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Trade Secret Protection and the Geography of Venture Capital Investments: Evidence from the Inevitable Disclosure Doctrine

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Abstract

This study investigates how inevitable disclosure, a form of trade secret protection, affects the geography of venture capital (VC) investment. Using a dataset of VC deals realized in the United States from 1980 to 2012, we find that a rule in favor of inevitable disclosure increases both the amount of VC investment per start-up and the proportion of investment by non-local VCs. We address mechanisms that can explain these findings by considering how a court decision on inevitable disclosure might increase the probability of obtaining a court injunction against a former employee and the predictability of that injunction. We also discuss managerial and policy implications of our findings.

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ABSTRACT

This study investigates how inevitable disclosure, a form of trade secret protection, affects the geography of venture capital (VC) investment. Using a dataset of VC deals realized in the United States from 1980 to 2012, we find that a rule in favor of inevitable disclosure increases both the amount of VC investment per start-up and the proportion of investment by non-local VCs. We address mechanisms that can explain these findings by considering how a court decision on inevitable disclosure might increase the probability of obtaining a court injunction against a former employee and the predictability of that injunction. We also discuss managerial and policy implications of our findings.

Keywords:

intellectual property rights protection, trade secrets, employee mobility, inevitable disclosure doctrine, venture capital

INTRODUCTION

Venture capital (VC) plays a critical role in fostering regional entrepreneurship, innovation, and, ultimately, economic growth (Samila and Sorenson, 2011a). Given its importance, scholars and policy makers have been trying to better understand the factors that may condition the development of VC in a region. Prior work has looked at a diverse set of issues, including the presence of a stock market (e.g., Michelacci and Suarez, 2004), tax rates (Poterba, 1989), and intellectual property rights (IPRs) (e.g., Lerner and Tåg, 2013).

With respect to the role of IPRs in VC, particular attention has been paid to the patent system (e.g., Hsu and Ziedonis, 2013; Mann and Sager, 2007), an important dimension of the IPR environment. Despite their role, patents are only part of IPRs. A further dimension of IPR policy and practice is represented by trade secrets, defined as any information that derives independent economic value, actual or potential, from not being generally known.[1] Given the breadth of knowledge potentially covered by the term, Halligan (2008: 3) argues that "the vast bulk of intangible assets are trade secret assets," whereas Risch (2007: 656) notices that trade secrets are "the most important and most heavily litigated intellectual property rights." Therefore, it appears significant to extend this line of inquiry into how legal protection associated with trade secrets might influence the presence and role of VC in a region.

To help fill this gap, we focus on the inevitable disclosure doctrine, whose rule determines whether the owner of a trade secret can (if the rule is in favor of the inevitable disclosure doctrine) or cannot (if the rule is against the inevitable disclosure doctrine) obtain a

[1] More precisely, the U.S. Uniform Trade Secrets Act, §1.4, defines a trade secret to mean "information, including a formula, pattern, compilation, program device, method, technique, or process, that: (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy."

court injunction to prohibit a departing employee from working for a competitor or founding a rival firm, on the grounds that she could inevitably disclose trade secrets (Lowry, 1988). The inevitable disclosure doctrine can thus allow a company not only to protect its extant trade secrets but also to avoid the loss of valuable human capital at a competing firm's advantage.

In the United States, where the inevitable disclosure doctrine has predominantly been developed, the extent to which a state jurisdiction embraces the inevitable disclosure doctrine varies. Through its court precedents, a state may in fact adopt (a) a rule clearly in favor of inevitable disclosure, (b) a rule clearly against, or (c) no clear rule. These scenarios could condition the decisions of venture capitalists (VCs) to invest in a region. In particular, we argue that a region embracing a rule clearly in favor of the inevitable disclosure doctrine should attract VC investments more than any other possible scenario (against, or no clear rule), for reasons related to the likelihood of obtaining a court injunction to restrict employee mobility.

VC investors would generally prefer that key employees of an invested firm do not opportunistically leave the company to pursue opportunities in competition with the former employer (Baron, Hannan, and Burton, 2001). In this respect, a precedent in favor of inevitable disclosure increases the likelihood that a VC-backed firm obtains a court injunction against a former employee hired by a competitor (Png and Samila, 2013). Furthermore, given that a state court will tend to make decisions consistent with the precedent in any similar case at hand, a case clearly in favor of inevitable disclosure also enhances the predictability of this court injunction. Higher predictability is desired not only by risk-averse VC investors, who prefer a more stable institutional environment (Malesky and Samphantharak, 2008), but also by risk-neutral investors, who might otherwise prefer to wait and see how the regulatory environment evolves before making investments (Bloom, Bond, and Van Reenen, 2007).

Clear rulings in favor of inevitable disclosure should also be more significant for non-local investors than for local ones. A trustworthy relationship with key employees at an investee company can reduce their possible opportunistic behavior—including the risk that they leave to join a competitor or found a new company (Baker, Gibbons, and Murphy, 2002; Gans, Hsu, and Stern, 2008). This is harder to accomplish for VCs who are not local (e.g., Taussig and Delios, 2014), increasing for them the importance of a clear rule in favor of inevitable disclosure in the region.

To empirically assess whether and how rulings on inevitable disclosure stimulate investment from VCs, we exploit longitudinal variation in inevitable disclosure rule in U.S. states, as determined by court precedents (Kahnke, Bundy, and Liebman, 2008; Klasa *et al.*, 2014; Malsberger, 2011; Milgrim and Bensen, 2013b; Png and Samila, 2013; Quinto and Singer, 2009; Wiesner, 2012). We find that a rule in favor of inevitable disclosure increases the amount of VC available for local start-ups by about 26 percent compared with where there is no rule or where the rule is against the inevitable disclosure. Additionally, having a rule in favor of inevitable disclosure increases the proportion of VC investments by non-local investors by about 6 percentage points compared with having no rule on the doctrine or having a rule against it.

Overall, this paper contributes to existing research in three ways. First, it extends the literature on the impact of the institutional environment on investments (e.g., Lerner and Tåg, 2013; Pe'er and Gottschalg, 2011; Taussig and Delios, 2014), showing how and to what extent the inevitable disclosure rule conditions VC investments. Second, it extends the literature on trade secrets as an important IPR protection mechanism that affects innovation and entrepreneurship (e.g., Fosfuri and Rønde, 2004; Png, 2012). Third, we contribute to the

literature on employer-friendly labor rules for innovation and entrepreneurship (e.g., Conti, 2014; Garmaise, 2011; Marx, Strumsky, and Fleming, 2009; Stuart and Sorenson, 2003).

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

IPR protection, inevitable disclosures, and venture capital

It is well established that VC plays a critical role in fostering entrepreneurship in a region (Samila and Sorenson, 2011a). Therefore, regions and countries have been seeking to increase VC activity within their boundaries and are eager to identify policies and strategies that can have such an effect (Bottazzi and Da Rin, 2002). This has sparked a growing academic literature analyzing a variety of drivers of VC investments (Lerner and Tåg, 2013).

