THE IMPACT OF STAKEHOLDER ORIENTATION ON INNOVATION:
EVIDENCE FROM A NATURAL EXPERIMENT

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ABSTRACT

In this study, we assess the causal impact of stakeholder orientation on innovation. To obtain exogenous variation in stakeholder orientation, we exploit the enactment of state-level constituency statutes, which allow directors to consider stakeholders' interests when making business decisions. Using a difference-in-differences methodology, we find that the enactment of constituency statutes leads to a significant increase in the number of patents and citations per patent. We further assess the mechanisms through which stakeholder orientation fosters innovation. In particular, we argue that stakeholder orientation sparks innovation by promoting a secure work environment and enhancing the satisfaction of various stakeholders, including employees and customers. Consistent with this argument, we find that the positive impact of stakeholder orientation on innovation is greater in industries with lower job security as well as industries and firms with lower stakeholder satisfaction.

Keywords: innovation; stakeholder view; long-term orientation; constituency statutes; difference-in-differences.

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1. Introduction

A long-standing literature acknowledges the significance of innovation for economic growth (e.g., Aghion and Howitt 1992, Grossman and Helpman 1990, 1994, Jones 1995, Romer 1990) and firms’ survival (e.g., Baumol 2002, Porter 1990, Schumpeter 1942). For example, Baumol (2002, p. 1) argues that “[u]nder capitalism, innovative activity (...) becomes mandatory, a life-and-death matter for the firm.” In particular, the ability to innovate is central to responding to changes in the business environment (e.g., Eisenhardt and Brown 1998, Eisenhardt and Martin 2000), and establishing market leadership (e.g., Porter 1990). Accordingly, understanding what conditions foster innovation within the firm is an important question for academics and business practitioners alike.

Research in strategy, organization theory, and economics has tackled this question, emphasizing the difficulty of crafting incentive schemes and monitoring devices to encourage the pursuit of innovative activities within firms (e.g., Aghion and Tirole 1994, Balkin et al. 2000, Baysinger et al. 1991, David et al. 2001, Graves 1988, Hansen and Hill 1991, Hill and Snell 1988, Hoskisson et al. 2002, Kochhar and David 1996, Manso 2011, Zahra 1996). While this literature focuses on how shareholders can provide appropriate incentives for executives to pursue innovation, the role of stakeholders—i.e., “any group or individual who can affect or is affected by the achievement of an organization’s purpose” (Freeman 1984, p. 53)—has remained mostly unexplored. With the exception of a few studies that examine the potential influence of employee-friendly policies on innovation (e.g., Azoulay, Graff Zivin, and Manso 2011), very little is known about the impact of stakeholder orientation (i.e., the attention to non-financial stakeholders) on innovation.

Yet anecdotal evidence abounds with examples of innovative companies engaged in vigorous interactions with non-financial stakeholders, including employees, customers, and community groups. In fact, attending to non-financial stakeholders is often claimed to drive the firm’s ability to innovate. At General Electric (GE), for example, executives view the firm’s innovativeness as a function of its external focus on non-financial stakeholders, including “customers, governments, regulators, community groups
and others” (New York Times 2012). Similarly, one of the stated objectives of IBM’s social business platform is to “engage all key stakeholders whether an employee, customer or partners in order to accelerate innovation” (Computer Weekly News 2013).\(^1\) Despite the prevalence of such anecdotes, empirical research on this topic remains scarce.

In this study, we examine the potential impact of corporate attention to non-financial stakeholders on innovation. This question is difficult to address empirically since stakeholder orientation is likely endogenous with respect to innovation. In particular, finding a positive relationship between stakeholder orientation and innovation may be spurious if such relationship is driven by unobserved firm characteristics that enhance a firm’s propensity to engage in both innovation and stakeholder-friendly initiatives. This concern is particularly severe given that firm-level attributes, such as slack resources or managerial ability, while difficult to observe, are likely to drive a firm’s investments in innovation and stakeholder orientation alike. Moreover, the relationship between stakeholder-friendly policies and innovation is subject to reverse causality concerns. For example, a positive correlation between stakeholder orientation and innovation may indicate that innovative firms generate more slack resources, which can be, in turn, allocated to cater to the interests of stakeholders. In short, while empirically challenging, leveraging a research design that provides a clean causal estimate is central to understanding the impact of a firm’s stakeholder orientation on innovation.

We address this empirical challenge by exploiting a quasi-natural experiment provided by the enactment of constituency statutes in 34 states between 1984–2006. These statutes mandate corporate directors to consider stakeholders’ interests when making business decisions, and hence provide exogenous variation in the weight that U.S. public corporations give to the interest of non-financial stakeholders (Orts 1992). Using a difference-in-differences methodology—with the “treatment” group composed of states that adopted the statutes, and the “control” group composed of states that did not—we find that the enactment of constituency statutes leads to a significant increase in the number of patents and

\(^1\) Relatedly, in a recent survey of International Data Corp (IDC), 700 businesses were asked why they are using social business platforms. The top response was “involving stakeholders in the innovation process” (The Edge Financial Daily 2013).
citations per patent. These findings indicate that stakeholder orientation does indeed foster innovation.

We further extend our analysis by exploring the underlying mechanisms through which stakeholder orientation promotes innovation. Our results suggest that stakeholder orientation leads to an increase in firms’ innovative output by fostering job security and enhancing the satisfaction of key stakeholders such as employees and customers. Specifically, we find that the enactment of constituency statutes has a stronger impact on innovation for: (a) firms in industries with weaker job security (i.e., industries with weaker union power and higher employee turnover); (b) firms with weaker employee satisfaction (i.e., firms not listed among the “best companies to work for”); (c) customer-focused industries (i.e., the business-to-consumer (B2C) sector); and (d) less eco-friendly industries with greater stakeholder dissatisfaction (i.e., high-polluting industries).

Overall, our findings support the view that stakeholders play an important role in fostering innovation and shed light on the mechanisms through which stakeholder orientation enhances firms’ ability to innovate. In the following, we develop the theoretical arguments in detail, describe the methodology, present the empirical results, and conclude.

2. Theory and Hypothesis

While innovation is an important determinant of firm value and competitive strength, it also entails considerable risks. Scholars commonly argue that innovative activities are uncertain and difficult to discern partly because they are long-term, non-routine, and subtle in nature, with long gestational periods and unpredictable outcomes (e.g., Aghion and Tirole 1994, Griliches 1990, Hall et al. 2005, Holmstrom 1989). Given the precarious nature of innovative activities, successfully engaging key stakeholders, such as employees and customers, raises significant challenges for the firm.

