **Number of repeaters in districts with most profitable firms**
This figure plots estimates from the Difference-in-Differences regressions in Table A9. Figures (a)-(c) plots the coefficients in column (1)-(3), respectively. They illustrate the number of repeaters, number of girl repeaters and number of boy repeaters in districts with most profitable firms in comparison with these in the other districts across years. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *D2012*, *D2013*, *D2014*, *D2015*, *D2016*, *D2017*, and *D2018* are interaction terms between *Top district* and year indicators.



(a) Repeaters (b) Girl repeaters (c) Boy repeaters

Table 1: **Summary Statistics**
The table presents the summary statistics for our main variables. We obtain CSR spending and education outcomes data from PRIME and DISE respectively. The sample consists of district-year observations from 2011-12 to 2017-18. *Total CSR* is the total amount of CSR spending by NSE firms in all sectors (INR million) and *Edu CSR* is the total amount of CSR spending by NSE firms in elementary schools (INR million). *Enrollment* is the total number of enrollment in elementary schools. *Enrollment (prvt unaided)* is the total number of enrollment in elementary schools managed by private boards. *Enrollment (govt aided)* is the total number of enrollment in elementary schools managed by private boards but aided by the government. *Enrollment (govt)* is the total number of enrollment in elementary schools fully managed by the government. *Teachers* is the number of teachers in elementary schools. *Girl toilets* is the number of girl toilets in elementary schools. *Boy toilets* is the number of boy toilets in elementary schools. *Computers* is the number of computers in elementary schools. *Books* is the number of books in elementary school libraries. *Schools* is the number of elementary schools. The scaled CSR and education outcome variables are scaled by the number of schools in 2011-12. *Nightlights* is measured as the average monthly nightlights in a district divided by the area of the district. *Deposits* is the total amount of deposits in scheduled commercial banks in a district (INR trillion). *Credit* is the bank credit of scheduled commercial banks in a district (INR trillion). *Urban ratio* is the ratio of urban population to total population in a district. All variables are winsorized at 1% and 99%. All variables are defined in Appendix A.

Variable	N	Mean	SD	Min	p25	p50	p75	Max
Total CSR	3,905	30.63	88.73	0	0	0.25	14.43	620.22
Edu CSR	3,905	9.35	28.91	0	0	0	3.24	196.59
Enrollment	3,905	309,895.32	250,391.68	6,795	133,011	248,786	421,160	1,306,339
Schools	3,905	2,308.25	1,458.08	72	1,208	2,113	3,091	6,800
Total CSR (scaled)	3,905	0.013	0.040	0	0	0	0.008	0.300
Edu CSR (scaled)	3,905	0.004	0.012	0	0	0	0.002	0.080
Enrollment (scaled)	3,905	138.73	73.71	37.23	87.06	123.20	167.28	390.73
Enrollment (prvt unaided, scaled)	3,857	40.91	34.84	2.34	16.38	30.27	57.26	193.63
Enrollment (govt aided, scaled)	3,857	11.24	21.11	-	0.25	3.15	10.03	106.26
Enrollment (govt, scaled)	3,905	85.65	64.07	21.15	49.20	67.76	93.37	337.21
Teachers (scaled)	3,905	6.10	3.02	2.52	4.11	5.25	7.08	18.95
Girl toilets (scaled)	3,905	1.66	1.02	0.44	1.13	1.34	1.76	6.39
Boy toilets (scaled)	3,905	1.50	0.87	0.22	1.07	1.28	1.67	5.66
Computers (scaled)	3,905	2.23	2.72	0.07	0.52	1.08	2.76	13.19
Books (scaled)	3,905	410.89	396.65	23.86	136.50	255.31	558.57	1,901.37
Schools (scaled)	3,905	1.03	0.08	0.81	0.99	1.02	1.06	1.31
Schools (new, scaled)	3,905	0.01	0.01	0	0.003	0.01	0.01	0.08
Schools (existing, scaled)	3,905	1.02	0.08	0.80	0.98	1.00	1.05	1.28
Repeaters (scaled)	3,905	0.95	1.64	0	0.06	0.35	1.04	9.94
Girl repeaters (scaled)	3,905	0.43	0.78	0	0.02	0.15	0.46	4.90
Boy repeaters (scaled)	3,905	0.52	0.90	0	0.03	0.19	0.57	5.50
Urban ratio	3,905	0.25	0.19	0.03	0.11	0.19	0.32	0.99
Nightlights	3,886	3.50	8.11	0.00	0.44	1.13	3.42	62.70
Deposits	3,889	4.28	8.89	0.03	0.76	1.65	3.78	68.09
Credit	3,889	2.64	6.81	0.01	0.32	0.80	2.12	57.17

Table 2: **Regional CSR spending**
This table shows CSR spending broken down by regional characteristics. *Edu CSR* is the district-wise aggregated CSR expenditure in elementary school related projects (INR '000). *Edu CSR (scaled)* is *Edu CSR* divided by the number of schools in 2011-12. Panels A-F show *Edu CSR* and *Edu CSR (scaled)* by economic development, measured by urban ratio, nightlights, deposits, bank credit, literacy, and % of villages that have roads quintiles respectively. All variables are winsorized at 1% and 99%. All variables are defined in Appendix A.

	Quintile				
(INR '000)	1	2	3	4	5
			Panel A: Urban ratio		
Edu CSR	2,044.73	4,773.57	6,888.58	11,219.95	22,676.64
Edu CSR (scaled)	0.86	1.91	2.49	4.71	9.64
			Panel B: Nightlights		
Edu CSR	1,510.82	5,080.94	5,553.80	10,158.61	24,825.00
Edu CSR (scaled)	0.97	2.17	1.86	3.81	10.59
			Panel C: Deposits		
Edu CSR	551.43	2,175.20	5,527.26	10,357.17	29,017.32
Edu CSR (scaled)	0.68	1.36	2.73	4.21	10.58
			Panel D: Credit		
Edu CSR	655.14	3,108.39	5,271.09	9,608.57	28,879.52
Edu CSR (scaled)	0.76	1.80	2.43	3.89	10.64
			Panel E: Literacy		
Edu CSR	655.14	3,108.39	5,271.09	9,608.57	28,879.52
Edu CSR (scaled)	1.51	2.09	3.74	5.46	6.64
			Panel F: % of villages that have roads		
Edu CSR	7,160.59	5,461.69	5,756.72	12,603.44	10,778.17
Edu CSR (scaled)	2.30	2.02	2.02	5.24	6.21