A first driver is the financial market, which has been shown to significantly impact VC investment. For example, previous work has demonstrated that the efficiency of a public stock market attracts VC investment by enhancing the likelihood of the investee company to be sold through an initial public offering (IPO) (Black and Gilson, 1998). In line with this idea, Jeng and Wells (2000) find that nations with more IPOs have greater VC investment. Studies have also shown that regulatory changes regarding financial markets can affect VC fundraising. For instance, the deregulation of VC investment by public pension funds introduced in 1979 led to a subsequent dramatic increase in the amount of funds flowing to the VC industry (Gompers and Lerner, 2004; Kortum and Lerner, 2000).

A second driver considered by prior research is the tax system. For example, VC activity is expected to increase when expected profits and returns increase as a result of lower capital gains tax rates (Keuschnigg and Nielsen, 2003). This was confirmed by Poterba (1989), as well as by Gompers and Lerner (1998), who found that reductions in capital gains tax rates in the United States during the 1970s and 1980s led to an increase in VC investment.

A third driver is the impact of IPR protection regulation on VC investment. The core idea is that IPRs play an important role in determining the extent to which VCs can secure investee knowledge assets (e.g., La Porta *et al.,* 1997). Therefore, IPR protection regulation should have an important impact on VC investment. Most existing literature on IPR and VC has focused on patents, showing how they can solve uncertainty related to opportunistic behaviors of VC transaction counterparts, both before (ex-ante) and after (ex-post) the contract between investor and investee is signed. By requiring knowledge disclosure, patents make third parties better informed ex-ante about the value of a firm's knowledge base. This reduces information asymmetry between investors and investee and encourages the former to invest in the latter (Akerlof, 1970; Healy and Palepu, 2001). Ex-post, patent protection reduces the risk of unintended knowledge leakages to rivals, for instance those associated with key employees opportunistically leaving a company to pursue better opportunities. The mitigation of this risk makes VC investment more profitable (Baum and Silverman, 2004; Cao and Hsu, 2011; Häussler, Harhoff, and Müller, 2009; Hsu and Ziedonis, 2013; Mann and Sager, 2007).

To enrich this growing literature on IPR and VC, we focus on trade secret protection, in particular on the inevitable disclosure doctrine, a particularly strong form of trade secret protection. Trade secret protection is generally considered to be broader than protection granted by other IPRs, including patents, copyrights, and trademarks (Besen and Raskind, 1991). First, whereas patent and copyright protection require subject matter to be novel, trade secret protection requires only that the subject matter derive some commercial value from not being known (Kitch, 1980). Second, patents, copyrights, and trademarks protect only explicit knowledge—that is, knowledge already articulated and stored in certain media. In contrast, trade secrets protect any proprietary knowledge that is not known to others and that can

provide a competitive advantage, be that explicit or tacit knowledge. For instance, trade secret protection may not only encompass chemical formulae and customer lists, both of which can be stored and represent explicit knowledge, but can also include "negative know-how" obtained by previously attempted but failed techniques or procedures (Graves, 2006), which is essentially tacit knowledge. Finally, unlike patent protection, trade secret protection is exempt from having an expiration date and may live as long as the knowledge is kept secret. The economic importance of trade secret protection for firms and regions has been clearly demonstrated by prior work. For example, higher levels of trade secret protection have been shown to increase firm profits and to stimulate regional clusters (Fosfuri and Rønde, 2004), encourage more R&D investment (Png, 2014), and decrease labor mobility (Png, 2012).

A critical element associated with the role of trade secrets, as in all dimensions of IPR, is enforceability. Although several aspects contribute to the enforceability of trade secrets (David, 1993), the extent to which they are in fact protected may critically depend on whether a jurisdiction embraces the inevitable disclosure doctrine. This doctrine determines whether the owner of a trade secret can (if the rule is in favor of the inevitable disclosure doctrine) or cannot (if the rule is against the inevitable disclosure doctrine) obtain a court injunction to prohibit a departing employee from working for a competitor, on the grounds that he or she could inevitably disclose trade secrets (Lowry, 1988).

In the United States, where the inevitable disclosure doctrine has been predominantly developed, the rule is established through court precedents. This means that once the rule of law is established for the first time by a court for a particular case, it is thereafter referred to when similar cases are decided, effectively binding the future—which is the essence of the

stare decisis principle (Hart, 2012; Horwitz, 1977; Landes and Posner, 1976).[2] Hence, when a precedent in favor of inevitable disclosure is set, the doctrine can be used as an effective tool to prevent employees from working for other competing firms, based on the belief that they might unavoidably disclose and so misappropriate trade secrets (Godfrey, 2004).

The modern form of the inevitable disclosure doctrine was defined in 1995 with the Seventh Circuit's decision in *PepsiCo, Inc. v. Redmond.* Despite other decisions having embraced the inevitable disclosure doctrine as a further reason to enforce a non-compete agreement[3] or to grant a limited injunction,[4] *PepsiCo, Inc. v. Redmond* was the first court decision to issue a very *broad* injunction, which prohibited de facto a departing employee who had not signed a non-compete agreement from working for a competitor, on the grounds that he or she would inevitably disclose trade secrets (Mulcahy and Tassin, 2003).[5] The defendant in that case was a high-level manager at PepsiCo who left to join a rival company. He had signed a confidentiality agreement with PepsiCo but had not entered into a covenant not to compete. The Seventh Circuit nonetheless affirmed a preliminary injunction restraining the new employment, explaining that a plaintiff may prove trade secret misappropriation by showing that defendant's new employment will inevitably lead him to rely on the plaintiff's trade secrets.

Since the PepsiCo case, six states (Illinois, Iowa, New York, Pennsylvania, Utah, and Washington) have embraced the PepsiCo interpretation of the doctrine, and four states (Florida, Maryland, Massachusetts, and Virginia) have clearly rejected it. Another five states

[2] While there is a possibility that individual courts might deviate from precedent, the appeals process to higher courts within each state lowers the probability that any disregard for precedent is systematic (Landes and Posner, 1976).
[3] *Eastman Kodak Co. v. Powers Film Prod.,* 189 A.D. 556 (N.Y.A.D. 1919)
[4] *B. F. Goodrich Co. v. Wohlgemuth,* 117 Ohio App. 493, 192 N.E.2d 99 (1963)
[5] Furthermore, another important characteristic of *PepsiCo, Inc. v. Redmond* is that the trade secrets involved in the case were not of a technical nature, as was generally true in earlier cases considering inevitable disclosure.

(California, Louisiana, Minnesota, New Jersey, and North Carolina) had, even before 1995, rejected inevitable disclosure as an independent claim under which a court might enjoin a former employee from working for a competitor. In the remaining states, there is still uncertainty regarding a company's ability to prevent an employee from moving to a competitor in the absence of a non-competition covenant.

Although a large body of law literature has been devoted to studying the inevitable disclosure doctrine (e.g., Edelstein, 1996; Lowry, 1988; Whaley, 1998), this issue has received far less attention in the fields of management and public policy. In these areas, research on inevitable disclosure has only started to emerge in the last decade (Graves and DiBoise, 2006; Hyde, 2003; Png and Samila, 2013), probably because most of the inevitable disclosure cases in the United States happened between 1995 and 2004. Furthermore, previous literature has mainly focused on how inevitable disclosure rule could limit employee mobility, showing that rulings in favor of inevitable disclosure were associated with substantially lower mobility of technical workers (Png and Samila, 2013). However, research has not considered whether the court rulings in a jurisdiction may condition VC investment decisions.