First, innovation hinges on entrepreneurial initiatives of employees and managers. Undertaking innovative projects poses, however, considerable career risks as the uncertainty inherent to these projects increases the probability of employees’ termination. As a result, employees tend to refrain from investing
effort in innovative projects, preferring instead to focus on activities that are incremental and have more predictable outcomes (Wiseman and Gomez-Mejia 1998). Similarly, while companies’ payoffs from innovation accrue over the long run, employees and managers generally prefer to invest in short-term projects, unless provided with long-term incentives, such as long-term compensation (Ederer and Manso 2013, Holthausen et al. 1995, Lerner and Wulf 2007), or funding policies with long horizons (Azoulay, Graff Zivin, and Manso 2011).

Second, the pursuit of innovative projects may lead to a decline in customer loyalty and commitment to a firm’s products and services. In particular, high rates of failure associated with new products may trigger customer dissatisfaction, threatening a firm’s relation with its customers. For example, Apple’s release of the iPhone 4S was followed by a wave of complaints from customers concerned about the new iPhone’s battery life (Forbes 2011a). Relatedly, the pursuit of innovation may be difficult for customers and investors to evaluate with precision. Indeed, a number of studies suggest that capital markets tend to be myopic, leading to systematic undervaluation of corporate investments in long-run projects, including innovation (e.g., Froot et al. 1992, Stein 1988).

Given the challenges inherent in innovation, stakeholder orientation is likely to have important implications for a firm’s ability to develop innovative capabilities. Much like innovation, stakeholder orientation focuses on long-term horizons rather than immediate payoffs (Slawinski and Bansal 2012, Wang and Bansal 2012). Benefits from stakeholder orientation materialize in the long run as firms acquire intangible resources (see, e.g., Hart 1995, Jones 1995, Porter and Kramer 2006, 2011, Russo and Fouts 1997). For example, by catering to the interests of consumers, employees, and the natural environment, firms are able to secure intangible assets such as legitimacy, reputation, and trust (e.g., Luo and Bhattacharya 2006, Sen and Bhattacharya 2001, Turban and Greening 1996), which can lead to a sustainable competitive advantage (e.g., Barney and Hansen 1994, Hillman and Keim 2001, Teece 1998).

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2 Some companies explicitly recognize this challenge. For example, in evaluating their employees, DreamWorks and General Electric explicitly acknowledge the need to take risk and tolerate failure (New York Times 2012).
In what follows, we examine the relation between stakeholder orientation and innovation in greater detail. Specifically, we argue that attention to non-financial stakeholders improves innovation in at least two ways: (a) by fostering a more secure work environment; and (b) by enhancing stakeholder satisfaction.

Secure Work Environment

First, stakeholder orientation may increase innovation by offsetting the risks associated with high unpredictability and long-term horizons, inherent to the pursuit of innovation. Firms that cater to employees typically provide them with comprehensive social benefits. The provision of such benefits may help strengthen the relationship with employees and foster a more secure work environment, characterized by long-term commitment to employees and high tolerance for failure. Protection from involuntary turnover likely encourages employees’ engagement in experimentation and trial-and-error, leading to an increase in innovative output. In support of this argument, a number of empirical studies demonstrate that employees are more motivated and willing to invest effort in risky, innovative projects, when they are protected from dismissal and are safe to fail. For example, in their study of life scientists, Azoulay, Graff Zivin, and Manso (2011) find that freedom to experiment and tolerance for failure foster creativity and innovation in scientific research. Similarly, Tian and Wang (2013) document that firms backed by venture capitalists who tolerate failure are significantly more innovative than firms backed by venture capitalists less tolerant of failure. Finally, Shleifer and Summers (1988) argue that managers are reluctant to invest in projects with risky payoffs when they face uncertainty about long-term employment. Because stakeholder-friendly orientation is likely to foster a more secure workplace, we expect such policies to relieve employees from short-termism; instead, stakeholder orientation redirects employee attention toward the pursuit of long-term, unpredictable initiatives, such as innovation.

Stakeholder Satisfaction
In addition, we expect stakeholder orientation to increase innovative output by enhancing satisfaction, commitment, and loyalty of various stakeholder groups. First, by attending to stakeholders, firms are likely to improve employees’ job satisfaction, and hence commitment and retention among employees (e.g., Herzberg et al. 1959, Maslow 1943, McGregor 1960). A number of empirical studies provide evidence in support of this argument: Firms that cater to stakeholders are better able to attract a higher-quality workforce (e.g., Albinger and Freeman 2000, Greening and Turban 2000, Turban and Greening 1996), foster employees’ commitment to organizational values and practices, and retain talented employees (e.g., Huselid 1995, Sheridan 1992, Vogel 2005).

Employees’ job satisfaction has important implications for a firm’s ability to foster innovation. Scholars have long attributed creativity and engagement in innovative tasks to job satisfaction. In particular, workers who are satisfied with their jobs are more likely to engage in long-term thinking and generate novel and potentially valuable ideas concerning new products, services, and processes (Aiken and Hage 1971, Amabile et al. 1996, Oldham and Cummings 1996).³

We further expect that by implementing stakeholder-friendly policies, firms are able to generate positive attitudes among other stakeholders, including customers. Much like with employees, stakeholder-friendly initiatives can help attract and retain customers, as the latter develop positive attitudes, loyalty, and stronger brand recognition in response to stakeholder orientation (e.g., Brown and Dacin 1997, Fournier 1998, Kotler et al. 2012, Luo and Bhattacharya 2006, Sen and Bhattacharya 2001). Similarly, catering to stakeholders may enhance firm’s reputation among customers, and other stakeholders alike (Porter and Kramer 2006, Williams and Barrett 2000).

Customer satisfaction has direct implications for innovation, affecting innovative output in at least three different ways. First, positive attitudes among customers have been linked to greater demand

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³ Recent anecdotal evidence further supports this argument. For example, Google engineers are encouraged to take 20 percent of their time to work on something company-related that interests them personally. When describing this policy, a software engineer at Google noted: “It sounds obvious, but people work better when they’re involved in something they’re passionate about, and many cool technologies have their origins in 20 percent time” (New York Times 2007).
for the firm’s products and services (Lev, Petrovits, and Radhakrishnan 2010). There is further evidence that rising demand leads to an increase in innovation (Schmookler 1962, 1966) because companies have a stronger incentive to work on an unsolved problem and invest vast resources into the development of expensive and uncertain R&D activities, if they know there is a market for the product.

Second, customer loyalty and satisfaction may encourage innovation by acting as a buffer in which it is safer for the firm to experiment with novel ideas and technologies. Firms may be more willing to take on risks when experimenting with new, failure-prone technologies, if their customers are committed and loyal. For example, Apple’s customer loyalty is believed to have facilitated the willingness to experiment with innovative but often risky technologies, given that “whenever Apple has problems with its products, its customers are incredibly forgiving and patient” (Forbes 2011a).