Table 3: **Impact of CSR spending on enrollment**
This table reports OLS and difference-in-differences regressions in which the dependent variables are total enrollment and enrollment broken down by school type. The sample consists of district-year observations from 2011-12 to 2017-18. *Enrollment (scaled)* is the number of students enrolled in elementary schools scaled by the number of schools in 2011-12. *Total CSR (scaled)* is the total amount of CSR spending by NSE firms in all sectors (INR million) scaled by the number of schools in 2011-12. Private unaided schools are schools that are managed by private school management boards. Government aided schools are schools that are managed by private school management boards but receive financial support from the government. Government schools are schools that are managed by the government. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗ ∗ ∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A

Dependent var	Enrollment (scaled)			
School type	All	Prvt unaided	Govt aided	Govt
	(1)	(2)	(3)	(4)
Edu CSR (scaled)	49.017**	67.312*	-21.272	26.714
	(2.537)	(1.822)	(-1.556)	(1.054)
Edu CSR (scaled, lag)	89.166**	86.246**	-9.673	12.355
	(2.197)	(2.088)	(-1.060)	(1.516)
Observations	3,705	3,658	3,658	3,705
R-squared	0.993	0.976	0.992	0.995
State×Year×Urban5 FE	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes

Panel B

Dependent var	Total CSR (scaled)	Edu CSR (scaled)	Enrollment (scaled)			
			All	Prvt unaided	Govt aided	Govt
	(1)	(2)	(3)	(4)	(5)	(6)
Top district * 2015-2016	0.050***	0.012***	2.052	3.059	-0.711	0.566
	(0.000)	(0.000)	(0.168)	(0.250)	(0.204)	(0.710)
Top district * 2017-2018	0.063***	0.016***	4.134**	5.034*	-0.839	0.743
	(0.000)	(0.000)	(0.049)	(0.073)	(0.244)	(0.559)
Observations	3,705	3,705	3,705	3,658	2,923	3,705
R-squared	0.766	0.710	0.993	0.975	0.992	0.995
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: **Impact of CSR spending on other outcomes**
This table reports the OLS and difference-in-differences regression results, in which dependent variables are the number of teachers, number of girl toilets, number of boy toilets, number of computers, and number of books. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All education outcomes are scaled by the number of schools in 2011-12. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. $***$, $**$, and $*$ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A

Dependent var	Teachers (scaled)	Girl toilets (scaled)	Boy toilets (scaled)	Computers (scaled)	Books (scaled)
	(1)	(2)	(3)	(4)	(5)
Edu CSR (scaled)	4.108***	1.872***	1.935***	4.591***	423.774***
	(3.972)	(2.920)	(3.015)	(3.376)	(2.833)
Edu CSR (scaled, lag)	1.587	1.560	1.793*	2.238	599.842**
	(0.787)	(1.541)	(2.019)	(1.074)	(2.719)
Observations	3,705	3,705	3,705	3,705	3,705
R-squared	0.991	0.989	0.982	0.993	0.996
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes

Panel B

Dependent var	Teachers (scaled)	Girl toilets (scaled)	Boy toilets (scaled)	Computers (scaled)	Books (scaled)
	(1)	(2)	(3)	(4)	(5)
Top district × 2015-2016	0.154**	0.072**	0.097***	0.082	8.766
	(0.030)	(0.029)	(0.004)	(0.317)	(0.317)
Top district × 2017-2018	0.231**	0.116	0.167***	0.257**	24.758
	(0.047)	(0.113)	(0.008)	(0.045)	(0.149)
Observations	3,705	3,705	3,705	3,705	3,705
R-squared	0.991	0.989	0.982	0.993	0.996
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes

Table 5: **Impact of CSR spending on the number of schools**
This table reports OLS and difference-in-differences regression results, in which the dependent variables are the number of schools, number of new schools, and number of existing schools. The sample consists of district-year observations from 2011-12 to 2017-18. *Schools (scaled)* is the number of schools in a district scaled by the number of schools in 2011-12. A school is considered new if it enters DISE data during our sample period and its year of entry is within three years from its year of establishment. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗ ∗ ∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A

Dependent var	Schools (scaled)		
	All	New	Existing
	(1)	(2)	(3)
Edu CSR (scaled)	0.148**	-0.033	0.175**
	(2.218)	(-1.413)	(2.706)
Edu CSR (scaled, lag)	0.102	0.034	0.061
	(0.759)	(0.790)	(0.578)
Observations	3,705	3,390	3,390
R-squared	0.911	0.613	0.921
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Panel B

Dependent var	Schools (scaled)		
	All	New	Existing
	(1)	(2)	(3)
Top district * Post (2015-2016)	0.008	0.001	0.006*
	(0.125)	(0.352)	(0.096)
Top district * Post (2017-2018)	0.008	0.001	0.006
	(0.314)	(0.585)	(0.280)
Observations	3,705	3,390	3,390
R-squared	0.911	0.613	0.921
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Table 6: **Impact of CSR spending on grade repetition**
This table reports OLS and difference-in-differences regression results, in which the dependent variables are the number of students repeating a grade, number of girl repeaters and number of boy repeaters. The sample consists of district-year observations from 2011-12 to 2017-18. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A

Dependent var	Repeaters (scaled)		
	All	Girls	Boys
	(1)	(2)	(3)
Edu CSR (scaled)	-0.338	-0.120	-0.202
	(-0.140)	(-0.108)	(-0.153)
Edu CSR (scaled, lag)	-0.344	-0.577	0.110
	(-0.155)	(-0.493)	(0.095)
Observations	3,705	3,705	3,705
R-squared	0.686	0.675	0.694
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Panel B

Dependent var	Repeaters (scaled)		
	All	Girls	Boys
	(1)	(2)	(3)
Top district × 2015-2016	0.094	0.042	0.054
	(0.522)	(0.540)	(0.500)
Top district × 2017-2018	0.296	0.132	0.165
	(0.158)	(0.189)	(0.137)
Observations	3,705	3,705	3,705
R-squared	0.687	0.675	0.694
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