Inevitable disclosure rule and VC investments

In all firms, but especially in start-ups, performance outcomes depend on a few critical employees, such as founders, who nurture the business (Campbell and Ganco, 2012; Colombo and Grilli, 2005; O'Boyle Jr. and Aguinis, 2012). Besides the loss of valuable human capital, departures of key employees can lead to knowledge leakage to competitors (Kaplan and Strömberg, 2003), thus reducing the competitive edge of the firm. Hence, the profit of start-ups will crucially depend on the permanence of key employees (including founders), who might

otherwise depart to join a competitor, or to establish a spinoff (Klepper, 2007). The ease with which key employees can move is likely to be extremely important also for VC investors, whose returns directly depend on the VC-backed firms' profits (Hart and Moore, 1994).

Given these concerns, it is not surprising to find that, at the time of investment, VCs often establish contractual clauses that make it difficult for key employees to depart from the financed company. For example, VC investors could ask founders to sign a vesting clause, that is, "a legal arrangement in which the entrepreneurs' shares are originally held by the company" (Hellmann, 1998: 58) and awarded over a multiyear period (Gompers and Lerner, 2001). If entrepreneurs were to leave before being fully vested, they might lose shares or the company might be able to buy back earned shares at a discounted price. Frequently, VC investors also mandate that VC-backed firms use non-compete clauses, which prohibit key employees from joining a competitor for a specified period of time (Kaplan and Strömberg, 2003). Although those clauses might be effective for reducing outbound mobility, entrepreneurs or key employees may seek extra compensation in exchange for signing them, which would be reflected naturally in lower VC-backed firm profits and returns to VC investments. In contrast, once a jurisdiction has embraced the inevitable disclosure doctrine, VC-backed firms could limit employee mobility through a court injunction even in the absence of any specific contractual clause.

The extent to which U.S. state jurisdictions embrace the inevitable disclosure doctrine varies substantially according to court precedents. In particular, whereas some state courts have ruled clearly in favor of or against inevitable disclosure, others have reached unclear decisions—that is, ambiguous decisions that do not clarify exactly the inevitable disclosure doctrine's scope of application—or have yet to decide on the doctrine. This generates three

possible contexts for a given state: (a) a rule clearly in favor of inevitable disclosure, (b) a rule clearly against inevitable disclosure, (c) no clear rule.

With respect to the baseline case of having no clear rule, a rule in favor of inevitable disclosure should attract VC investors for two reasons related, respectively, to the expected value of obtaining a court injunction against a former employee hired by a competitor and to the predictability of that injunction. First, in the presence of a clear precedent embracing the inevitable disclosure doctrine, the likelihood of a court injunction increases (Png and Samila, 2013). This result would naturally attract VC investors, whose returns depend on the ability of the firms they invest in to retain their best employees. Second, with a clearly favorable precedent, any court will most likely apply the inevitable disclosure doctrine to any similar case at hand in the same direction as previous cases. Higher predictability of court decisions in inevitable disclosure cases, compared with a scenario where there is no rule at all, should attract both risk-averse and risk-neutral investors.

On one hand, higher predictability is clearly beneficial for risk-averse investors, who naturally prefer to invest in more predictable institutional environments (Malesky and Samphantharak, 2008). On the other hand, it might also be desirable for risk-neutral investors, who might otherwise prefer to wait and see how the regulatory environment evolves before making investments. When there is no clear precedent on the inevitable disclosure doctrine—such that it is not certain whether and to what extent might courts embrace the doctrine in future cases—VC investors may turn to non-compete clauses to prevent employee departure. Yet, money associated with drafting and negotiating these terms with key employees might be wasted if, at some point in the future, a court precedent in favor of inevitable disclosure is established. Hence, even risk-neutral investors facing an uncertain legal environment might

prefer to wait and see how the environment will evolve before making investments. In real option terms, uncertainty about the legal environment makes the "option to wait" more valuable (Bittlingmayer, 2000; Bloom *et al.*, 2007; Dixit and Pindyck, 1994).

Different from a rule in favor of inevitable disclosure, it is not apparent whether a rule against is superior to the baseline scenario of no clear rule. For instance, a clear rule against inevitable disclosure increases the predictability of a court decision and, as a result, should attract VC investment. However, it also decreases the possibility of retaining employees, as state courts would most likely allow employees to leave for other opportunities, which should translate into a decrease in VC investment. Hence, whether a rule against the inevitable disclosure doctrine increases VC investment more than not having any rule is an empirical matter. In fact, it depends on whether the benefits due to the reduction in regulatory uncertainty prevail over the costs related to the possible loss of the investee firm's key employees.

Table 1 summarizes the potential outcomes of having a clear rule in favor of or against inevitable disclosure, compared with the baseline scenario of having no rule, on the expected valued and the predictability of a court injunction against an employee deciding to leave for joining a competitor—and therefore on VC investments.

Insert Table 1 about here

Compared with the baseline no-rule scenario, a rule in favor of the inevitable disclosure doctrine—different from no rule or a rule against inevitable disclosure—increases both the expected value and the predictability of a court injunction. Hence, VCs should be more attracted to jurisdictions where there exists a rule clearly in favor of inevitable disclosure than to jurisdictions with against or no rules. Accordingly, we formulate the following hypothesis:

Hypothesis 1: *A rule in favor of inevitable disclosure increases the amount of venture capital investment available for local start-ups more than a rule clearly against inevitable disclosure or the absence of a clear rule.*

A favorable rule on inevitable disclosure should be more salient for a non-local investor than for a local investor. The former, compared with the latter, is more exposed to the risk of opportunistic behaviors by the investee firm's key employees when formal rules safeguarding IPRs do not exist or are not enforced. In fact, a trustworthy transaction relationship—occurring when each party has no incentive to deviate from a correct behavior even in the absence of any safeguarding by formal institutions—is more likely to occur when the parties are geographically close to each other, for at least two reasons. First, trust is enhanced by the anticipated continuity of the relationship because expectations of payoffs from future cooperative behavior encourage cooperation in the present (Baker *et al.*, 2002). In this respect, geographically proximate parties are more likely to transact again in the future. Second, trust is reinforced by face-to-face contact, which allows for information gathering and monitoring. For example, Bönte (2008) shows that geographical proximity between buyer and supplier in the aeronautical industry increased inter-firm trust.

Hence, formal institutions protecting property rights should be less valuable for local actors than for non-local actors. For example, Taussig and Delios (2014) argue that in developing economies, where formal institutions are typically weak in safeguarding and enforcing property rights, local private-equity firms are better than non-local firms at informally enforcing contracts. Similarly, Gans *et al.* (2008) found that the granting of a patent, a formal institution that protects IPRs, increases the probability of licensing, but this effect is

muted when the patented innovation is produced in locations (such as Silicon Valley) where both the licensee and the licensor are predominantly local, such that trustworthy relationships have been built and substitute for the formal protection of IPRs.