Third, loyal and committed customers may foster innovative output by acting as a key source of new ideas and valuable know-how. For example, the car manufacturer Audi initiated an online development project called “Virtual Lab,” where customers and enthusiasts participate in an exchange of ideas in order to develop new products and processes. Similarly, Nike enthusiasts participate in the “NikeTalk” in order to generate new shoe designs incorporating customers’ preferred features (Fueller et al. 2008). More generally, satisfied consumers are more motivated to engage in new product development and the improvement of existing ones, acting as an important determinant of the firm’s ability to innovate (Bogers et al. 2010, Fueller et al. 2008, Sawhney et al. 2005, von Hippel 1976, 1978).

Finally, we expect stakeholder orientation to spark innovation by attending to the natural environment and thus improving the satisfaction of stakeholders concerned about environmental issues. For example, GE’s green technology and sustainability initiative “Ecomagination” shows commitment to build innovative solutions for today’s environmental challenge. Using the creativity of countless startups and research centers around the world, GE encourages innovation for a smart grid, clean energy, as well as eco-friendly homes, buildings, and cars (Forbes 2011b, GreenBiz 2010). By addressing environmental challenges and improving their own environmental footprint, companies can contribute to the satisfaction
of various other stakeholders. In particular, environmentally-friendly companies benefit from higher reputation and cleaner work environment, improving employees’ as well as consumers’ satisfaction (e.g., Bansal and Roth 2000, Hart 1995, Russo and Fouts 1997), which may further enhance innovation.

Overall, we expect stakeholder-friendly organizations to be more innovative. By fostering long-term horizons, tolerance for failure, employment security, and the satisfaction of various stakeholders, stakeholder orientation is likely to enhance the innovative process, increasing the quantity and quality of innovative output.

HYPOTHESIS 1. An increase in a firm’s stakeholder orientation leads to an increase in innovation.

3. Data and Methodology

3.1. Data and Variable Definitions

Constituency Statutes

Identifying the causal effect of stakeholder orientation on innovation is challenging because of potential endogeneity concerns. First, the relation between stakeholder orientation and innovation could be spurious if both are driven by a third, difficult-to-observe, variable. Moreover, a potential correlation between stakeholder orientation and innovation could be driven by reverse causation if higher innovation leads the firm to cater to non-financial stakeholders. Given those empirical challenges, estimating the effect of stakeholder orientation on innovation hinges on finding an empirical context in which variation

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4 Anecdotal evidence further suggests that sustainability benefits the environment and other stakeholders alike. For example, in referring to eco-friendly business practices, the CEO of Seventh Generation said: “Sustainability is no longer optional. Companies that fail to adopt such practice will perish. They will not only lose on a cost basis, they will also suffer in recruiting employees as well as attracting consumers” (Forbes 2011c).
in stakeholder orientation arises exogenously. The specific source of exogenous variation we exploit in this paper is the enactment of state-level constituency statutes.

Constituency statutes allow corporate officers and directors to take into account the interests of a variety of corporate stakeholders in carrying out their fiduciary duties to the corporation. The statutes suggest that a corporation should, or at least may, be run in the interests of more groups than just shareholders. Hence, under these statutes, a corporation’s officers and directors are allowed to consider the interests of employees, customers, suppliers, the environment, the local community and any other potentially affected constituency (e.g., Orts 1992). Prior to the enactment of stakeholder statutes, corporate leaders were not permitted to consider stakeholders’ interests because their fiduciary duties required them to act in accordance with shareholders’ interests. Hence, the enactment of constituency statutes provided corporate leaders with a mechanism for considering stakeholder interests without breaching their fiduciary obligations to shareholders. Proponents of those statutes sought to change corporate law to reflect their belief that corporations are more than just investment vehicles for owners of financial capital (Bainbridge 1992). For example, the Pennsylvania statute reads:

“In discharging the duties of their respective positions, the board of directors, committees of the board and individual directors of a domestic corporation may, in considering the best interests of the corporation, consider the effects of any action upon employees, upon suppliers and customers of the corporation and upon communities in which offices or other establishments of the corporation are located, and all other pertinent factors.” (15 Pa. Cons. Stat. § 516(a))

Though the language may be state-specific, the core content of the legislation remains the same: constituency statutes emphasize the importance of considering the interests of non-financial stakeholders and hence pursuing interests that are not restricted to the bottom line. In fact, most statutes give corporate leaders permission to consider stakeholder interests in any circumstance, including any structural and
operational decisions, or whenever corporate leaders wish to consider them.⁵

By the year 2006, a total of 34 states in the U.S. had adopted constituency statutes. Table 1 lists all 34 states along with the enactment dates of their statutes (this list is adapted from Barzuza 2009, pp. 2040-2041).⁶ We use the enactment of these constituency statutes as a quasi-natural experiment to examine the impact of a firm’s stakeholder orientation on innovation. Because the introduction of the statutes does not reflect any firm’s strategic decision, such statutes offer plausibly exogenous variation in a firm’s orientation toward stakeholders.

*Data Sources and Sample Selection*

The data on innovation are obtained from the National Bureau of Economic Research (NBER) Patent Data Project database, which contains annual information on patent assignee names, the number of patents, the number of citations per patent, and the year of patent application. The NBER data are available from 1976 to 2006. We merge the NBER database with Standard & Poor’s Compustat, which contains detailed accounting information as well as additional firm-level attributes (e.g., state of incorporation, industry). We exclude companies that are incorporated outside the U.S. In addition, we only include firm-year observations for which the necessary accounting variables (e.g., book value of total assets) are not missing. The list of accounting variables used in this study is provided below. These selection criteria yield a sample of 159,558 firm-year observations.

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⁵ Consistent with this objective, Luoma and Goodstein (1999) show that companies incorporated in states that have enacted constituency statutes increased stakeholder representation on their board of directors.

⁶ For more details on the constituency statutes, as well as their institutional background, see the law review articles by Bainbridge (1992), Barzuza (2009), and Bisconti (2009). Also, note that Nebraska passed a constituency statute in 2007, but since our sample ends in 2006 (the last year in which patent data are available) the Nebraska statute is not considered in our analysis.
Dependent Variables

To measure innovation, we follow common practice in the innovation literature and construct two patent-based metrics (e.g., Hall et al. 2005, Seru 2013, Tian and Wang 2013).\(^7\) The first metric ("patents") is the patent count for each firm in each year. More precisely, this variable counts the number of patent applications filed in a year that are eventually granted. The relevant year is the application year (as opposed to the year in which the patent is granted) since it is very close to the actual innovation (see, e.g., Griliches et al. 1987, Hall et al. 2001). The number of patents is subject to a truncation problem, because patents appear in the NBER database only after they are granted, and the lag between patent applications and patent grants is about two years on average. Accordingly, as we approach the last few years of the sample (i.e., 2005 and 2006), the number of patent applications that are eventually granted decreases because many patent applications filed during these years were still under review and had not been granted by 2006. To correct for this truncation problem, a common approach (e.g., Hall et al. 2001, 2005) is to divide the patent count by the total number of patent applications in the same year or, equivalently, to include year fixed effects in the regressions. We follow the latter approach throughout this paper.