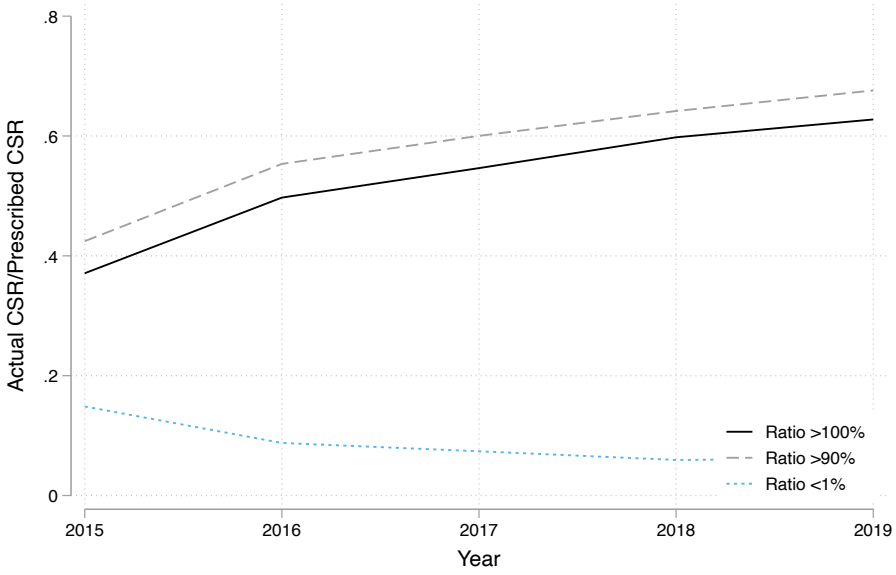
Appendix A: Variable Definition

This table presents all variables used in our analysis.

Variable	Definition	Source
CSR		
Total CSR	The amount of CSR spent in all projects by NSE firms in a district-year (INR)	PRIME
Total CSR (scaled)	The amount of CSR spent in all projects by NSE firms in a district-year (INR) scaled by the number of schools in 2011-12	PRIME
Edu CSR	The amount of CSR spent in elementary school related projects in a district-year (INR)	PRIME
Edu CSR (scaled)	The amount of CSR spent in elementary school related projects by NSE firms in a district-year (INR) divided by the number of schools in 2011-12 (INR)	PRIME
Education		
Enrollment	Total enrolment in elementary schools in a district-year	DISE
Enrollment (scaled)	Total enrollment in elementary schools in a district-year divided by the number of schools in 2011-12	DISE
Enrollment (govt, scaled)	Total enrolment in government schools divided by the number of schools in 2011-12. Government schools are fully managed by the government.	DISE
Enrollment (govt. aided, scaled)	Total enrollment in govt aided schools divided by the number of schools in 2011-12. Government aided schools are managed by private school management boards but receive financial support from the government.	DISE
Enrollment (prvt. unaided,scaled)	Total enrolment in private unaided schools divided by the number of schools in 2011-12. Private unaided schools are schools managed by private school management boards.	DISE
Schools	The no. of elementary schools in a district-year	DISE
Schools (scaled)	The no. of elementary schools in a district-year divided by the number of schools in 2011-12	DISE
Schools (new)	A school that enters into DISE data during our sample period and its year of entry is within three years from its year of establishment	DISE
Schools (existing)	A school that is not a new school	DISE
Teachers	The no. of teachers in elementary schools in a district-year	DISE
Teachers (scaled)	The no. of teachers in elementary schools divided by the number of schools in 2011-12	DISE
Repeaters (scaled)	The no. of failed students divided by the number of schools in 2011-12	DISE
Repeaters (girl, scaled)	The no.of failed girls divided by the number of schools in 2011-12	DISE
Repeaters (boy, scaled)	The no .of failed boys divided by the number of schools in 2011-12	DISE
Girl toilets (scaled)	The no. of female toilets divided by the number of schools in 2011-12	DISE
Boy toilets (scaled)	The no. of male toilets divided by the number of schools in 2011-12	DISE
Computers (scaled)	The no. of computers divided by the number of schools in 2011-12	DISE
Books (scaled)	The no. of books in school libraries divided by the number of schools in 2011-12	DISE
Other		
Nightlights	The average of monthly nightlights in a district divided by the area of the district.	VIIRS
Population	Total population in a district	Census 2011
Urban ratio	The ratio of population in urban areas to total population in a district	Census 2011
Credit	Bank credit of scheduled commercial banks in a district	RBI
Deposits	The total amount of deposits in scheduled commercial banks in a district	RBI

Figure A1: **Aggregated CSR over time**

(a) This figure shows the percentage of firms that comply with the CSR rules over our sample period 2015-2018. The sample includes all NSE firms that meet the CSR spending rules. Actual CSR is the CSR spending in all projects by a firm in a year. Prescribed CSR is 2% of the average profits over the last three years.



(b) This figure presents the aggregated CSR spending in PRIME, Prowess and the Indian Ministry Of Corporate Affairs (MCA). PRIME data consists of all NSE firms. Prowess data consists of both public and private firms in India. The numbers reported by MCA are for both public and private firms. The definitions of CSR used by PRIME and MCA match the definition in the Companies Act of 2013. CSR spending in Prowess is the sum of sum of donations, social community, and environment related expenditures and does not meet the definition of CSR spending in the Companies Act of 2013.

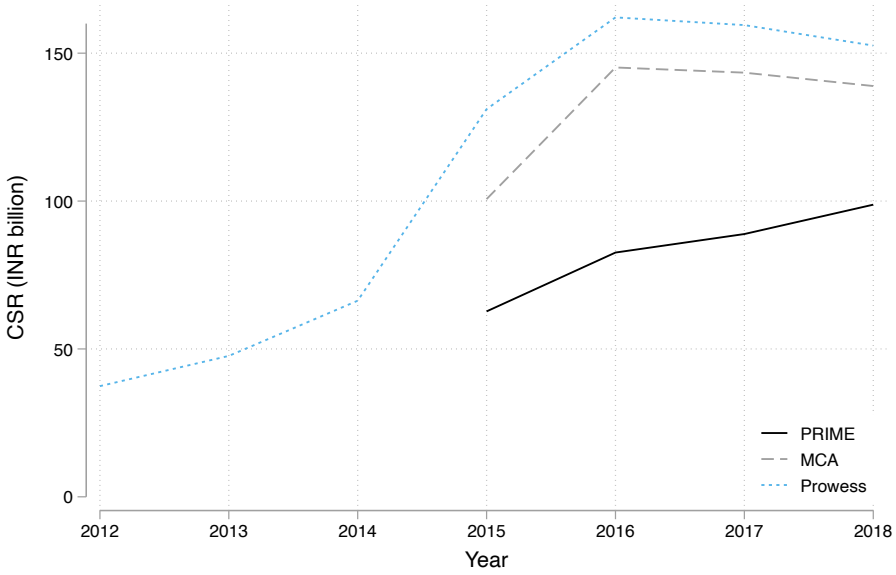
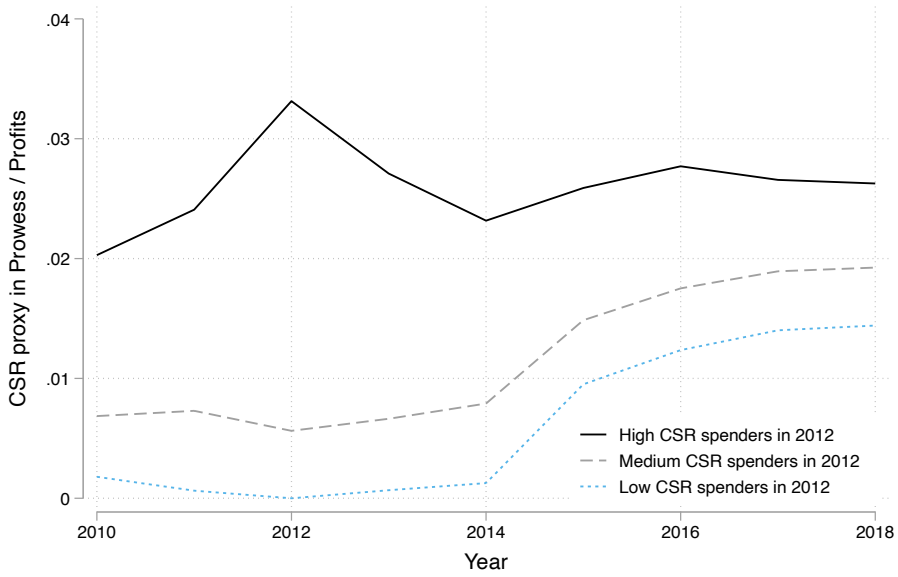