The previous arguments suggest that a local investor's localness might help to informally prevent opportunism by a VC-backed company's key employees, including the risk of those employees opportunistically leaving the investee company to join a competitor or to found a new company. Since non-local investors are more exposed to possible opportunistic behaviors by the investee company's key employees, a favorable ruling on inevitable disclosure should be of greater relevance to them than to local investors. Hence, it should constitute a greater incentive to invest for non-local investors than for local investors. Accordingly, we formulate the following hypothesis:

Hypothesis 2: *A rule in favor of inevitable disclosure increases the proportion of venture capital investment by non-local investors more than a rule clearly against inevitable disclosure or the absence of a clear rule.*

DATA AND ESTIMATION

Data

Our empirical analysis relies on a balanced panel of the 50 U.S. states and the District of Columbia from 1980 to 2012. Because variation in inevitable disclosure occurs at the state level, this is the most appropriate level of analysis. The time frame was chosen for two reasons. First, the sample period starts in 1980 because the Thomson Reuters' VentureXpert dataset, which was used to gather data on VC investment, has limited coverage of investments realized in the 1970s and is thus fully reliable only since the 1980s (Gompers and Lerner, 2004).

Second, the sample period ends in 2012, since this is the last year for which we could have observations for all our variables.

From the VentureXpert database, we collected information about the amount of equity invested per deal, the investment date, and the location of both investee and investor.[6] There were 83,595 deals completed within the relevant period, from which we excluded 152 because investee location information was unknown. State-level rulings of inevitable disclosure were gathered from various sources (Kahnke *et al.*, 2008; Klasa *et al.*, 2014; Malsberger, 2011; Milgrim and Bensen, 2013b; Png and Samila, 2013; Quinto and Singer, 2009; Wiesner, 2012).[7] Moreover, we collected data on the number of new firms from the Business Dynamics Statistics database. Finally, we gathered state gross domestic product (GDP) and population data from the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). Overall, we constructed a balanced panel dataset of 1,683 state-year observations.

Variables

Dependent variables

Venture capital investment per start-up. Similar to Samila and Sorenson (2011a), we defined VC investment as the equity investment associated with any VC deal at different stages of financing: seed, early, later, or in balanced stages. Deal equity was aggregated into state-year observations (by investee headquarters location and investment year). Then we divided the overall amount of VC investment in a certain state and year by the number of local start-ups, that is, the number of new firms created in that state and year. Compared to the mere amount of VC, the amount of VC investments per start-up has the advantage of being a measure of the

[6] Data was collected from the VentureXpert database on November 3, 2014.
[7] See Appendix: Table A1(available upon request).

supply of VC, net of any change in the entrepreneurial environment (and so, at least partially, in the demand of VC) and of any scale effect. At any rate, as a robustness check, we also consider the amount of VC as dependent variable.

Proportion of VC investments by non-local investors. We defined an investment as realized by non-local investors if the headquarters state (or country) of at least one VC investor firm in a deal differed from the headquarters state of the investee company (González-Uribe, 2014). We aggregated non-local and total investment totals into state-year observations and calculated the investments by non-local VCs. Observations with no investment amount were excluded because of their undefined values.

Independent variables

Inevitable disclosure rule. To measure inevitable disclosure rule, we first define the inevitable disclosure doctrine consistent with *PepsiCo, Inc. v. Redmond* as a legal doctrine through which, even without a covenant not to compete, an employer can enjoin a former employee from working for a competitor or founding a rival firm by demonstrating that the employee's new job duties will inevitably lead to trade secret misappropriation (Kahnke *et al.*, 2008). Based on this definition, we created three dummy variables measuring the rule on inevitable disclosure in each U.S. state, as established by court precedents, in any given year from 1980 to 2012. In particular, the *favorable* dummy equals 1 if the state courts have clearly embraced a rule in favor of inevitable disclosure. Second, the *against* dummy equals 1 if the state courts have clearly embraced a rule against inevitable disclosure. Third, the *no rule* dummy equals 1 if (a) the state courts have not ruled on inevitable disclosure or (b) they have ruled but without clarifying whether the doctrine can be applied to block an employee who has not signed a covenant not to compete.

We also evaluated whether states experienced a precedent change due to new rulings that changed the state position on the doctrine by directly overruling the past precedent (Gennaioli and Shleifer, 2007). In every state that has clearly ruled on the doctrine, no higher court has directly struck down those rulings but has only distinguished them from precedential rulings (Malsberger, 2011; Milgrim and Bensen, 2013b; Png and Samila, 2013; Quinto and Singer, 2009).

Details on the criteria we used for identifying and codifying the most important sentences on inevitable disclosure in any state are discussed in the appendix (available upon request). The resulting measures of inevitable disclosure rule are presented in Table 2. A more detailed list of all the sentences we took into account for measuring state rule on inevitable disclosure is presented in Table A1.

Insert Table 2 about here

Overall, our identification strategy relies on the arguably true assumption that case-specific court decisions are exogenous and so not driven by the willingness to attract VC investments or by the presence of an already active VC community. However, to verify the exogeneity assumption, we also check whether a ruling in favor or against inevitable disclosure is related to the state political orientation—which might be more or less prone to enact pro-VC policies (e.g., Pe'er and Gottschalg, 2011)—and the past amount of VC investment in the state (cf. Table 8).

Control variables

Even though we consider the longitudinal changes in inevitable disclosure rule to be exogenous, we include control variables in the regression to limit the possibility that our results are biased due to the omission of important confounding factors.

State GDP. We control for state GDP, because it is a factor that could possibly confound our results. For instance, in richer states, due to a more active economic environment, it is more likely that a court will decide on cases involving the inevitable disclosure doctrine. Hence, the probability of having no rule is lower.

State fixed effects. We included state-specific fixed effects, in order to control for all time-invariant factors for each state, such as state culture.

Year fixed effects. We included year dummies to account for variations in the economic environment that might affect VC, such as annual changes in interest rates, inflation, and the national GDP.

The list of all variables and their measures is provided in Table 3.

Insert Table 3 about here

Methodology

We evaluated the 33-year panel using a state fixed-effects model. Thus, our methodology resembles a typical difference-in-difference strategy, through which we compare, for instance, whether states that adopted a rule in favor of inevitable disclosure experience a change in VC investments compared to the other states.

VC investment per start-up is a continuous, nonnegative and skewed variable. Therefore we use a Poisson Quasi Maximum Likelihood Estimator (QMLE). As pointed out by Cameron and Trivedi (1998, p. 104), "for a right-skewed continuous nonnegative dependent variables, there are reasons for using the Poisson QMLE rather than the more customary OLS in a log-linear model". First, a Poisson QMLE, compared to a log-linear OLS, has the fundamental advantage of handling zero values of the dependent variable without the need to add an arbitrary constant value that might bias the estimates (Cameron and Trivedi, 1998).