We further construct a separate measure of innovation quality. Griliches et al. (1987) show that the distribution of patents’ value is extremely skewed, with most of the value being concentrated in a small number of very important and highly cited patents. Accordingly, to measure patents’ quality, we use a second metric of innovation: the number of citations in subsequent years divided by the number of patents for any given firm and year ("citations/patents"). This second metric is again subject to a truncation problem. By construction, a 2005 patent will receive fewer citations than a 1990 patent (all else being equal) because we only observe citations received up to 2006. To account for this truncation

\(^7\) Early studies on innovation relied on R&D expenditures from Compustat as a proxy for innovation. However, the use of R&D has three important limitations. First, R&D expenditures are an input to innovation along with physical and human capital as well as managerial and employee effort. In case other inputs are not effectively employed, high R&D expenses are less likely to result in successful innovation. Second, managers may substitute R&D expenditures for other inputs by overspending on R&D, which may in fact stifle rather than increase innovation. Third, R&D expenditures cannot be used to create a measure of innovation quality.
problem, we multiply the number of citations by the adjustment factor of Hall et al. (2001), provided in the NBER database.  

*Control Variables*

In our baseline regressions (see the methodology section below), we control for a vector of firm-level characteristics that may affect a firm’s innovation productivity. All control variables are obtained from Compustat. Specifically, we control for size, age, return on assets (ROA), market-to-book ratio, cash holdings, and leverage. Size is the natural logarithm of one plus the book value of total assets. Age is the natural logarithm of one plus the number of years since the company was first covered by Compustat. ROA is the ratio of operating income before depreciation to the book value of total assets. The market-to-book ratio is the ratio of the market value of total assets (obtained as the book value of total assets plus the market value of common stock minus the sum of the book value of common stock and balance sheet deferred taxes) to the book value of total assets. Cash holdings are the ratio of cash and short-term investments to the book value of total assets. The leverage ratio is the sum of long-term debt and debt in current liabilities divided by the book value of total assets.

**3.2. Methodology**

To examine whether an increase in a firm’s orientation toward stakeholders fosters innovation, we use a difference-in-differences methodology based on the enactment of the 34 constituency statutes listed in Table 1 ("treatments"). Specifically, we estimate the following regression:

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y_{ist} = \alpha_i + \alpha_t + \beta \times \text{Constituency Statute}_{st} + \gamma' X_{ist} + \varepsilon_{ist} 
\]  

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8 This adjustment factor is obtained by estimating the shape of the citation-lag distribution across time periods and technological classes. See Hall et al. (2001) for details.
where \( i \) indexes firms; \( t \) indexes years; \( s \) indexes states of incorporation; \( \alpha_i \) and \( \alpha_t \) are firm and year fixed effects, respectively. \( y \) is the dependent variable of interest, which is either \( \log(1 + \text{patents}) \) or \( \log(1 + \text{citations/patents}) \). \( \text{Constituency Statute} \) is the “treatment dummy”—i.e., a dummy variable that equals one if the company is incorporated in a state that has passed a constituency statute by year \( t \).\( ^9 \) \( \mathbf{X} \) is the vector of control variables, which includes size, age, ROA, market-to-book, cash, and leverage. All control variables are lagged by one year. \( \varepsilon \) is the error term. To account for serial correlation of the error term, we cluster standard errors at the firm level. (We obtain similar results if instead we cluster standard errors at the state, year, or industry level using 2-digit SIC industry codes). The coefficient of interest is \( \beta \), which measures the effect of the constituency statutes on innovation.\( ^{10} \)

Our identification strategy can be illustrated with an example. Assume we want to measure the effect of Georgia’s 1989 constituency statute on the number of patents. We would subtract the number of patents after 1989 from the number of patents before 1989 for the Georgia firms (“treated firms”). However, other events may have happened around 1989, exerting a potential influence on innovation. For example, there may have been an economy-wide boom that translates into higher profits and hence more resources available to develop patents after 1989. To account for such contemporaneous effect, we use a control group. For example, we could look at Alabama firms (“control firms”) and compute the corresponding difference in patents before and after 1989 (no constituency statute was passed in Alabama). By computing the difference between these two differences, we then obtain an estimate of Georgia’s 1989 constituency statute on innovation controlling for contemporaneous changes in innovation that are due to changes in economic conditions. An important difference between this example and the regression specification is that the latter accounts for the fact that the introduction of the constituency

\footnote{\( ^9 \) The state of incorporation is a legal concept that determines which constituency statute, if any, applies to a given company (the state of incorporation does not need to coincide with the state of location of the company’s headquarters). We obtain information on states of incorporation from Compustat. A caveat is that Compustat only reports the state of incorporation for the latest available year. Nevertheless, this caveat is unlikely to matter for our results. Anecdotal evidence suggests that changes in states of incorporation are very rare (e.g., Romano 1993). Along similar lines, Cheng et al. (2004) report that none of the 587 Forbes 500 firms in their panel had changed their state of incorporation during their sample period from 1984 to 1991.}

\footnote{\( ^{10} \) Due to the logarithmic specification of the dependent variable, \( \beta \) measures the percentage change in innovation.}
statutes is staggered over time. Accordingly, the composition of both the treatment and control groups changes over time as more states are progressively treated.

3.3. Cross-Sectional Heterogeneity

In auxiliary analysis (see Section 4.4), we examine whether the effect of stakeholder orientation on innovation differs depending on cross-sectional characteristics such as job security or stakeholder satisfaction. To conduct this analysis, we extend regression (1) by interacting Constituency Statute with variables capturing the cross-sectional characteristics of interest. In the following sections, we describe each of these variables in turn.

Job security. Our main measure of job security is union power, which is defined as the percentage of unionized employees within a 3-digit SIC industry. Unions have been shown to not only reduce the likelihood of being laid off (e.g., Abraham and Medoff 1984, McLaughlin and Fraser 1984) but also the likelihood of losing certain benefits such as pension or vacation benefits (e.g., Budd 2007). As such they provide “job security” in a broad sense. The unionization data are obtained from the Union Membership and Coverage Database, which is compiled from the Current Population Survey of the U.S. Census Bureau from 1983 onward. For robustness, we also use employee turnover to proxy for the threat of termination. We obtain industry-level data on employee turnover from the U.S. Bureau of Labor Statistics. They are available for 2-digit SIC industries from 1983 onward.