Figure A2: **CSR spending in High/Low spenders**
This figure shows CSR spending for high and low spenders. CSR spending is scaled by profits. The sample consists of firms listed in NSE. CSR is the sum of donations, social community, and environment related expenditures. Profits are average profits measured three years prior to CSR spending. The high CSR spender group consists of firms that spent over 2% of their profits; medium CSR spenders are firms where the CSR/profits ratio is between 0.01% and 2% and low CSR spenders are firms that spent less than 0.01% of their profits on CSR activities.

(a) The high and low spending groups are based on CSR measured in 2012



(b) The high and low spending groups are based on CSR measured in 2013

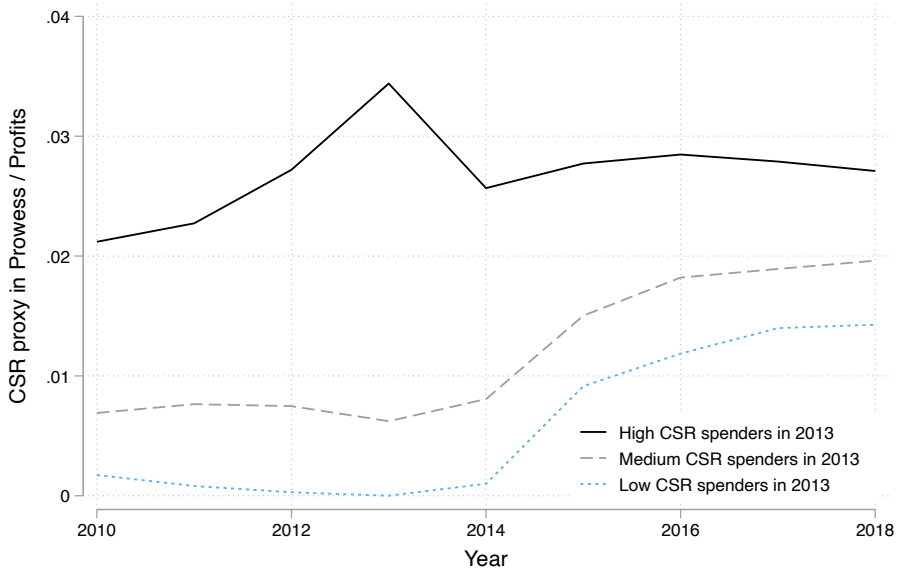


Figure A3: **CSR spending in Prowess data by Prowess firms and PRIME firms** This figure shows aggregated CSR spending by all firms in Prowess and firms in PRIME. CSR proxy in Prowess is the sum of donations, social community, and environment related expenditures (INR billion) and does not meet the definition of CSR spending in the Companies Act of 2013. Prowess covers both public and private firms. PRIME covers firms listed on NSE.