Second, even assuming that all observations are positive, "in the presence of heteroskedasticity, estimates obtained using log-linearized models are severely biased" (Santos Silva and Tenreyro, 2006, p. 641). Hence, we estimated the following model model using a Poisson QMLE:

$$VC\ investment\ per\ start-up_{i,t} = f\ (\beta_0 + \beta_1 FAVORABLE_{i,t-1} + \beta_2 AGAINST_{i,t-1} + \beta_3\ STATEGDP_{i,t-1} + \gamma_i + c_i + \varepsilon_{it}) \quad (1)$$

where *i* indexes the state and *t* indexes the year; *VC per start-up*$_{i,t}$ is the amount of money invested in a certain state and year in VC deals, divided by the overall number of start-ups (i.e., new firms) in that state and year; $FAVORABLE_{i,t-1}$ and $AGAINST_{i,t-1}$, are the inevitable disclosure rule dummy variables equal to 1 if, respectively, a rule clearly in favor of or against inevitable disclosure was already enacted in the state and 0 otherwise. We assume that there exists a one-year lag from the time a court decision is made to when it actually has an effect on VC investments. $STATEGDP_{i,t-1}$ is the State GDP control variable, γ_i represents the series of year fixed effects, c_i represents state fixed effects, and ε_{it} is the error term. Regarding the error term, to account for the presence of serial correlation and to avoid inconsistent standard errors, we clustered observations at the state level—the state where companies that receive VC investment are located (Bertrand, Duflo, and Mullainathan, 2004). According to Hypothesis 1, we expect β_1 to be significantly positive and greater than β_2, which means that a favorable rule on inevitable disclosure leads to more VC investment per start-up, when compared with the other possible scenarios (i.e., an against or no rule).

In our test of Hypothesis 2, the dependent variable is the proportion of VC investment by non-local investors. Hence, we adopted the method proposed by Papke and Wooldridge (1996) to deal with a regression in which the dependent variable is a fraction and its values are

bound between 0 and 1. Specifically, they propose a quasi-maximum likelihood estimator based on the logistic distribution. This approach has several advantages over alternative solutions. First, a linear functional form of the conditional mean might miss important nonlinearities. Second, a log-odds transformation fails when the variable falls at the corners. Accordingly, we estimate the following model:

$$Proportion\ of\ VC\ investments\ by\ non-local\ investors_{i,t} = f\ (\beta_0 + \beta_1 FAVORABLE_{i,t-1} + \beta_2 AGAINST_{i,t-1} + \beta_3\ STATEGDP_{i,t-1} + \gamma_i + c_i + \varepsilon_{it}) \quad (2)$$

We again expect that β_1 is positive, significant and greater than β_2, which means that a favorable rule on inevitable disclosure leads to a higher proportion of non-local VC investment when compared to an against or no rule.

RESULTS

In Tables 4, 5, and 6, we present the summary statistics for the variables used in the empirical analysis and their pairwise correlations, respectively. First of all, we found that equity investment is unevenly distributed across states: California and Massachusetts display the highest VC investments per start-up, whereas Alaska and Wyoming report almost no VC investment per start-up (Table 4). Furthermore, the majority (86%) of state-year observations had no rule on inevitable disclosure (Table 5). This is because most of the inevitable disclosure cases occurred in the mid-1990s to early 2000s, whereas our sample period starts in 1980.

Insert Tables 4, 5, and 6 about here

Regression results are shown in Table 7. The baseline case is represented by those states that did not have a clear ruling on inevitable disclosure. In Model 1, the dependent variable is the amount of VC equity investment per start-up by state-year. The favorable

dummy is not only positive and significant ($\beta_1 = 0.230$, $p < 0.01$) but also greater than the against coefficient dummy, which is instead not significantly different from zero. Thus, consistent with hypothesis 1, a favorable rule increases VC investment per start-up by about 26 per cent more than a rule against inevitable disclosure or the absence of a clear rule. This also implies that each start-up in a state might potentially receive about 6,000 dollars more of VC after a precedent in favor of inevitable disclosure is established. The positive impact of a rule in favor of inevitable disclosure also holds when we consider the overall amount of VC investments and we include the number of start-ups as a control (column 2).

In Model 3, the dependent variable is the proportion of equity investment by non-local investors in each state-year. We find that, compared with the baseline scenario of no clear ruling, the decision in favor of inevitable disclosure dummy variable is positive and significant ($\beta_1 = 0.787$, $p < 0.01$). Instead, a decision against inevitable disclosure is not statistically different from zero. Therefore, consistent with hypothesis 2, a favorable rule on inevitable disclosure increases the proportion of non-local VC investment by about 6 percentage points compared with any other possible scenarios (i.e., an against or no rule).[8]

Insert Tables 7 about here

The validity of our empirical results relies on the assumption that decisions in favor of or against inevitable disclosure are exogenous, conditional on the control variables included in the regressions. As these decisions represent court rulings about specific cases and are not aimed at enacting general policies for attracting VC, we believe this assumption is reasonable. At any rate, we verified empirically whether states' economic and political conditions might

[8] 6 percentage points represent the estimated average marginal effect.

have actually influenced the judicial rulings on inevitable disclosure cases. Table 8 reports the results of linear probability models where the dependent variable are dummies equal to one when a state court precedent is in favor (column 1) or against (column 2) inevitable disclosure, and the covariates are VC capital investment per start-up to check for possible reverse causality, state GDP to account for economic conditions, and a dummy variable indicating whether the state displays a Red Republican political orientation, as proxied by the last presidential election results (Pe'er and Gottschalg, 2011). The coefficients of these variables reveal that they have no significant impact on the enactment of judicial reforms and thus reinforce our confidence in the exogeneity of the inevitable disclosure rulings.

Insert Table 8 about here

Even so, some longitudinal changes in the institutional environment could confound the impact of inevitable disclosure rulings. For instance, variations in non-compete covenants might influence the extent to which VC investors want to invest in a region and, at the same time, might be correlated with variations in inevitable disclosure rulings. To address this issue, we also control for non-compete enforceability in each state by using the Garmaise Noncompetition Enforceability Index (Garmaise, 2011).[9] At the same time, the enactment of the Uniform Trade Secrets Act (UTSA) in 47 states between 1980 and 2012 might also correlate with the state court position on the inevitable disclosure doctrine. To control for the

[9] Because the index is restricted to the period 1992–2004 , we combined it with the Bird Noncompetition Enforceability Index, which provides data for the period 1976–1994 (Bird and Knopf, 2014). Although the majority of state index scores matched in overlapping years (1992–1994), five states did not have matching values (Connecticut, Hawaii, Minnesota, South Dakota, and West Virginia). For each of these states, the Bird Index value was constant throughout the period 1976–1994. Therefore, we replaced the Bird Index value with the Garmaise Index value to provide consistency across data sets. Finally, based on Bishara (2012), we considered that no major changes in non-compete enforceability occurred over the last decade and extended the Garmaise Index values from 2004 to 2012, keeping each value constant for each state.

enactment of the UTSA, we therefore include a variable equal to 1 after the year of enactment in a certain state and 0 otherwise (Milgrim and Bensen, 2013a; Png, 2014). Appendix Table A2 (available upon request) lists the states that have enacted the UTSA, along with the year of enactment. Table 9 provides alternative specifications that include measures of non-compete enforceability and UTSA adoption. Results show that both hypotheses 1 and 2 are upheld.

Insert Table 9 about here

A further challenge to the difference-in-difference approach is that differential changes between states in favor of inevitable disclosure and the other states may be determined by pre-ruling differences in the time trend of dependent variables (that is, the amount of VC invested in a state, on one side, and the proportion of VC investment by non-local investors, on the other side). To tackle this issue, we constructed a dynamic difference-in-differences model employing a set of dummies that measure the distance in years from a ruling in favor inevitable disclosure. Results, reported in table 10, show that the coefficients prior to change in favorable rulings are small and statistically insignificant both when we consider the amount of VC investment per start-up (Table 10, column 1) and the proportion of non-local VC investment (Table 10, column 2), thus reinforcing the conclusion that our results are not driven by diverging pre-treatment trends. Moreover, when considering the amount of VC investment per start-up (Table 10, column 1), all post-change coefficients but one are positive and significant at conventional levels and are highest in the two years immediately following the decision. This supports the idea that the main factor driving the increase in VC investment is exactly the inevitable disclosure ruling rather than other unobserved changes. By contrast, when considering the proportion of non-local VC (Table 10, column 2), the post-change coefficients become significant only after the third year, which is reasonable if we consider that a non-local

VC might need some time before investing in a new state (for instance, for opening a new office in the new state).