Job satisfaction. Our measure of employee job satisfaction is a dummy variable indicating whether the company is listed as one of the “100 best companies to work for in America.” Inclusion in this list is commonly used as a measure of job satisfaction and employee motivation (e.g., Edmans 2011, 2012, Fulmer et al. 2003). This list was first published in a book in 1984 (Levering et al. 1984) and was updated in 1993 (Levering and Moskowitz 1993). Since 1998, it has been featured in Fortune magazine every January. We hand-collect the data on a year-by-year basis and merge it to our dataset by company name. For the missing years, we use the latest available list.
Consumer-focused industries. To distinguish between companies operating in the B2C (business-to-consumer) as opposed to the B2B/G (business-to-business/government) sectors, we use the partition of Lev, Petrovits, and Radhakrishnan (2010, p. 188) based on 4-digit SIC codes.

High-polluting industries. The U.S. Environmental Protection Agency (EPA) identifies seven industry sectors that account for 92% of all disposal and other releases of TRI (toxic release inventory) chemicals (EPA 2013, p. 17). We classify firms in these sectors as operating in high-polluting industries.\(^{11}\)

4. Results

4.1. Summary Statistics

Table 2 provides summary statistics for the main variables used in this paper, as well as the corresponding correlation matrix (the last row of the table contains the KLD-index, which is introduced in Section 4.3). The first two rows contain the dependent variables—i.e., log(1 + patents) and log(1 + citations/patents).\(^{12}\) As shown, there is a large positive correlation between the two, suggesting that firms that generate more patents also receive more citations per patent.

4.2. Main Results

The main results are presented in Table 3. All regressions are variants of the difference-in-differences specification in equation (1). In Models 1 to 3, the dependent variable is log(1 + patents). The specification in Model 1 includes the treatment dummy (Constituency Statute), year and firm fixed

\(^{11}\) The seven high-polluting sectors are metal mining (NAICS 212), electric utilities (2211), chemicals (325), primary metals (331), paper (322), food, beverages, and tobacco (311 and 312), hazardous waste management (5622 and 5629). We use the NAICS-SIC bridge of the U.S. Census Bureau to match these sectors to 4-digit SIC codes.

\(^{12}\) The average number of patents per firm is 3.9, and the average number of citations per patent is 60.9.
effects. In Model 2, we also include control variables, and in Model 3 we further include the full set of industry times year fixed effects (based on 2-digit SIC codes from Compustat). The latter specification controls for any industry-specific innovation trends that may be contemporaneous with the enactment of the constituency statutes. As shown, the coefficient on the constituency statute dummy is remarkably stable across all three specifications. It lies between 0.043 and 0.049, which implies that the number of patents increases by 4.3% to 4.9% following the enactment of the statutes. In Models 4-6, we repeat the same analysis using log(1 + citations/patents) as the dependent variable. The results mirror those we obtain for the number of patents. Specifically, we find that the coefficient on the treatment dummy ranges from 0.044 to 0.060, which implies that the number of citations per patent increases by 4.4% to 6%. These findings are in line with Hypothesis 1, indicating that a firm’s stakeholder orientation leads to an increase in innovation.

4.3. Robustness and Extensions

This section presents various robustness checks and extensions of our baseline analysis. The underlying specification is the one used in Models 2 and 5 of Table 3, unless otherwise specified.

Unobserved Differences between Firms in “Treated” and “Control” States

A potential concern with the difference-in-differences methodology is that treated and control firms may be on different trends. In particular, companies incorporated in states that eventually implement a constituency statute may differ from companies in states that have not implemented such a statute. If innovation at the latter companies is decreasing over time, our results could be spurious. Nevertheless, this concern is minimized because of the staggered introduction of the constituency statutes. That is, eventually treated firms are first in the control group, and only later in the treatment group (i.e., once they
have been treated), which mitigates the concern that firms incorporated in states that have passed
collectivity laws are systematically different from other firms in a way that is correlated with innovation.

 Nonetheless, to further address this concern, we re-estimate our baseline specification for the
subsample of eventually treated firms (for a similar robustness check, see Bertrand and Mullainathan
2003). The results are presented in Models 1 and 6 of Table 4. Despite the smaller sample size (59,898
firm-year observations, compared with 159,558 in our baseline regressions), our estimates of the
treatment effect remain similar, which indicates that our findings are not driven by unobserved
differences between firms incorporated in treated and control states.

Treatment Effect Dynamics

Another potential concern pertains to reverse causality. The evidence provided so far suggests that an
exogenous increase in a firm’s orientation toward stakeholders has a causal effect on innovation.
However, it could be that constituency statutes reflect a firm’s choice, as firms may lobby for the
enactment of the constituency statutes. In particular, if firms that are characterized by high innovative
output tend to be also successful at lobbying for constituency statutes (e.g., as a way to reward their
employees), then our results would be driven by reverse causation.

To rule out this concern, we first search for qualitative evidence that would be suggestive of this
possibility. Specifically, we search the Lexis-Nexis database for press releases indicating that innovative
firms actively lobbied for the constituency statutes. Not surprisingly, we find no such evidence. While the
absence of qualitative evidence helps mitigate reverse causality concerns, it does not provide rigorous
empirical evidence. Therefore, we perform additional empirical analyses to further examine the potential
(reverse) effect of innovation on the constituency statutes. Specifically, we leverage our empirical
framework to assess the dynamics of the treatment effect. To do so, we follow common practice in the
difference-in-differences literature (e.g., Bertrand and Mullainathan 2003) and replace the treatment
dummy with a set of four dummy variables indicating the year prior to the treatment (“Constituency
Statute (−1)), the year of the treatment (“Constituency Statute (0)”), the first year after the treatment (“Constituency Statute (1)”), and two or more years after treatment (“Constituency Statute (2+)”). If our results are driven by reverse causation, the constituency statutes should have an “effect” already before they had been enacted—that is, we should observe a positive and significant coefficient of Constituency Statute (−1).

As presented in Models 2 and 7 of Table 4, the estimates of the dynamic effect alleviate concerns about pre-existing trends. For both measures of innovation (patents in Model 2 and citations/patents in Model 7), the coefficient of Constituency Statute (−1) is small and insignificant, which is inconsistent with reverse causation. Interestingly, we find no effect in the year of the treatment either—the coefficient of Constituency Statute (0) is insignificant. In fact, as shown by the positive and statistically significant coefficient of Constituency Statute (1), it is only one year after the statutes are enacted that the treatment effect becomes large and significant. This suggests that it takes about 12 to 24 months for the increase in stakeholder orientation to translate into higher innovative output. Finally, the coefficient of Constituency Statute (2+) remains large and significant, which indicates that stakeholder orientation has a long-lasting effect on innovation. Overall, these results indicate that the observed effect of the constituency statutes on innovation does not reflect reverse causation.