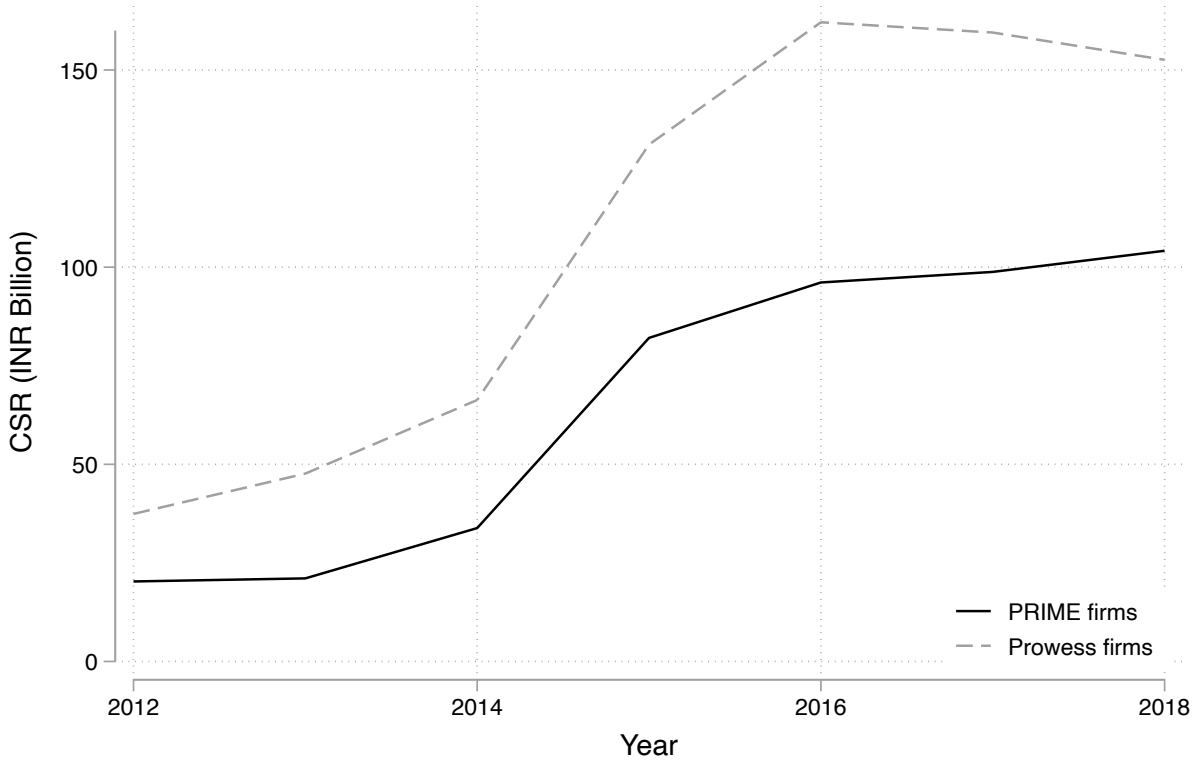


Figure A4: **CSR projects with district identified**
Our CSR expenditure measures are from PRIME project-level data for which we have district information. After accounting for district changes, missing locations on projects and nationwide or statewide projects. The final sample captures 57.19% of CSR expenditure in elementary schools.

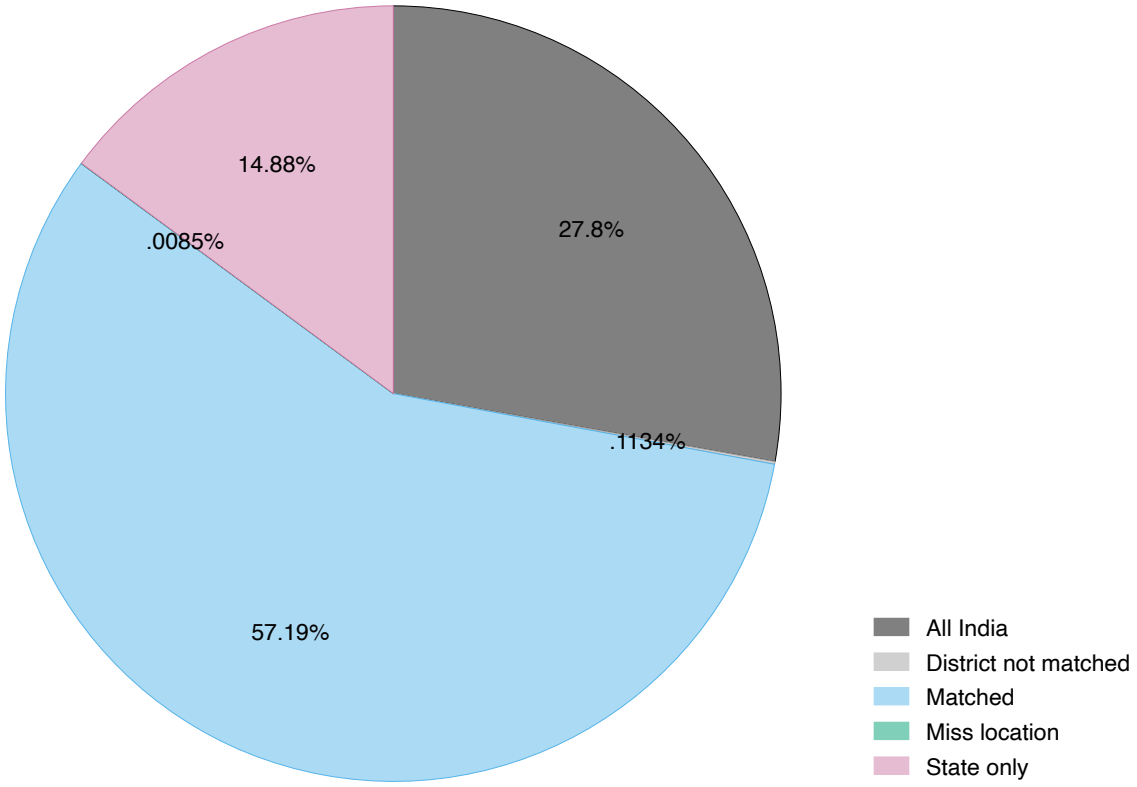
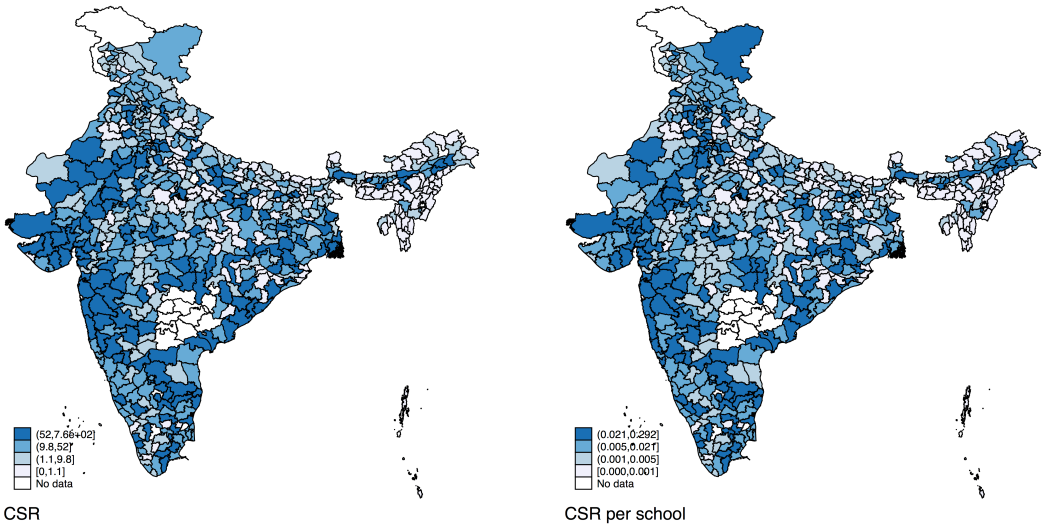


Figure A5: **Distribution of CSR spending, nightlight and number of schools across India**

This figure shows the choropleth maps of district CSR spending, nightlight, and the number of schools. The sample only includes CSR spending on education projects by NSE firms. Total CSR is total CSR spending in all education projects in a district. CSR per school is the total CSR divided by the number of schools in 2011-12. Nightlight is the sum of nightlight divided by the area. Number of schools (2012) is the number of schools in a district in 2011-12.