Insert Table 10 about here

Another potential concern relates to the fact that our findings might be driven just by one single state where a court has established a precedent in favor of the inevitable disclosure doctrine. In order to address this concern, we perform a series of leave-one-out analyses. More in details, we analyze the impact of a favorable rule on both the amount of VC investments (Table 11) and the proportion of non-local VC (Table 12) leaving out of the sample one of the states in favor of inevitable disclosure at time. Results indicate that no single state is in fact driving our results.

Insert Tables 11 and 12 about here

Finally, we ran tests to evaluate how robust the models were to some variations in model estimation methods. More in details, we checked whether our results are robust to the use of a simple OLS coupled with a logarithmic transformation of our dependent variables (Table 13). For both our main dependent variables (i.e., VC investment per start-up and the proportion of VC investment by non-local investors), the coefficient representing the impact of a ruling in favor of inevitable disclosure stays positive and significant.

Insert Table 13 about here

DISCUSSION AND CONCLUSION

Most of the literature on IPR and VC has focused on patents (Hsu and Ziedonis, 2013; Mann and Sager, 2007). However, far less is known about the impact of trade secret protection on VC. In this paper, we focus specifically on the inevitable disclosure doctrine, a strong form of trade secret protection. By exploiting a longitudinal variation in inevitable disclosure rule in the United States, we show that the extent to which inevitable disclosure doctrine is embraced in a jurisdiction affects not only the amount of VC investment per start-up but also the proportion of VC investment by non-local investors. Specifically, we show that a rule in favor of inevitable disclosure increases VC investment per start-up in a state by about 26 percent; it also increases the proportion of VC investment in deals with at least one non-local investor by about 6 percentage points.

We believe this research contributes to existing literature in several ways. First, it contributes to the literature on the impact of institutions on investment (Lerner and Tåg, 2013; Pe'er and Gottschalg, 2011; Taussig and Delios, 2014). In particular, it extends previous literature on institutions and VC investment by suggesting that IPR protection might be important in solving two different types of uncertainty faced by VC investors. On one hand, it might affect *knowledge spillover uncertainty,* that is, the risk of knowledge leakages, due for instance to the mobility of key employees. This type of uncertainty has been extensively analyzed by previous research on IPR protection and VC (Hsu and Ziedonis, 2013; Mann and Sager, 2007). On the other hand, the rule on IPR protection might also affects regulatory uncertainty, that is, predictability of court decision on IPR cases. In this respect, the finding that a clear rule on inevitable disclosure might be preferred by investors to an unclear rule resonates with the Coasian argument that an institutional environment providing a clear

definition of property rights always leads to the socially efficient outcome regardless of the initial allocation of those rights (Coase, 1960).

Second, this work extends the literature on the role of trade secrets as an important IPR protection mechanism that affects entrepreneurial ecosystems. Previous literature has already shown that trade secret protection increases firm profits and stimulates clustering (Fosfuri and Rønde, 2004), encourages R&D investment (Png, 2014), and decreases labor mobility (Png, 2012). In this study, we find that the protection of trade secrets through the adoption of the inevitable disclosure doctrine plays a role in attracting VC investment, reinforcing the idea that a form of trade secret protection, namely that of inevitable disclosure, may play an important role in the entrepreneurial environment of a region and, ultimately, in its economic growth.

Third, our research contributes to the literature on the effect of employer-friendly labor regulations on innovation and entrepreneurship (e.g., Conti, 2014; Garmaise, 2011; Marx *et al.,* 2009; Stuart and Sorenson, 2003). Previous studies have found that the factors that limit the mobility of employees—such as non-compete agreements—negatively affect entrepreneurship (Samila and Sorenson, 2011b). However, we show that the inevitable disclosure doctrine—which might also severely limit employee mobility—increases the level of VC investment per start-up, which is seen as an important instrument to support entrepreneurial growth firms. Taken together, these findings suggest that different legal means, such as inevitable disclosure and non-competes, both of which seek to limit employee mobility, may have diverse impacts on the development of the overall economy.

As with any empirical study, this work has limitations. First, a shortcoming of our study is that the database we use for retrieving information on VC, VentureXpert, does not report VC investment amounts for each individual investor, but only for each deal. Therefore, although

we can measure the proportion of VC investment with at least one non-local investor, we cannot measure the amount of money invested in a firm by non-local VC investors. Future studies should try to develop also this second measure of the presence of non-local VC investors. Another limitation is that we were unable to sort out whether the positive relationship between a favorable rule on inevitable disclosure and VC investments was due mainly to an increase in the probability of obtaining a court injunction limiting employee mobility or to a decrease in the predictability of such injunction. Future research, such as a survey to VC investors, should seek to disentangle these two mechanisms and their effects on VC investment.

Despite these limitations, our study might have important managerial and policy-making implications. With a better understanding of how to attract VC, entrepreneurs might pursue pertinent strategies for reducing uncertainty and, in so doing, receive more funding. For instance, entrepreneurs who live in regions that have rejected the inevitable disclosure doctrine should seek to leverage social ties and build trust, to decrease the possibility of employee departure, and thereby try to mitigate concerns that VCs might have when deciding on their investments. Additionally, entrepreneurs could require their company employees to sign non-compete agreements, in order to reduce VCs' uncertainty concerning employee departure. Of course, another option would be to relocate to states where the doctrine has not been rejected.

From a policy-maker perspective, we show whether and to what extent the enactment of laws protecting trade secrets by regulating employee mobility might affect the entrepreneurial ecosystem. In this respect, future studies should attempt to capture the effect of inevitable disclosure on economic performance, both at the deal level—for instance, by the internal rate of return of an investment—and at the firm level—for example, by evaluating the

job creation of VC-backed companies in those states where the inevitable disclosure doctrine is adopted. Analyzing different outcomes would provide a more nuanced picture of the impact of trade secret protection on different stakeholders (VC firms, start-ups, customers, etc.). Assessing the social and private desirability of inevitable disclosure is an important topic we leave for future research.

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Table 1. Anticipated effect of inevitable disclosure court rulings on the expected value and predictability of a court injunction against a former employee

	With respect to having no rule	
Court ruling on inevitable disclosure	Expected value of a court injunction	Predictability of a court injunction
Favorable rule	Increase	Increase
Against rule	Decrease	Increase

Table 2. State rule (precedent) on inevitable disclosure

State	Year	Rule
California	1944	Against
Florida	2001	Against
Illinois	1995	Favorable
Iowa	2002	Favorable
Louisiana	1967	Against
Maryland	2004	Against
Massachusetts	1995	Against
Minnesota	1992	Against
New Jersey	1980	Against
New York	1997	Favorable
North Carolina	1976	Against
Pennsylvania	2010	Favorable
Utah	1998	Favorable
Virginia	1999	Against
Washington	1997	Favorable

Note. Sources: Kahnke *et al.,* 2008; Klasa *et al.,* 2014; Malsberger, 2011; Milgrim and Bensen, 2013; Png and Samila, 2013; Quinto and Singer, 2009; Wiesner, 2012.