Excluding Delaware Firms

The prevalence of Delaware incorporation may be a further potential concern. An important feature of the U.S. corporate landscape is that more than half of U.S. public companies are incorporated in Delaware (see, e.g., Bebchuk and Cohen 2003, p. 389). Because Delaware has not introduced a constituency statute, Delaware-incorporated firms are in the control group. Accordingly, if Delaware companies are becoming less innovative over time, our results could be spurious, merely reflecting a Delaware effect. To address this concern, we re-estimate our baseline specification excluding Delaware firms. The results are
presented in Models 3 and 8 of Table 4. As is shown, the estimated effect of the constituency statutes is similar to our main results in Table 3. Thus, our results are not driven by a Delaware effect.

*Alternative Time Period*

As can be seen from Table 1, the majority of the constituency statutes were passed between 1984 and 1990 (27 out of 34 states). Since our sample period ranges from 1976 to 2006, we have more “after” years than “before” years. To see whether this imbalance affects our results, we re-estimate our baseline specification by truncating the sample in 1995. As shown in Models 4 and 9 of Table 4, doing so is immaterial for our results.

*Stakeholder-Friendly Provisions at the Firm Level*

The difference-in-differences specification in equation (1) relies on exogenous variation in stakeholder orientation in the form of constituency statutes. Accordingly, this analysis provides a causal estimate of the effect of stakeholder orientation on innovation.

By construction, our difference-in-differences approach only speaks to the effect of changes in stakeholder-friendly *legislation* on innovation. In practice, companies adopt a variety of stakeholder-friendly provisions. Hence, a related question is whether these firm-level provisions affect innovation as well. As mentioned above, such analysis is difficult since the implementation of stakeholder-friendly initiatives is an endogenous decision of the companies, and hence unobservable firm characteristics may drive both the choice of stakeholder-oriented initiatives and innovation. For this reason, an analysis of firm-level stakeholder orientation, albeit informative, may not warrant a causal interpretation.
With this caveat in mind, we construct a firm-level measure of stakeholder orientation by using the Kinder, Lydenberg, and Domini (KLD) database. This database contains social ratings of companies along several dimensions that reflect how well they cater to the community, corporate governance, diversity, the natural environment, human rights, product quality, as well as whether firms’ operations are related to alcohol, gambling, firearms, nuclear power, and military contracting. For each dimension, strengths and concerns are measured to evaluate positive and negative aspects of corporate actions toward stakeholders. Since the KLD data start in 1991, the sample period considered for this analysis is from 1991 to 2006.

To account for stakeholder orientation, we focus on firms’ attention to employees, customers, the natural environment, and society at large (community and minorities). More precisely, we construct a composite KLD-index by summing up all strengths along these dimensions. The summary statistics for the KLD-index, as well as its correlation with the other variables used in this study, are provided in Table 2. Interestingly, the correlation between the KLD-index and both measures of innovation is positive (the correlation with the number of patents is 28%, and the correlation with the number of citations per patent is 19%). These correlations are suggestive of Hypothesis 1, according to which stakeholder orientation fosters innovation.

To provide a more rigorous analysis of the relationship between the KLD-index and innovation, we estimate the following regression:

\[ y_{it} = a_t + b \times KLD_{it} + c'X_{it} + e_{it}, \]  

13 KLD offers multidimensional measures of stakeholder orientation (Hillman and Keim 2001) that have been extensively used by researchers and practitioners alike (e.g., Berman et al. 1999, Deckop et al. 2006, Graves and Waddock 1994). KLD is a social choice investment advisory firm that relies on independent rating experts to assess how well companies address the needs of their stakeholders based on multiple data sources including annual questionnaires sent to companies’ investor relations offices, firms’ financial statements, annual and quarterly reports, general press releases, government surveys, and academic publications.

14 In addition to CSR strengths, the KLD data also contain a list of CSR concerns. Accordingly, an alternative approach is to construct a “net” KLD-index by subtracting the concerns from the strengths. However, recent research suggests that this approach is methodologically questionable. Because KLD strengths and concerns lack convergent validity, using them in conjunction fails to provide a valid measure of CSR (e.g., Mattingly and Berman 2006). For this reason, our analysis relies on the composite index of KLD strengths.
where \( i \) indexes firms; \( t \) indexes years; and \( a_t \) denotes year fixed effects.\(^{15}\) \( y \) and \( \mathbf{X} \) are the same as in equation (1). \( KLD \) is the KLD-index. To allow for serial correlation of the error term \( e \), we cluster standard errors at the firm level. The coefficient of interest is \( b \), which measures whether companies with a higher score on the KLD-index are more likely to innovate.

The estimates of \( b \) are provided in Models 5 and 10 of Table 4. As is shown, \( b \) is positive and significant for both measures of innovation (patents in Model 5 and citations/patents in Model 10). This evidence is consistent with the findings from our difference-in-differences analysis in Table 3, and thus provides additional support for Hypothesis 1.

4.4 Auxiliary Analysis: Mechanisms through which Stakeholder Orientation Fosters Innovation

The central tenet of our theory is that stakeholder orientation increases innovation by fostering a secure work environment and enhancing the satisfaction of the firm’s stakeholders. In this section, we discuss testable implications of these mechanisms and explore them empirically.\(^{16}\)

Secure Work Environment

Our arguments suggest that stakeholder orientation may promote innovative activity by fostering a safer environment for employees to experiment and take risks. As companies credibly provide employees with a more secure work environment, employees are more likely to re-direct their attention to risky and unpredictable innovative projects. This mechanism implies that by adopting a stakeholder-friendly orientation, firms are able to offset the negative effect of low job security on employees’ engagement in

\(^{15}\) We do not include firm fixed effects since the KLD-index changes little from one year to the next.

\(^{16}\) This analysis is conducted by interacting the treatment dummy in equation (1) with cross-sectional characteristics (e.g., job security). A caveat of this approach is that we do not have exogenous variation in the cross-sectional characteristics of interest, i.e. they may correlate with other variables. Accordingly, albeit informative, the results presented in this section do not necessarily warrant a causal interpretation.
risky innovative activities. Accordingly, we would expect the impact of stakeholder orientation on innovation to be stronger for firms in industries with lower job security.

We empirically assess this mechanism in Models 1 and 6 of Table 5. Specifically, we re-estimate our baseline specification in equation (1), interacting the constituency statute dummy with two dummy variables indicating whether the company operates in an industry whose unionization rate lies above (“High Union Power”) or below (“Low Union Power”) the median across all industries in the year preceding the treatment. We use pre-treatment values to ensure that the treatment does not have a direct effect on the unionization rate.\footnote{As mentioned in Section 3.3, the unionization data start in 1983. Since the first treatments also occur in 1983 (North Dakota), there is no pre-treatment data for that specific year. Accordingly, for the 1983 treatments we sort industries based on the 1983 values (instead of the 1982 values). We proceed analogously with the other variables used in Table 5.} As is shown, the effect of the constituency statutes is small and insignificant in industries with higher union power. In contrast, it is large and highly significant in industries with lower union power. This is supportive of the above argument according to which the effect of increased stakeholder orientation on innovation is stronger for companies operating in industries where the risk of termination is larger.

For robustness, in Models 2 and 7, we further interact the constituency statute dummy with two dummy variables indicating whether the company operates in an industry where employee turnover lies above (“High Employee Turnover”) or below (“Low Employee Turnover”) the median across all industries in the year preceding the treatment. Consistent with the previous results, we find that the treatment effect is large and significant in industries with high turnover, while it is small and insignificant in industries with low turnover.

**Stakeholder Satisfaction**

Besides providing a safer work environment, stakeholder orientation may also improve the satisfaction of various stakeholders, which in turn could positively influence innovative activity. We begin by assessing
the role of employee satisfaction.

Employees. Our arguments suggest that stakeholder orientation is likely to increase employees’ engagement in innovative projects by fostering employee satisfaction, commitment, and loyalty. Because “happier” employees are generally more willing to engage in innovative projects and tasks, stakeholder orientation should offset employee dissatisfaction, leading to a greater increase in innovative output for firms with lower employee satisfaction. We examine this mechanism in Models 3 and 8 of Table 5, where we interact the constituency statute dummy with two dummy variables indicating whether or not the company was listed among the 100 best companies to work for in the year preceding the treatment (“Best 100 Company” and “Other Company,” respectively). As can be seen, the treatment effect is only significant for companies that are not among the best 100 firms. This indicates that the impact of increased stakeholder orientation on innovation is indeed stronger for companies with relatively low job satisfaction.

Customers. Similarly, we explore the role of customer satisfaction as a potential explanation for the positive impact of stakeholder orientation on innovation. Our arguments imply that stakeholder-friendly policies contribute to customer satisfaction and positive customer attitudes. If customer satisfaction accounts for the positive influence of stakeholder orientation on innovation, we would expect the treatment effect to be stronger in consumer-focused industries (i.e., industries in which goods and services are sold directly to individual customers).¹⁸ We examine this mechanism in Models 4 and 9 of Table 5 by interacting the treatment dummy with two dummy variables indicating whether the company operates in the B2C and B2B/G sector, respectively. As is shown, we find that the treatment effect is indeed larger for companies in the B2C sector.

Environment. Finally, we assess whether stakeholder orientation fosters innovation by attending to the natural environment and thus improving the satisfaction of stakeholders concerned about environmental issues. If stakeholder-friendly orientation promotes innovation by enhancing stakeholder satisfaction.

¹⁸ Relatedly, Lev, Petrovits, and Radhakrishnan (2010) show that, in such industries, clients are more sensitive to the social engagement of companies.
satisfaction, we would expect the treatment effect to be stronger in industries engaged in less eco-friendly activities, i.e. industries that are more likely to be associated with stakeholder dissatisfaction. We examine this mechanism in Models 5 and 10 of Table 5, in which we interact the constituency statute dummy with two dummy variables indicating whether the company operates in a high- versus low-polluting industry. Consistent with the above argument, we find the treatment effect is larger for companies operating in high-polluting industries.

5. Discussion and Conclusion

How can companies spark innovation? This question has received considerable attention in the literature. Yet very little is known about the role of stakeholder orientation. Motivated by this research gap, this study examines whether and how attending to the company’s non-financial stakeholders affects innovative activity within the firm.

To examine the impact of stakeholder orientation on innovation, we exploit a quasi-natural experiment provided by the enactment of constituency statutes in 34 states between 1984–2006. These statutes encourage corporate directors to consider non-shareholder interests when making business decisions, and hence provide exogenous variation in the way public U.S. corporations cater to stakeholders. Using a difference-in-differences methodology, we find that the introduction of constituency statutes leads to a significant increase in innovation. Specifically, we find that firms incorporated in states that have enacted constituency statutes generate more patents and receive more citations per patent than firms incorporated in states that have not enacted such statutes. These findings are consistent with the view that stakeholder orientation fosters innovation.

We provide a series of robustness checks that reinforce these results. In particular, our findings hold when we estimate the difference-in-differences specification using the subsample of “eventually-treated” states, thus mitigating concerns that our findings may be driven by unobserved differences between states in the treatment versus control group. In addition, our results are unlikely to reflect the
endogenous enactment of constituency statutes, as we find no evidence for potential lobbying or pre-existing trends prior to the statutes’ enactment. Moreover, using an alternative measure of stakeholder orientation (the KLD-index), we are able to replicate our main finding—stakeholder orientation has a positive effect on innovation.

We further extend our analysis by exploring the mechanisms through which stakeholder orientation may promote innovation. First, we argue that by catering to their stakeholders, companies will foster a more secure work environment. Such work environment is conducive to innovative activities, as it promotes experimentation and tolerance for failure. Consistent with this argument, we find that the enactment of constituency statutes has a stronger impact on innovation in industries with lower job security (industries that are less unionized and industries with higher employee turnover).

Second, we argue that stakeholder orientation fosters innovation by increasing the satisfaction of various stakeholders. In particular, our results show that the positive impact of stakeholder orientation on innovation is larger for firms with lower employee satisfaction (i.e., firms not listed among the “best companies to work for”), firms in consumer-focused industries (i.e., in the B2C sector), and firms in less eco-friendly industries with greater stakeholder dissatisfaction (i.e., high-polluting industries).

To the best of our knowledge, this study is the first to examine whether stakeholder orientation plays a role in fostering innovation. It further sheds light on the mechanisms through which stakeholder orientation leads to an increase in innovative activity. Finally, our study contributes to the vibrant body of work on the attention to stakeholders and performance outcomes. In particular, a growing literature focuses on the link between corporate social performance (CSP) and corporate financial performance (CFP) (e.g., Flammer 2013, Margolis and Walsh 2003, Walsh et al. 2003). In their meta-analysis, Margolis et al. (2007) report that, in general, this literature points toward a positive relationship between CSP and CFP. Yet, the value-creating mechanisms behind CSP and CFP remain largely unexplored. Studies in this vein emphasize the role of CSP investments in generating high financial performance, e.g., by providing insurance against unexpected crises (Schnietz and Epstein 2005), or by establishing a unique customer base (Sen and Bhattacharya 2001). Given that innovative capabilities contribute to firm’s
competitive advantage and market leadership (e.g., Baumol 2002, Porter 1990, Schumpeter 1942), our study implies a novel mechanism behind the positive relationship between stakeholder orientation and financial performance—in innovation.

References


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*Forbes* (2011b) GE’s new Ecomagination chief: Green tech innovation goes global. 3 May.

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GreenBiz (2010) GE’s Ecomagination challenge: A smart way to spur innovation. 5 October.


### Table 1. Constituency Statutes

<table>
<thead>
<tr>
<th>State</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>1987</td>
</tr>
<tr>
<td>Connecticut</td>
<td>1997</td>
</tr>
<tr>
<td>Florida</td>
<td>1989</td>
</tr>
<tr>
<td>Georgia</td>
<td>1989</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1989</td>
</tr>
<tr>
<td>Idaho</td>
<td>1988</td>
</tr>
<tr>
<td>Illinois</td>
<td>1985</td>
</tr>
<tr>
<td>Indiana</td>
<td>1989</td>
</tr>
<tr>
<td>Iowa</td>
<td>1989</td>
</tr>
<tr>
<td>Kentucky</td>
<td>1989</td>
</tr>
<tr>
<td>Louisiana</td>
<td>1988</td>
</tr>
<tr>
<td>Maine</td>
<td>1986</td>
</tr>
<tr>
<td>Maryland</td>
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<td>Massachusetts</td>
<td>1989</td>
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<td>Minnesota</td>
<td>1987</td>
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<td>Mississippi</td>
<td>1990</td>
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<td>Missouri</td>
<td>1989</td>
</tr>
<tr>
<td>Nevada</td>
<td>1991</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1989</td>
</tr>
<tr>
<td>New Mexico</td>
<td>1987</td>
</tr>
<tr>
<td>New York</td>
<td>1987</td>
</tr>
<tr>
<td>North Carolina</td>
<td>1993</td>
</tr>
<tr>
<td>North Dakota</td>
<td>1993</td>
</tr>
<tr>
<td>Ohio</td>
<td>1984</td>
</tr>
<tr>
<td>Oregon</td>
<td>1989</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1990</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>1990</td>
</tr>
<tr>
<td>South Dakota</td>
<td>1990</td>
</tr>
<tr>
<td>Tennessee</td>
<td>1988</td>
</tr>
<tr>
<td>Texas</td>
<td>2006</td>
</tr>
<tr>
<td>Vermont</td>
<td>1998</td>
</tr>
<tr>
<td>Virginia</td>
<td>1988</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>1987</td>
</tr>
<tr>
<td>Wyoming</td>
<td>1990</td>
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Table 2. Descriptive Statistics and Correlations

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<th>Std. Dev.</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>1 Log(1 + Patents)</td>
<td>0.32</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2 Log(1 + Citations/Patents)</td>
<td>0.40</td>
<td>0.98</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 Log(1 + Size)</td>
<td>4.58</td>
<td>2.47</td>
<td>0.26</td>
<td>0.13</td>
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<td></td>
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<td></td>
</tr>
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<td>4 Log(1 + Age)</td>
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<td>0.77</td>
<td>0.21</td>
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<tr>
<td>5 Market-to-Book</td>
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<td>3.75</td>
<td>0.00</td>
<td>0.01</td>
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<td>-0.18</td>
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<tr>
<td>6 Return on Assets</td>
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<td>0.20</td>
<td>0.11</td>
<td>0.09</td>
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<td>-0.42</td>
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<td>0.28</td>
<td>-0.07</td>
<td>-0.09</td>
<td>-0.08</td>
<td>0.04</td>
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<td>8 Cash Holdings</td>
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<td>-0.23</td>
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<td>-0.32</td>
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<tr>
<td>9 KLD-Index</td>
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<td>1.92</td>
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<td>0.19</td>
<td>0.45</td>
<td>0.27</td>
<td>0.03</td>
<td>0.12</td>
<td>0.06</td>
<td>-0.08</td>
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*Notes.* Pearson correlation coefficients. $n = 159,558$ (except in row 9, where $n = 14,968$).
Table 3. Does Stakeholder Orientation Foster Innovation?

<table>
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<tr>
<th>Dependent Variable</th>
<th>Log(1 + Patents)</th>
<th>Log(1 + Citations/Patents)</th>
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<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
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<tr>
<td>Constituency Statute</td>
<td>0.044**</td>
<td>0.049**</td>
</tr>
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<td></td>
<td>(0.021)</td>
<td>(0.021)</td>
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<tr>
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<tr>
<td>Year Fixed Effects</td>
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<tr>
<td>Firm Fixed Effects</td>
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<td>Industry × Year Fixed Effects</td>
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<td>159,558</td>
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<tr>
<td>R-squared</td>
<td>0.74</td>
<td>0.75</td>
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*Notes.* Standard errors are in parentheses. All tests two-tailed. *p < 0.10; **p < 0.05; ***p < 0.01.
Table 4. Robustness and Extensions

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<td>Constituency Statute (0)</td>
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<td>Constituency Statute (2+)</td>
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<td>R-squared</td>
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Notes. Standard errors are in parentheses. All tests two-tailed. * \( p < 0.10; ** \( p < 0.05; *** \( p < 0.01.\)
Table 5. Mechanisms

<table>
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<th>Dependent Variable</th>
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<th>Log(1 + Citations/Patents)</th>
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<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td>Model 4</td>
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<tr>
<td>Constituency Statute × High Union Power</td>
<td>0.022 (0.034)</td>
<td>0.023 (0.030)</td>
<td>0.097*** (0.020)</td>
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<td>Constituency Statute × Low Union Power</td>
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<td>0.086*** (0.033)</td>
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<td>Constituency Statute × High Employee Turnover</td>
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<td>0.0101*** (0.025)</td>
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<td>Constituency Statute × Best 100 Company</td>
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</tr>
<tr>
<td>Constituency Statute × Other Company</td>
<td>0.049*** (0.021)</td>
<td>0.060*** (0.018)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constituency Statute × B2C Industries</td>
<td>0.107*** (0.041)</td>
<td>0.099*** (0.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constituency Statute × B2B/B2G Industries</td>
<td>0.014 (0.021)</td>
<td>0.037* (0.020)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constituency Statute × High-Polluting Industries</td>
<td>0.002 (0.022)</td>
<td>0.113*** (0.036)</td>
<td>0.084*** (0.030)</td>
<td></td>
</tr>
<tr>
<td>Constituency Statute × Low-Polluting Industries</td>
<td>0.002 (0.022)</td>
<td>0.113*** (0.036)</td>
<td>0.084*** (0.030)</td>
<td></td>
</tr>
<tr>
<td>Control Variables</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>159,558</td>
<td>159,558</td>
<td>159,558</td>
<td>159,558</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.75</td>
<td>0.75</td>
<td>0.75</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Notes. Standard errors are in parentheses. All tests two-tailed. * p < 0.10; ** p < 0.05; *** p < 0.01.