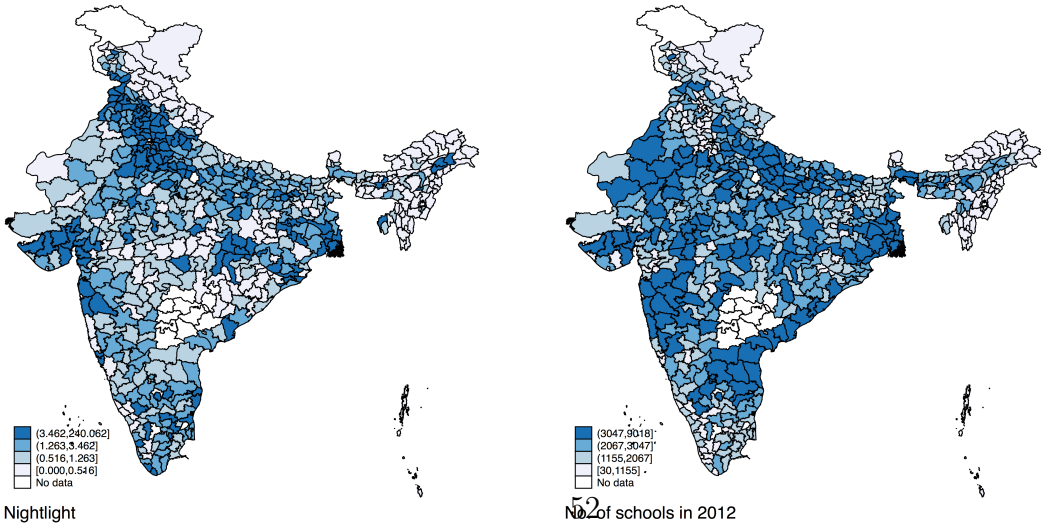
(a) Total CSR

(b) CSR per school



(c) Nightlight

(d) No. of schools (2012)



Appendix C: Tables

Table A1: **CSR spending by year**
This table presents the actual and prescribed CSR for all NSE firms. The sample includes NSE firms, including these that do not meet the CSR spending criteria. Actual CSR is calculated as the CSR spending for all projects by a firm in a year. Prescribed CSR is 2% of the average profits over the last three years.

Year	Sum (INR million)		Mean			
	Actual CSR	Prescribed CSR	Actual CSR / Prescribed CSR			
			<=0.01	0.01-0.9	0.9-1.1	>1.1
2015	62,692	82,421	15%	43%	31%	12%
2016	82,590	90,045	9%	36%	38%	18%
2017	88,852	95,266	7%	33%	43%	17%
2018	98,783	101,267	6%	30%	44%	20%

Table A2: **Sectoral CSR spending**
This table shows CSR spending across sectors. The table reports CSR sector spending for all projects. The sample includes CSR projects by all NSE firms, including projects not related to elementary schools and projects without matching districts. Sectors are defined in Schedule VII in Companies Act of 2013. *Number of projects* are the number of projects that are invested in a sector. *Number of firms* are the total number of firms which invested in a sector. *CSR expenditure* is the total amount of CSR expenditure in a sector (INR million). The category "Education" includes projects for any educational projects rather than only for elementary schools. The category "Others" includes projects that have missing sector information or are in a sector that are not included in Sectors I-XI. Some projects are can be placed in multiple sectors and we assume equal allocation across sectors for these projects. The number of projects are are doubled counted. The total number of projects here is higher than the actual number of unique projects.

Schedule	Sector	Number of projects	Number of firms	CSR expenditure
VII(I)	Health and sanitation	8,780	984	98,119
VII(II)	Education	10,941	1044	117,530
VII(III)	Gender equality	1,705	533	8,944
VII(IV)	Environment	3,023	633	35,426
VII(V)	Benefit of armed forces veterans and their dependents	920	331	9,131
VII(VI)	Sports	284	153	1,803
VII(VII)	Prime Minister's National Relief Fund	962	348	6,035
VII(VIII)	Technology incubators	665	352	5,230
VII(IX)	Heritage art and culture	223	115	1,274
VII(X)	Rural development	2,090	472	36,868
VII(XI)	Slum area development	212	111	1,305
Other	Other	3,357	1,125	11,169
Total		33,162		332,834
% Education CSR		33%		35%
% CSR via PM fund		2.9%		1.8%

Table A3: **CSR spending via popular implementing agencies**
This table shows CSR spending via agencies that have been used by more than ten companies in 2015-2018 for all projects. The sample includes CSR projects by all NSE firms, including projects not related to elementary schools and projects without matching districts. We use reported agency information to identify the agency of a project for all agencies except for Prime Minister's National Relief Fund, which is identified using sector information listed in Schedule VII. *Number of projects* are the number of projects that are implemented through an agency. *Number of firms* are the total number of firms which used an agency. *CSR expenditure* is the total amount of CSR expenditure that is invested through an agency (INR million). Some projects are implemented by multiple agencies and we assume equal allocation across agencies for these projects. The number of projects are are doubled counted. The total number of projects here is higher than the actual number of unique projects.

Agency	Number of projects	Number of firms	CSR expenditure
Prime Minister's National Relief Fund	962	348	6,035
Akshaya Patra Foundation,The	141	57	1,165
Helpage India	93	34	393
Friends Of Tribal Society	76	27	112
Rotary Club	79	19	64
Agastya International Foundation	52	18	351
Indian Cancer Society	25	17	67
Pratham Education Foundation	38	16	392
St.Jude India Childcare Centres	23	15	59
Smile Foundation	72	15	100
Habitat For Humanity India Trust	24	15	103
Sos Children's Village Of India	74	15	174
K.C.Mahindra Education Trust	62	14	1,290
Indian Red Cross Society	44	14	110
Iskcon Food Relief Foundation	22	13	123
United Way Of Mumbai	27	13	87
Child Rights & You	33	13	302
Yuva Unstoppable	28	13	227
Lions Club	41	12	21
Ramakrishna Mission	29	12	138
Magic Bus India Foundation	27	12	352
Sambhav Foundation	31	11	102
Ambuja Cement Foundation	66	11	1,824
Concern India Foundation	21	11	47
Total CSR via popular agencies	2,090	511	13,635.23