Table 3. Operationalization of variables

Variable	Operationalization
VC investment	The amount of VC equity invested in each state (by location of investee company), in millions of 2009 USD. Source: Thomson Reuters' VentureXpert.
VC investment per start-up	The amount of VC equity invested in each state (by location of investee company), in millions of 2009 USD, divided by the number of new firms in a state. Source: Thomson Reuters' VentureXpert; Business Dynamics Statistics.
Proportion of VC investments by non-local investors	The proportion of non-local investment from deals with at least one non-local investor. Source: Thomson Reuters' VentureXpert.
Favorable rule	Dummy equal to 1 if a state has ruled in favor of inevitable disclosure. Sources: Kahnke *et al.,* 2008; Klasa *et al.,* 2014; Malsberger, 2011; Milgrim and Bensen, 2013; Png and Samila, 2013; Quinto and Singer, 2009; Wiesner, 2012.
Against rule	Dummy equal to 1 if a state has ruled against inevitable disclosure. Sources: Kahnke *et al.,* 2008; Klasa *et al.,* 2014; Malsberger, 2011; Milgrim and Bensen, 2013; Png and Samila, 2013; Quinto and Singer, 2009; Wiesner, 2012.
State GDP	Annual state gross domestic product, in millions of 2009 USD. Source: BEA.
Number of Start-ups	The number of new firms in a state. Source: Business Dynamics Statistics.
UTSA enactment	Dummy equal to 1 if a state has enacted the UTSA. Sources: Milgrim and Bensen, 2013a.
Non-compete enforceability index	Non-compete agreement enforceability index (on a scale from 0 to 1), where 0 equals no enforcement and 1 equals highest possible level of enforcement. Sources: Bird and Knopf, 2014; Bishara, 2012; Garmaise, 2011.
Presidential Election (Red)	Dummy equal to 1 if a state has voted for a Republican presidential candidate in the last presidential election. Source: www.uselectionatalas.org

Table 4. Yearly average VC equity investment (in millions of 2009 USD) per start-up, by state

State	1980–1989	1990–1999	2000–2012	State	1980–1989	1990–1999	2000–2012
Alabama	0.002	0.007	0.011	Montana	0.001	0.001	0.004
Alaska	0.000	0.000	0.000	Nebraska	0.000	0.006	0.012
Arizona	0.006	0.016	0.026	Nevada	0.001	0.004	0.006
Arkansas	0.000	0.002	0.002	New Hampshire	0.008	0.031	0.091
California	0.032	0.110	0.269	New Jersey	0.009	0.025	0.070
Colorado	0.016	0.051	0.093	New Mexico	0.002	0.003	0.015
Connecticut	0.016	0.054	0.079	New York	0.004	0.025	0.055
Delaware	0.001	0.005	0.020	North Carolina	0.002	0.019	0.042
District of Columbia	0.010	0.074	0.111	North Dakota	0.002	0.002	0.003
Florida	0.002	0.014	0.017	Ohio	0.004	0.012	0.023
Georgia	0.007	0.025	0.042	Oklahoma	0.002	0.006	0.006
Hawaii	0.000	0.003	0.017	Oregon	0.013	0.018	0.033
Idaho	0.001	0.003	0.005	Pennsylvania	0.005	0.030	0.059
Illinois	0.004	0.022	0.041	Rhode Island	0.007	0.009	0.041
Indiana	0.002	0.006	0.015	South Carolina	0.002	0.011	0.012
Iowa	0.001	0.003	0.006	South Dakota	0.000	0.000	0.002
Kansas	0.001	0.003	0.015	Tennessee	0.007	0.018	0.019
Kentucky	0.001	0.005	0.011	Texas	0.009	0.027	0.058
Louisiana	0.001	0.008	0.004	Utah	0.006	0.021	0.054
Maine	0.004	0.006	0.012	Vermont	0.002	0.004	0.023
Maryland	0.007	0.030	0.093	Virginia	0.005	0.039	0.067
Massachusetts	0.050	0.152	0.414	Washington	0.008	0.047	0.086
Michigan	0.003	0.007	0.014	West Virginia	0.001	0.001	0.005
Minnesota	0.008	0.027	0.047	Wisconsin	0.002	0.006	0.013
Mississippi	0.000	0.010	0.003	Wyoming	0.000	0.000	0.001
Missouri	0.001	0.018	0.016				

Table 5. Descriptive statistics

	N	Mean	Std. Dev.	Min.	Max.
VC investment per start-up	1,683	0.02	0.07	0.00	1.24
VC investment	1,683	408.13	1,991.31	0.00	52,086.15
Proportion of VC investments by non-local investors	1,467	0.92	0.16	0.00	1.00
Favorable rule	1,683	0.04	0.20	0.00	1.00
Against rule	1,683	0.10	0.30	0.00	1.00
State GDP	1,683	169,383.70	240,203.70	4,856.00	2,125,717.00
Number of start-ups	1,683	9,536.68	11,188.19	569.00	74,879.00
UTSA enactment	1,683	0.65	0.48	0.00	1.00
Non-compete enforceability index	1,683	0.36	0.15	0.00	0.75
Presidential election (Red)	1,683	0.62	0.49	0.00	1.00

Table 6. Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 VC investment per start-up	1									
2 VC investment	0.662***	1								
3 Proportion of VC investments by non-local investors	-0.0297	-0.0913***	1							
4 Favorable rule	0.0954***	0.0562*	-0.0481	1						
5 Against rule	0.208***	0.0542*	-0.0438	-0.0707**	1					
6 State GDP	0.365***	0.601***	-0.147***	0.251***	0.151***	1				
7 Number of start-ups	0.233***	0.491***	-0.113***	0.130***	0.106***	0.813***	1			
8 UTSA enactment	0.0174	0.0208	-0.00635	0.0643**	0.0223	0.000178	-0.148***	1		
9 Non-compete enforceability index	-0.0259	-0.188***	-0.00209	0.0757**	0.0188	-0.120***	-0.113***	-0.0500*	1	
10 Presidential election (Red)	-0.252***	-0.159***	0.0319	-0.162***	-0.0944***	-0.223***	-0.0588*	-0.167***	-0.0642**	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7. Impact of inevitable disclosure on VC investment

	(1) VC investment per start-up	(2) Overall VC investment	(3) Proportion of VC investments by non-local investors
Favorable rule	0.230**	0.299**	0.743***
	(0.108)	(0.123)	(0.259)
Against rule	0.032	-0.028	0.242
	(0.095)	(0.129)	(0.298)
State GDP(*t*–1)	0.000**	0.000***	-0.000
	(0.000)	(0.000)	(0.000)
Ln number of start-ups		0.339	
		(0.336)	
Constant			3.678***
			(0.649)
State fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	1,683	1,683	1,467
Number of states	51	51	51
Log likelihood	-91.511	-27,470.838	-320.798

Notes. Poisson regression results in columns (1)-(2), fractional logit regression results in column (3). Robust standard errors in parentheses. Disturbances are clustered by state. In model (1), the dependent variable is VC investment per start-up. In model (2), the dependent variable is the overall amount of VC investment. In model (3), the dependent variable is the proportion of VC investments with at least one non-local investor participating in the deal. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. *p < 0.1; **p < 0.05; ***p < 0.01.

Table 8. Determinants of rulings on inevitable disclosure

	(1) Favorable rule	(2) Against Rule
Presidential election (Red)	-0.005	0.003
	(0.004)	(0.004)
VC investment per start-up	-0.016	-0.005
	(0.016)	(0.036)
State GDP(t–1)	0.000	0.000
	(0.000)	(0.000)
Constant	0.001	-0.006
	(0.004)	(0.006)
State fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,604	1,510
Number of States	51	51
R-squared	0.029	0.023

Notes. OLS regression results in columns (1) and (2). Robust standard errors in parentheses. Disturbances are clustered by state. In model (1), the dependent variable is equal to one in the year when a precedent in favor of inevitable disclosure is established, and zero otherwise. In model (2), the dependent variable is equal to one in the year when a precedent against inevitable disclosure is established, and zero otherwise. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. State-year observations after a change is implemented are discarded. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table 9. Impact of inevitable disclosure on VC investment with trade secret and non-compete indices

	(1) VC investment per start-up	(2) Proportion of VC investments by non-local investors
Favorable rule	0.231**	0.725***
	(0.107)	(0.265)
Against rule	0.028	0.246
	(0.100)	(0.299)
UTSA Enactment	-0.031	-0.001
	(0.095)	(0.244)
Non-compete enforceability index	-0.984	-4.528*
	(0.745)	(2.522)
State GDP(t–1)	0.000**	-0.000
	(0.000)	(0.000)
Constant		5.476***
		(1.199)
State fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,683	1,467
Number of States	51	51
Log likelihood	-91.506	-305.649

Notes. Poisson regression results in model (1), fractional logit regression results are shown in models (2). Robust standard errors in parentheses. Disturbances are clustered by state. In model (1), the dependent variable is VC investment per start-up. In model (2), the dependent variable is the proportion of VC investments with at least one non-local investor participating in the deal. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Table 10. Effects of inevitable disclosure on VC investment prior to and after rulings

	(1) VC investment per start-up	(2) Proportion of VC investments by non-local investors
Favorable rule (*t*-4)	0.046	-1.223
	(0.215)	(0.784)
Favorable rule (*t*-3)	-0.027	0.047
	(0.223)	(0.404)
Favorable rule (*t*-2)	-0.006	0.656
	(0.185)	(0.642)
Favorable rule (*t*-1)	0.052	-0.309
	(0.160)	(0.346)
Favorable rule (*t*)	-0.058	0.791
	(0.124)	(0.657)
Favorable rule (t+1)	0.162*	0.048
	(0.090)	(0.320)
Favorable rule (t+2)	0.248*	-0.002
	(0.134)	(0.348)
Favorable rule (t+3)	0.087	0.489
	(0.133)	(0.399)
Favorable rule (t+4)	0.200*	0.812*
	(0.116)	(0.424)
Against Rule	0.029	0.244
	(0.096)	(0.298)
State GDP(*t*–1)	0.000**	-0.000
	(0.000)	(0.000)
Constant		3.664***
		(0.658)
State fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,683	1,467
Number of States	51	51
Log likelihood	-91.510	-305.537

Notes. Poisson regression results in columns (1) and (2). Robust standard errors in parentheses. Disturbances are clustered by state. In model (1), the dependent variable is VC investment per start-up. In model (2), the dependent variable is the proportion of VC investments with at least one non-local investor participating in the deal. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012.

*p < 0.1; **p < 0.05; ***p < 0.01.

Table 11. Analysis removing one state at a time –VC investment per start-up

	(1) VC investment per start-up (w/o NY)	(2) VC investment per start-up (w/o IL)	(3) VC investment per start-up (w/o WA)	(4) VC investment per start-up (w/o IA)	(5) VC investment per start-up (w/o UT)	(6) VC investment per start-up (w/o PA)
Favorable rule	0.186*	0.257**	0.256*	0.187*	0.209*	0.306***
	(0.108)	(0.114)	(0.135)	(0.101)	(0.118)	(0.110)
Against rule	0.032	0.030	0.034	0.028	0.037	0.042
	(0.095)	(0.095)	(0.096)	(0.096)	(0.096)	(0.094)
State GDP(t–1)	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,650	1,650	1,650	1,650	1,650	1,650
Number of States	50	50	50	50	50	50
Log likelihood	-89.172	-89.507	-87.756	-91.124	-89.093	-88.794

Notes. Poisson regression results in columns (1)-(6). Robust standard errors in parentheses. Disturbances are clustered by state. In models (1)-(6), the dependent variable is VC investment per start-up. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Table 12. Analysis removing one state at a time – proportion of VC investments by non-local investors

	(1) Proportion of VC investments by non-local investors (w/o NY)	(2) Proportion of VC investments by non-local investors (w/o IL)	(3) Proportion of VC investments by non-local investors (w/o WA)	(4) Proportion of VC investments by non-local investors (w/o IA)	(5) Proportion of VC investments by non-local investors (w/o UT)	(6) Proportion of VC investments by non-local investors (w/o PA)
Favorable rule	0.652**	0.742**	0.886***	0.541**	0.850***	0.775***
	(0.327)	(0.314)	(0.242)	(0.243)	(0.270)	(0.263)
Against rule	0.242	0.247	0.239	0.302	0.232	0.233
	(0.296)	(0.299)	(0.298)	(0.310)	(0.294)	(0.301)
State GDP(*t*–1)	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	3.657***	3.621***	3.708***	3.574***	3.639***	3.656***
	(0.691)	(0.650)	(0.681)	(0.647)	(0.652)	(0.652)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,434	1,434	1,434	1,434	1,434	1,434
Number of States	50	50	50	50	50	50
Log likelihood	-295.213	-297.729	-299.285	-290.908	-297.575	-300.028

Notes. Fractional logit regression results in columns (1)-(6). Robust standard errors in parentheses. Disturbances are clustered by state. In models (1)-(6), the dependent variable is the proportion of VC investments with at least one non-local investor participating in the deal. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Table 13. OLS and log specifications of dependent variables

	(1) Ln VC investment per start-up	(2) Ln proportion of VC investments by non-local investors
Favorable rule	0.385***	0.194*
	(0.123)	(0.103)
Against rule	0.363	0.002
	(0.217)	(0.032)
State GDP(t–1)	0.000***	-0.000*
	(0.000)	(0.000)
Constant	-4.527***	-0.121
	(0.053)	(0.144)
State fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,683	1,467
Number of States	51	51
R-squared	0.641	0.019

Notes. OLS regression results in columns (1) and (2). Robust standard errors in parentheses. Disturbances are clustered by state. In model (1), the dependent variable is the log of 0.01 plus VC investment per start-up. In model (2), the dependent variable is the log of 0.01 plus the proportion of VC investments with at least one non-local investor participating in the deal. The unit of observation is the state-year, and the data cover the 50 U.S. states (and the District of Columbia) from 1980 to 2012. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.