Table A4: **Robustness: Impact of CSR spending on enrollment (OLS)**
This table reports OLS results in which the dependent variable is the total enrollment. The sample consists of district-year observations from 2011-12 to 2017-18. *Enrollment (scaled)* is the total number of enrollment in elementary schools scaled by the number of schools in 2011-12. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. In column (1), we add an additional lag of *Edu CSR (scaled)*; in columns (2)-(4), we add additional controls of economic development, measured by nightlights, the total amount of deposits or credit in scheduled commercial banks; in columns (5) - (6), we use alternative measures of CSR expenditure in elementary schools; in column (7), we include the district-year observations which are excluded from our main tests due to large discrepancies with Statistical Year Book India data; in column (8), we use district population to scale enrollment and CSR expenditure. If a project is spent in more than one districts, we assume each district is allocated the amount of CSR expenditure in proportion to its population when calculating *Edu CSR (equal weight, scaled)*. *Edu CSR (Num of projects, scaled)* is the number of projects in elementary schools scaled by the number of schools. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗ ∗ ∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Enrollment (scaled)							Enrollment (pop)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Edu CSR (scaled)	46.15**	50.88**	50.01**	50.43***			85.03**	
	(2.41)	(2.65)	(2.73)	(2.77)			(2.59)	
Edu CSR (lag1, scaled)	64.58**	92.09**	90.94**	90.45**			105.86**	
	(2.16)	(2.22)	(2.31)	(2.30)			(2.16)	
Edu CSR (lag2, scaled)	108.13**							
	(2.04)							
Log (Nightlights)		1.33						
		(1.21)						
Log (Deposits)			1.56					
			(0.45)					
Log (Credit)				1.45				
				(0.46)				
Edu CSR (equal weight, scaled)					28.79			
					(1.51)			
Edu CSR (equal weight, lag1, scaled)					72.71**			
					(2.16)			
Edu CSR (Num of projects, scaled)						389.02*		
						(1.99)		
EDU CSR (Num of projects, lag1, scaled)						473.14**		
						(2.50)		
Edu CSR (pop)								0.00006***
								(4.17329)
Edu CSR (lag1, pop)								0.00009***
								(3.03447)
Observations	3,705	3,664	3,689	3,689	3,705	3,705	4,025	3,705
R-squared	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.97
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State*Year*Urban5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A5: **Robustness: Impact of CSR spending on enrollment (difference-in-differences)**

This table reports difference-in-differences results, in which the dependent variable is the total enrollment. The sample consists of district-year observations from 2011-12 to 2017-18. *Enrollment (scaled)* is the total number of enrollment in elementary schools scaled by the number of schools in 2011-12. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. In columns (1)-(3), we add additional controls of economic development, measured by nightlights, the total amount of deposits or credit in scheduled commercial banks; in column (4), we include the district-year observations which are excluded from our main tests due to large discrepancies with Statistical Year Book India data; in column (5), we use district population as the scaler of enrollment. All variables are winsorized at 1% and 99%. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. $***$, $**$, and $*$ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Enrollment (scaled)				Enrollment (pop)
	(1)	(2)	(3)	(4)	(5)
Top district * Post (2015-2016)	2.095	2.099	2.111	2.625	0.003*
	(0.163)	(0.144)	(0.146)	(0.179)	(0.065)
Top district * Post (2017-2018)	4.207**	4.201**	4.236**	4.703*	0.006***
	(0.045)	(0.045)	(0.046)	(0.084)	(0.004)
Log (Nightlights)	0.954				
	(0.384)				
Log (Deposits)		0.764			
		(0.826)			
Log (Credit)			1.026		
			(0.764)		
Observations	3,664	3,689	3,689	4,025	3,705
R-squared	0.993	0.993	0.993	0.992	0.967
District FE	Yes	Yes	Yes	Yes	Yes
State*Year*Urban5	Yes	Yes	Yes	Yes	Yes

Table A6: **Education outcomes in districts with profitable firms**
This table reports the difference-in-differences estimates of CSR spending and school outcomes regressed on interaction terms between *Top district* and year indicators. The sample consists of district-year observations from 2011-12 to 2017-18. *Top district* is a time-invariant indicator that equals one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 scaled by the number of schools in 2011-12. *2012*, *2013*, *2015*, *2016*, *2017*, and *2018* are year indicators. The omitted group is the interaction term between *Top district* and the indicator, *2014*. 2014 is the year immediately before the CSR rules came into force. *Total CSR* is aggregated CSR expenditure by NSE firms in all sectors in a district (INR million) scaled by the number of schools in 2011-12. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All education outcomes are scaled by the number of schools in 2011-12. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Total CSR (scaled)	Edu CSR (scaled)	Enrolment (scaled)			
School type			All	Prvt unaided	Govt aided	Govt
	(1)	(2)	(3)	(4)	(5)	(6)
Top district * 2012			-1.781	-2.934	0.614	1.551
			(0.554)	(0.468)	(0.457)	(0.509)
Top district * 2013			0.937	0.054	-0.407	1.145
			(0.497)	(0.970)	(0.606)	(0.430)
Top district * 2015	0.044***	0.008***	1.449	1.770	-0.834	1.435
	(0.001)	(0.005)	(0.180)	(0.439)	(0.282)	(0.272)
Top district * 2016	0.055***	0.016***	2.830	3.470	-0.765	1.073
	(0.000)	(0.000)	(0.104)	(0.203)	(0.311)	(0.481)
Top district * 2017	0.061***	0.017***	4.056**	4.789	-0.890	1.227
	(0.000)	(0.000)	(0.028)	(0.131)	(0.241)	(0.482)
Top district * 2018	0.065***	0.016***	4.388**	4.402*	-0.965	1.637
	(0.000)	(0.000)	(0.021)	(0.085)	(0.339)	(0.394)
Observations	3,705	3,705	3,705	3,658	2,923	3,705
R-squared	0.766	0.712	0.993	0.975	0.992	0.995
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A7: **Teachers and school facilities in districts with profitable firms**
This table reports the difference-in-differences estimates of the number of teachers and school facilities regressed on interaction terms between *Top district* and year indicators. The sample consists of district-year observations from 2011-12 to 2017-18. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *2012*, *2013*, *2015*, *2016*, *2017*, and *2018* are year indicators. The omitted group is the interaction term between *Top district* and the indicator, *2014*. 2014 is the year immediately before the CSR rules came into force. *Total CSR* is aggregated CSR expenditure by NSE firms in all sectors in a district (INR million) scaled by the number of schools in 2011-12. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All education outcomes are scaled by the number of schools in 2011-12. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Teachers (scaled) (1)	Girl toilets (scaled) (2)	Boy toilets (scaled) (3)	Computers (scaled) (4)	Books (scaled) (5)
Top district * 2012	-0.038	-0.049	-0.006	-0.043	14.948
	(0.842)	(0.558)	(0.930)	(0.650)	(0.428)
Top district * 2013	0.019	-0.011	-0.051	0.023	-4.381
	(0.822)	(0.785)	(0.272)	(0.815)	(0.705)
Top district * 2015	0.105*	0.037**	0.043**	0.014	5.518
	(0.090)	(0.010)	(0.025)	(0.819)	(0.369)
Top district * 2016	0.206**	0.083**	0.109***	0.156*	13.258*
	(0.019)	(0.039)	(0.001)	(0.070)	(0.100)
Top district * 2017	0.225**	0.088	0.141***	0.246**	16.182*
	(0.020)	(0.121)	(0.006)	(0.038)	(0.095)
Top district * 2018	0.239**	0.120	0.151***	0.273**	34.577
	(0.050)	(0.124)	(0.009)	(0.020)	(0.145)
Observations	3,705	3,705	3,705	3,705	3,705
R-squared	0.991	0.989	0.982	0.993	0.996
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes

Table A8: **Number of schools in districts with profitable firms**
This table reports the difference-in-differences estimates of the number of teachers and school facilities regressed on interaction terms between *Top district* and year indicators. The sample consists of district-year observations from 2011-12 to 2017-18. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *2012*, *2013*, *2015*, *2016*, *2017*, and *2018* are year indicators. The omitted group is the interaction term between *Top district* and the indicator, *2014*. 2014 is the year immediately before the CSR rules came into force. *Total CSR* is aggregated CSR expenditure by NSE firms in all sectors in a district (INR million) scaled by the number of schools in 2011-12. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. All education outcomes are scaled by the number of schools in 2011-12. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Schools (scaled)		
	All	New	Existing
	(1)	(2)	(3)
Top district * 2012	-0.000		
	(0.974)		
Top district * 2013	-0.001	0.000	-0.001
	(0.903)	(0.889)	(0.806)
Top district * 2015	0.005	0.002	0.002
	(0.227)	(0.168)	(0.433)
Top district * 2016	0.011*	0.002	0.008*
	(0.069)	(0.357)	(0.077)
Top district * 2017	0.008	0.003	0.004
	(0.123)	(0.452)	(0.398)
Top district * 2018	0.007	0.003	0.003
	(0.408)	(0.622)	(0.554)
Observations	3,705	3,390	3,390
R-squared	0.911	0.915	0.936
State*Year*Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Cluster	State	State	State
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Table A9: **Number of repeaters in districts with profitable firms**
This table reports the difference-in-differences estimates of the number of teachers and school facilities regressed on interaction terms between *Top district* and year indicators. The sample consists of district-year observations from 2011-12 to 2017-18. *Top district* is a time-invariant indicator equal one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 fiscal years scaled by the number of schools in 2011-12. *2012*, *2013*, *2015*, *2016*, *2017*, and *2018* are year indicators. The omitted group is the interaction term between *Top district* and the indicator, *2014*. 2014 is the year immediately before the CSR rules came into force. All education outcomes are scaled by the number of schools in 2011-12. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗ ∗ ∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Repeaters (scaled)		
	All	Girls	Boys
Top district * 2012	-0.036	-0.004	-0.029
	(0.878)	(0.971)	(0.825)
Top district * 2013	0.204*	0.124**	0.083
	(0.091)	(0.044)	(0.250)
Top district * 2015	0.102	0.063	0.044
	(0.548)	(0.433)	(0.636)
Top district * 2016	0.235	0.118	0.120
	(0.275)	(0.273)	(0.271)
Top district * 2017	0.277	0.137*	0.142
	(0.105)	(0.099)	(0.106)
Top district * 2018	0.464	0.223	0.244
	(0.217)	(0.232)	(0.202)
Observations	3,705	3,705	3,705
R-squared	0.687	0.675	0.694
State×Year×Urban5 FE	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Table A10: **Education outcomes in districts with profitable firms**

This table reports the ordinary least squares estimates of CSR spending and school outcomes regressed on interaction terms between *Top district* and year indicators. The sample consists of district-year observations from 2011-12 to 2017-18. *Top district* is a time-invariant indicator that equals one if the scaled total profits of firms of which headquarters are in the district are in the top 10% among all districts. The scaled total profits are aggregated profits from 2009 to 2011 scaled by the number of schools in 2011-12. *2012*, *2013*, *2015*, *2016*, *2017*, and *2018* are year indicators. The omitted group is the interaction term between *Top district* and the indicator, *2014*. 2014 is the year immediately before the CSR rules came into force. *Edu CSR (scaled)* is the aggregated CSR expenditure by NSE firms in elementary school related projects (INR million) scaled by the number of schools in 2011-12. Prvt unaided schools are elementary schools privately managed. Govt aided schools are privately managed but receive financial support from the government. Govt schools are schools fully managed by the government. All education outcomes are scaled by the number of schools in 2011-12. All regressions include state × year × urban ratio (quintile) fixed effects and district fixed effects. Urban ratio is the district-wise ratio of urban population to total population, measured in 2011. t-statistics are calculated with standard errors clustered at the state level. ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent var	Teachers (scaled)			Girl toilets (scaled)			Boy toilets (scaled)			Computers (scaled)			Books (scaled)		
	Prvt unaided	Govt aided	Govt	Prvt unaided	Govt aided	Govt	Prvt unaided	Govt aided	Govt	Prvt unaided	Govt aided	Govt	Prvt unaided	Govt aided	Govt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Edu CSR (scaled)	3.48***	-0.37	1.26	1.18**	-0.16	1.17***	1.18***	-0.22*	1.09***	3.79***	-0.24	0.91	228.10***	-19.67	237.61**
	(4.16)	(-1.11)	(1.01)	(2.58)	(-1.36)	(2.79)	(3.48)	(-1.89)	(2.92)	(3.34)	(-0.84)	(0.77)	(3.17)	(-1.01)	(2.12)
Edu CSR (scaled, lag)	2.24*	-0.76*	-0.44	1.23**	-0.21*	0.23	1.23***	-0.24	0.23	2.01**	-0.60**	-0.08	169.09**	-40.53	260.41**
	(1.72)	(-1.77)	(-0.73)	(2.66)	(-1.95)	(1.35)	(3.30)	(-1.59)	(1.09)	(2.20)	(-2.35)	(-0.11)	(2.21)	(-1.39)	(2.16)
Observations	3,658	3,658	3,705	3,658	3,658	3,705	3,658	3,658	3,705	3,658	3,658	3,705	3,658	3,658	3,705
R-squared	0.98	1.00	0.98	0.98	0.99	0.95	0.98	0.99	0.92	0.98	0.99	0.98	0.99	1.00	0.99
State×Year×Urban5 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes