5 Va. J.L. & Tech. 14 (2000), *at* http://www.vjolt.net
1522-1687 / © 2000 Virginia Journal of Law and Technology Association

VIRGINIA JOURNAL *of* LAW *and* TECHNOLOGY

UNIVERSITY OF VIRGINIA	FALL 2000	5 VA. J.L. & TECH. 14

A Comparison of the Enforceability of Covenants Not to Compete and Recent Economic Histories of Four High Technology Regions

By Jason S. Wood[1]

I. Introduction

1. Despite recent shakeups in the NASDAQ and growing concern about the valuation of technology stocks, no one would question that the Internet, for which the Silicon Valley is ground zero, and technology-based industries have fueled fantastic economic growth over the last few years. Though most of our country has shared these prosperous times to some extent, some regions have been at the forefront of this

economic surge. The success of places such as Silicon Valley, Boston, Northern Virginia, Austin, Denver, Seattle, San Diego, and the Research Triangle Park area of North Carolina ("RTP"), has driven other parts of the country to attempt to join this elite club for many years. Despite their efforts, however, most attempts to duplicate Silicon Valley's success have fallen far short. For decades, numerous scholars in varying fields have tried to identify the conditions commonly facilitating the rise of a successful, enduring high technology hotbed. They typically settle on a simple few: a significant university/research complex, a high quality of life, infrastructure (physical, legal, and economic), and money (venture capital, federal funding, etc.). In efforts to understand why some areas possessing such ingredients for success thrive while others do not, two scholars have recently re-examined the traditional factors, postulated some additional significant considerations, and analyzed their role in the disparate histories of Silicon Valley and the Route 128/Boston area.

2. AnnaLee Saxenian proposes that regional and corporate cultures can either facilitate or obstruct the creation of high technology agglomeration economies when the aforementioned traditional factors are present.[2] Silicon Valley's culture of openness, independence, democratic or 'flat' corporate structure, and entrepreneurial spirit allowed it to thrive through the facilitation of knowledge spillovers between firms and the university/research complex, while Route 128's corporate and university culture of secrecy, extremely hierarchical corporate structures, and an enduring Yankee conservatism prevented or retarded knowledge spillovers, setting the area up for a fall when technology passed by the companies which had once been leaders in their technological fields.[3] The development of high technology industrial districts is path-dependent, and in this case culture – internal and external to the technology companies themselves – was the difference between success and failure.[4] Ronald Gilson responds to Saxenian's view in *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*.[5] He believes that Saxenian is on the right track in considering culture as a critical difference, but he hypothesizes that the underlying legal infrastructures of the two areas were primary initial conditions which created the resulting differences in cultural values between the two regions.[6] In particular, he argues that the vast differences in enforceability of covenants not to compete in Massachusetts and California allowed the cultures and resulting economic regions to develop as they did.[7] That is, culture is not a precondition, but rather a result of regional legal infrastructure.[8] If Gilson's argument is correct, then differences in the enforceability of noncompete clauses in employment agreements should lead to differences in the relative successes of technology-based regional economies.

3. This paper will compare the law regarding covenants not to compete in four high technology regions - Silicon Valley, Route 128/Boston, Austin, Texas, and RTP - and examine their recent, technology-based economic histories to determine whether the expected 'Gilson effect' is apparent. If so, are there other distinguishing differences between the regions which may explain the same relative experiences? If not, why not? Are other economic factors obscuring an effect which we would otherwise see? Or is there an alternative view which may explain recent history? If Gilson is right, and there are no other factors which may be creating this effect, it is possible that localities could consider changing their employment or intellectual property laws as part of their continuing effort to mimic Silicon Valley. In order to determine how to integrate Gilson's postulates into economic policy, his hypothesis should be examined against a broader backdrop to ensure that all the factors leading to the creation of technology-based agglomeration economies are taken into consideration. Despite the hopes of cities all across America, history may not be repeatable.

II. "A Tale of Two Cities": Two Competing Views of High Technology District Development

A. Saxenian: "Regional Advantage"

4. AnnaLee Saxenian brought a sociologist's unique perspective to the examination of high technology industrial districts and the agglomeration economies that contribute to their initial and continued success. [9] It is not surprising, therefore, that she identified a new, crucial factor contributing to the success of high technology districts: culture.[10]

5. Boston and the Route 128 corridor just to its west experienced phenomenal economic growth before Silicon Valley was even "silicon."[11] Like most successful high technology districts, it had a large university and research complex, dominated for the most part by the Massachusetts Institute of Technology ("MIT"), which generated ideas, technology, and a highly skilled technical labor pool.[12] As a Northeastern banking center, the region also had plenty of available capital (or so it would seem). [13] Vannevar Bush successfully brought large sums of government research funding to the region and helped Boston-area technology companies win large defense contracts.[14] The infusion of federal research and defense funding gave rise to a vibrant technology-based industry in the area.[15] However, this development was a single-stage growth spurt: companies would form around a new technology, win large government contracts on cost-plus terms (with the U.S. government bearing all the financial risk – any cost overruns would be absorbed by the government, and contracts contained built-in profit margins), and grow quickly into large, independent firms with no further need of the research complex or anyone else.[16] These firms grew in the classic industrial form, becoming vertically integrated and self-sufficient, with extremely hierarchical leadership structures.[17] They were also highly competitive and jealously guarded their secrets and technical employees.[18] Saxenian argues that as a result of their hierarchical, risk-averse corporate structures – based on those of 'smokestack' industries – and the pervasive New England conservatism of their employees, there was not much employee movement between companies.[19] As a result, not much knowledge spillover occurred between corporations.[20] Consequently, when technology moved forward or other market conditions changed, companies were slow to adapt and relatively inflexible in redirecting their efforts or taking advantage of new developments occurring outside of the given corporation.[21]

6. In addition to the problem of corporate and employee cultural effects, the relationship between academia and industry around Boston was not as cozy as one would expect.[22] Indeed, despite an early successful involvement with the first publicly held venture capital fund in the nation, American Research and Development Corporation, MIT consciously distanced itself from what it perceived as risky technology-based startup companies.[23] MIT had decided early on to focus not on the diffusion of its technology out to companies large and small, but on extracting as much value as it could from its technology at the lowest possible risk through exclusive arrangements with large established industrial corporations.[24] At MIT and Harvard, building networks and relationships with emerging companies and entrepreneurs was not a priority until recent years, and there was virtually no support at the universities for the development of university-based technology.[25]

7. In addition to the knowledge spillover-retardant culture of the corporations and the universities, the conservatism and traditionalism of the financial institutions and legal professionals also contributed to the stifling character of Route 128.[26] They viewed their role as avoiding risk for their clients or investors – and in the case of attorneys, protecting their clients' intellectual property and human capital at all costs.[27] Combining all these cultural differences, the technology-based agglomeration economy established around Boston following World War II suffered tremendously during the technological explosion of the 1970s and 1980s.[28] As technology advanced and rendered the products and technologies of the existing giants of the region obsolete, their inflexibility and inability to quickly adjust, adapt, or adopt new technologies cost them dearly.[29] Essentially, the success of Route 128 was 'single stage' – a generation of technology had come out of the universities and the companies had grown up around that technology, but there was no knowledge spillover between companies to create the innovation needed to compete in the new technological arena.[30] Furthermore, there had not been the continual creation of new, innovative companies based on new technologies coming out of the university.[31] Route 128 had created its own 'one-shot deal' – and paid a dear price during its downturn in 1980s and early 1990s.[32]

8. Saxenian's portrayal of Silicon Valley contrasts starkly with that of Route 128.[33] Originally an agricultural area, the Silicon Valley got its start as a result of Frederick Terman's efforts to emulate Route 128's success in the area surrounding Stanford University.[34] A protégé of Vannevar Bush, Terman, who had also spent time in the Boston area in the 1940s, was Stanford University's Dean of Engineering.[35] After observing the thriving technology-based economy surrounding the MIT/Harvard research complex, he wanted to create similar success by building a "community of technical scholars" in the area around Stanford, composed of innovative industries acting in concert with a strong research university.[36] He fostered university/industry collaborations, encouraged entrepreneurship for his students, created a system of university support for such ventures, and succeeded in establishing a technical-industrial community that was successful in continually regenerating the phenomenon that was limited to a single stage around Boston.[37]

9. Although its research prominence was originally based, as MIT and Harvard's, on federal research funding, Stanford was much more proactive in getting its technology out to small, innovative companies, and its researchers worked closely with the companies and their employees.[38] It provided economic and other support for what Stanford considered "its" entrepreneurs.[39] The early Silicon Valley companies embraced this collegial spirit in their corporate culture and structure, in that their hierarchies were much more loose, democratic, and informal, with flat leadership structures.[40] Employees from these early companies, in conjunction with those departing from academia, left to start their own companies, and they continued their collaborations and working relationships even after they were working for other companies – even competitors.[41] Early, successful entrepreneurs used their wealth to invest in wave after wave of new start-up companies; having once taken great professional risks themselves and found success, they were attracted to and encouraged similar risk-taking ventures (in contrast to the risk-averse investment behavior back East).[42]

10. The corporate structures of these companies made them much more flexible and adaptable to changing

technological and market conditions.[43] The high mobility of the technical workers and corresponding knowledge spillovers between firms created a synergy that allowed for faster innovation.[44] The continual "recharging" of the industrial technology base by a university/research complex that was pro-entrepreneur further fueled this innovation.[45] In general, employees and entrepreneurs were not afraid to fail, and companies and investors were not afraid to take risks.[46] In fact, such risk-taking was seen as the primary means of gaining success.[47] This prevailing culture made it possible for the economy to thrive as technology and other conditions changed – new, start-up companies were always popping up to fill a new niche, and pressuring the existing, flexible companies to keep up.[48] Key to this process – particularly the ability of companies to adjust to new technological developments by innovating quickly – were employee mobility and the accompanying transfer of knowledge between companies.[49] Saxenian credits this to the overall risk-taking, entrepreneurial culture – it was cool to be risky and on your own (even to fail).[50] It was the cooperative spirit of competition and community culture engendered by Terman, Stanford, and early pioneers (Hewlett, Packard, etc.), continued to this day by the Valley's entrepreneurs, attorneys, and venture capitalists, that permitted the Valley to shine by continuously reinventing its companies and technology.[51]

11. As Saxenian points out, Silicon Valley was not without its flaws – but its failures highlight the nature of its success.[52] During the 1980s and early 1990s, Silicon Valley had become particularly focused on one product – semiconductors – as Route 128 had just a few years earlier with minicomputers and mainframes.[53] As product development slowed and the product became more commodity-like, companies focused on gaining economies of scale, and subsequently became more vertically integrated, more self-sufficient, and less cooperative and communal in their relationships – falling prey to the same problems that haunted Route 128.[54] As a result, when areas with cheaper labor and other costs (i.e. Asia and Texas) came to play in the semiconductor market, Silicon Valley could not compete. Its companies had lost their flexibility and their competitive edge.[55] Consequently, the region lost jobs in droves in the late 1980s and early 1990s.[56] However, it soon bounced back, riding a wave of new technologies.[57] Silicon Valley's failure – due to its abandonment of its own recipe for success – and subsequent rise – made possible by and based on the old philosophy and culture – illustrate the effects corporate and regional culture can have on the economic success of technology-based agglomeration economies.[58] Risk-taking entrepreneurism, flexible management structures, high levels of employee (and knowledge) mobility, and a collegial approach to problem solving allowed Silicon Valley to dig itself out of its semiconductor hole.[59]

B. Professor Gilson's View

12. Ronald Gilson believes Saxenian correctly describes the cultures in the two regions, especially concerning employee mobility in Boston (none) compared to the Silicon Valley (where it was normal for technical employees to frequently change jobs), and their effects.[60] However, he reaches past Saxenian's sociological picture to identify a more definitive and fundamental difference. While Saxenian argues that regional, corporate, and institutional culture was the primary initial condition to the Valley's success (and Route 128's stagnation), he argues that the cultural and philosophical differences are the

result of a much more specific initial condition, with its roots in the legal infrastructures of the two regions.[61] Gilson believes that Silicon Valley's much more collaborative culture, with employees continually job-hopping and carrying knowledge with them from company to company, resulted from the fact that covenants not to compete in employment agreements are unenforceable by law in California.[62] In Massachusetts, on the other hand, such covenants are enforceable, and companies can and do use such provisions in employment contracts to prevent their employees from jumping ship.[63] It is this critical legal distinction between the two states that has allowed employees to hopscotch between employers in Silicon Valley.[64] As the result of this ability, a culture condoning, even glorifying, the frequent occurrence of such behavior has grown up in the region.[65] In Massachusetts, on the other hand, employees have never enjoyed such freedom.[66] Because they cannot so readily change jobs without great price to their careers, the best path to success is to stay with one employer for an entire career.[67] Since very few employees changed jobs, a pro-mobility culture could not develop.[68] Saxenian's culture is the result of this aspect of the regions' legal infrastructures.[69]

13. In Massachusetts, the enforceability of noncompete agreements for technical employees prevented the company-to-company knowledge spillovers so critical to the Silicon Valley's success.[70] As a group, the Route 128 companies would have been better off allowing the sort of mobility and knowledge spillovers that allowed the Valley to maintain a multi-generational agglomeration economy.[71] However, the collective action problem prevented them from doing so.[72] Specifically, because it was too costly and risky for any individual company to leave its employees and the knowledge they possessed unprotected, Route 128 companies used noncompetes and litigation to keep their employees chained to their jobs.[73] In Silicon Valley, the law solved the companies' collective action problem for them, and they were forced to enjoy the efficiencies created by the resulting knowledge spillovers.[74]

14. Gilson points out that this legal difference is nothing more than an accident of history, and that given such circumstances, hopeful 'Silicon Plains' or 'Gigabyte Lakes' should not go rewriting their employment law.[75] In fact, he advocates that states considering changing their legal infrastructures to encourage technology-based economic development should carefully consider legal approaches that balance the needs for intellectual property protection with the encouragement of the knowledge spillovers necessary for a self-sustaining technology economy.[76]

C. Does Gilson's Argument Have Predictive Value?

15. Gilson and Saxenian would agree that knowledge spillover is key to avoiding a single product life-cycle failure like Route 128; they merely seem to disagree as to the primary causal underpinnings that create or prevent such spillover. Gilson has identified a significant difference between the two regions. His only evidence of its importance, however, is the relative histories of Route 128 and Silicon Valley. To truly test his arguments, we must examine other technology-based regional economies, compare the laws of each relating to covenants not to compete, and see if any significant difference in technology-based economic performance can be ascertained that corresponds to Gilson's proposal. His view has descriptive value in light of the Route 128 and Silicon Valley period examined in his paper and Saxenian's book, but does it have any predictive use in examining other regions?

III. The Law of Noncompetition Agreements

16. Covenants not to compete were typically unenforceable under traditional common law.[77] As technology and information became more valuable during the industrial age, courts began to enforce such covenants under a rule of reason, which has been adopted in one form or another by the majority of states.[78] Interestingly, as knowledge became more valuable, the law evolved to prevent the types of knowledge spillover deemed critical by both Gilson and Saxenian to creating a continuous life cycle of new, innovative companies. Against this backdrop in which a majority of states' courts enforce covenants not to compete when reasonable, California and a few other states whose laws do not enforce such covenants stand out. Although this question of enforceability may seem a black and white issue, closer analysis reveals that there is a spectrum of noncompete enforcement, with many states falling in the gray areas, and California merely anchoring one end of the spectrum.

A. California and Section 16600: Unenforceability of Covenants Not to Compete

17. "Except as provided in this chapter, every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void."[79] With that simple piece of code, California departs from the vast majority of states and renders most covenants not to compete contained in employment agreements void and unenforceable by law.[80] California courts have vigorously reinforced this long-standing legislative decision by invalidating noncompetition clauses in employment agreements.[81] There are, however, some narrow exceptions to California's otherwise broad ban and extremely strong public policy against such covenants.

18. Sections 16601 and 16602 of California's Business and Professions Code provide statutory exceptions permitting enforcement of covenants not to compete in two specific contexts: (1) sale of a business and (2) sale of a partnership interest. Courts have carefully circumscribed these exceptions, and prevent parties from avoiding the broad ban on anticompetitive covenants by including insubstantial stock or partnership sales as part of the employment transaction through application of the "sham covenant" doctrine.[82] Courts limit application of these exceptions to situations in which a business or partnership is being sold as the primary function of the transaction, with the anticompetitive covenants merely acting as part of the terms of sale.

19. California courts have created some other exceptions to the broad statutory ban on such anticompetitive covenants. For example, covenants which act as partial restraints on post-employment competitive activities of employees, and do not totally ban competitive employment, have been upheld.[83] Examples of such partial restraints enforced by California courts include clauses prohibiting the solicitation of the former employer's customers, the recruitment of the former employer's employees for a new or competing venture by the departing employee, limiting certain post-employment activities (but not an entire business), and, most significant in this discussion, covenants protecting an employer's trade secrets.[84] Covenants not to compete in employment agreements which are designed to protect the confidentiality of trade secrets are potentially enforceable in California because it has adopted a version of the Uniform Trade Secrets Act ("UTSA"), which embodies a strong policy in favor of trade secret protection.[85] However, any such covenant hoping to pass judicial scrutiny in California must be

narrowly drawn to such purpose – or any of the aforementioned purposes – in order to possibly be enforced.[86]

20. Outside of very narrowly drawn covenants inside these specific exemptions, California will not enforce covenants not to compete in employment agreements. In fact, the state's public policy against enforcing noncompetes is so strong that California and other states have refused to enforce noncompetition clauses in employment agreements between non-California-resident employees and companies whose businesses are based outside of California when a California-based company attempts to recruit or hire for California employment.[87] California law does support and contribute to the type of employee mobility identified as important by Saxenian, as argued by Gilson.

B. Massachusetts: Enforceable Noncompetes

21. Massachusetts generally will enforce noncompetition agreements in employment contracts that satisfy the common law 'rule of reason' test.[88] This test, as formulated in Massachusetts, requires that the covenant be (1) necessary to protect legitimate business interests of the employer (including trade secrets, confidential information, or goodwill), (2) reasonable in scope in terms of duration and geography, and (3) not against the public interest.[89] Courts will often rewrite covenants otherwise unenforceable under these factors so as to render them enforceable, engaging in "blue pencil" activity.[90] Massachusetts employers have long included such covenants in their employment agreements and rigorously enforce them: "[d]isputes arising out of the enforcement of noncompetition agreements against former employees continue to make up a significant proportion of business litigation in the superior courts of Massachusetts."[91]

22. As in many other states adhering to the 'rule of reason' test in evaluating the enforceability of noncompetition clauses, Massachusetts courts have analyzed each element in detail. Regarding the first factor, courts will generally not enforce an agreement which only works to prevent an employee from using his general skills and knowledge with another firm.[92] Reasonable temporal scope in Massachusetts means, as in most states, that the prohibition be no longer than one or two years (although some up to five years have been allowed). Further, Massachusetts courts look to a number of issues in determining what constitutes a 'reasonable' period, including "the nature of the [employer's] business, the type of employment, the parties' situation, the extent of the employer's legitimate business interests (if any), and the employee's right to work and support himself."[93] Geographic reasonableness is examined by looking at the nature of the employer's business interests, their geographic range, and determining whether the prohibition is limited to areas in which allowing employee competition would harm the employer.[94]

23. The third prong - the public policy analysis – traditionally focuses on the employee's right to freely choose his profession and direct his career. This clause of the test serves to guard against monopolization or restraints of trade, and courts have recently expanded the public policy concerns addressed to include economic factors, particularly in the context of high technology industry.[95] In light of this trend, courts have begun to enforce noncompetition agreements in a narrower realm of cases because such agreements increasingly look under public policy and economic considerations external to the employer-employee

relationship.[96] According to one commentator, however, in Massachusetts, "[n]o court has refused to enforce a noncompetition agreement on the basis of public policy alone."[97]

24. In judging a state's stance on the enforceability of covenants not to compete, the final piece of the puzzle is the preliminary injunction standard. Most cases are won or lost at this earliest round of legal action. If the employer can successfully obtain a preliminary injunction against the employee and prevent him from working for his new employer, the employee will often drop the matter due to the high costs of further litigation, creating a victorious result for the original employer. To obtain a preliminary injunction in Massachusetts, as in many other states, the employer (or any plaintiff) must show (1) that there is a reasonable likelihood of success on the merits, (2) that the plaintiff/employer will suffer irreparable harm if the injunction is not granted, and that (3) the harm the plaintiff/employer will suffer outweighs the injury to the defendant/employee.[98] This standard has received no unusual or special consideration in Massachusetts law in the context of employment agreements - unlike some other states – and does not seem to tip in favor of either party. Overall, it seems that Massachusetts courts, despite some recent rumblings over public policy, still tend to enforce noncompetition agreements rather vigorously.

C. North Carolina: Enforceability – With a Twist

25. Like Massachusetts and many other states, North Carolina has adopted a rule of reason for determining the enforceability of covenants not to compete. The test relies generally on whether (1) the restraint is reasonable to protect the employer's legitimate business interests, (2) the scope of the restraint is reasonable, and (3) the covenant is consistent with public policy.[99] However, North Carolina's courts have taken these common factors and expanded them into a somewhat more rigorous set of requirements. Rather than referring to the three traditional common law elements, as Massachusetts does, North Carolina courts formally require enforceable noncompetition clauses in employment agreements to be:

(1) signed in writing;
(2) entered into at the time and as a part of the contract of employment;
(3) based on valuable consideration;
(4) reasonable in time and territorial limitations; and
(5) not against public policy.[100]

26. The fourth and fifth items correspond to the usual test of reasonableness for evaluating such covenants, but in North Carolina the other factors can act as obstacles to enforcement, and thereby make it somewhat tougher for employers to enforce such agreements. This is particularly true for the consideration requirement when such covenants are put in place after initial employment.[101] Somewhat offsetting this apparently pro-employee scrutiny by the courts is another unique aspect of North Carolina law.

27. As mentioned previously, when evaluating a state's law on noncompetition agreements, one must consider its preliminary injunctions law. This is particularly true in North Carolina. In preliminary injunction cases, North Carolina traditionally employs a two part test which requires the plaintiff to show (1) a reasonable likelihood of success on the merits and (2) that the plaintiff would suffer irreparable harm if the injunction failed to issue, or that the injunction was necessary to protect the plaintiff's rights during litigation.[102] However, North Carolina has altered that test significantly for cases involving issuance of injunctions regarding covenants not to compete in the employment context by "virtually

eliminat[ing] the second prong" of the test in such cases.[103] Courts believe that, in the context of noncompetition agreements, injunctions should issue as a matter of course if the plaintiff succeeds on showing likelihood of success on the merits of the case because the harm element is assumed.[104]

28. In sum, North Carolina courts seem to generally enforce noncompete agreements that satisfy the elements of its slightly more rigorous test. Although North Carolina's version of the rule of reason test appears to make it more difficult for employers to craft valid covenants, the impact of North Carolina's noncompete-specific rule regarding preliminary injunctions offsets this significantly by making it easier for employers to obtain such injunctions. Furthermore, North Carolina courts have specifically recognized what they view as the importance of enforcing noncompete agreements in regards to the success of their state's industry:

> We believe that our holding is in accordance with the policy of our State to encourage growth in new 'high tech' industry. 'The rapid technological advances accompanying North Carolina's industrial growth and increased employment opportunities, especially for technical...occupations, gives added significance and immediacy to the problem of the enforceability of covenants not to compete contained in employment contracts.'[105]

Clearly, North Carolina tends to the 'enforceable' end of the noncompete spectrum, and thinks its policies encourage high technology industrial growth.

D. Texas: A Tortured History of the Enforceability of Noncompetes

29. The history of the law on covenants not to compete in Texas reveals a tension which is as yet unresolved. Until 1989, the enforceability of noncompetition clauses in employment contracts was governed by the common law, and endorsed the familiar 'rule of reason test' which required that (1) the employer have a legitimate business interest to protect, (2) the covenant be reasonable in scope (activity, geography, duration), (3) the covenant not be injurious to the public, and (4) consideration must be given to the employee in exchange for the covenant.[106] At first blush, this test appears similar to that of North Carolina, Massachusetts, and most other states adhering to 'rule of reason' tests. However, the Texas Supreme Court refused to enforce any covenant not to compete by virtually always invalidating agreements under those factors. A 1987 case added a new element to the rule which further assured that noncompetes would be found unenforceable by holding that "covenants not to compete which are primarily designed to limit competition or restrain the right to engage in a common calling are not enforceable."[107] This rule gave even more ammunition to the Texas courts in denying protection for employers through covenants not to compete, and courts continued to regularly hold them invalid, relying on their belief that such agreements were against public policy.

30. The Texas Legislature, unlike the courts, believed that it was in the state's public interest to enforce reasonable covenants not to compete. In response to the Court's holdings, the Legislature codified the typical common law rule of reason and specifically outlawed application of the 'common calling test,' hoping that the power of statute would force the Texas courts to enforce reasonable noncompetes.[108] Unfortunately, the legislation was not successful. Texas courts continued to refuse to enforce reasonable noncompetes, reasoning that at-will employment is never sufficient consideration to support such covenants, even when entered into at the inception of employment.[109] The Texas legislature acted

again in 1993, and attempted to force the courts to enforce reasonable noncompetes through further legislation:

> [A] covenant not to compete is enforceable if it is ancillary to or part of an otherwise enforceable agreement at the time the agreement is made to the extent that it contains limitations as to time, geographical area, and scope of activity to be restrained that are reasonable and do not impose a greater restraint than is necessary to protect the goodwill or other business interest of the [employer].[110]

This language would appear to prevent the courts from letting otherwise enforceable agreements out the back door by specifically codifying the rule of reason standard and precluding application of the doctrines by which Texas courts had most commonly held noncompetes unenforceable.

31. Unfortunately, since 1993, the courts have continued to refuse to enforce many reasonable noncompetition clauses despite the new law, by applying the reasoning of previous judicial decisions to the new statute, despite the legislature's obvious intent.[111] This confusing history – and ongoing struggle between these two branches of government – reveals that, although it may be possible to enforce such agreements in Texas, they do not receive very much support at the higher court levels. Despite the uncertainty of their enforcement, the statutory adherence to the common law rule of reason and apparently widespread use of these clauses by Texas employers, as evidenced by the historically high volume of such cases, seem to suggest that the jurisdiction disfavors covenants not to compete, but one which does not reject such devices altogether.[112]

E. Inevitable Disclosure

32. The increasingly popular doctrine of inevitable disclosure may further complicate the area of noncompetition law. Using this doctrine, which is based upon principles of trade secret law, courts will enjoin employees from joining a competitor, or limit their activities with a new employer, if it is inevitable that they will disclose, use, or apply a trade secret in the course of their new employment, regardless of the employee's intent.[113] Under this doctrine, even in jurisdictions where noncompetition agreements would be unenforceable, courts may enjoin employees from working with their former employers' competitors if the requirements of the test are satisfied.[114] However, the doctrine will only reach a certain fraction of the situations in which employers may wish to prevent their employees from competing. The test requires that a trade secret be at risk; trade secrets are defined under the UTSA and similar state laws as:

> [B]usiness or technical information, including but not limited to formulas, patterns, programs, devices, compilations of information, methods, techniques, or processes that (a) derive independent or actual or potential commercial value from not being generally known or readily ascertainable through independent development or reverse engineering by persons who can obtain economic value from its disclosure or use, and (b) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.[115]

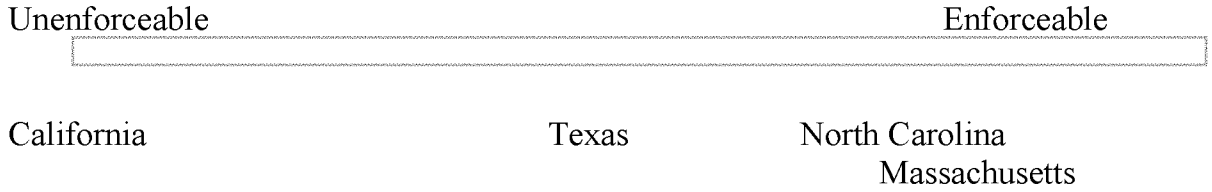
33. Not only must the information qualify as a trade secret, but the employer also must show that the disclosure of such information is inevitable in the employee's new position; the mere possibility of

disclosure is not enough to obtain injunctive relief.[116] In determining whether to apply this doctrine, courts often consider a number of concerns: good or bad faith exhibited by both parties' course of dealing, the degree of competition between the old and new employer, and the new employer's efforts to safeguard the old employer's trade secrets.[117] To the extent that employers can make a case under the doctrine, it represents an alternative means of achieving the same goals of the typical noncompetition agreement. To what extent has this new doctrine been accepted in the four regions of interest? It is very early in the development and acceptance of this doctrine, but some nascent trends bear mentioning.

34. Surprisingly, some California courts have recently adopted the application of this doctrine in certain situations, but the overall state of the law is still unclear.[118] Massachusetts has not expressly rejected the doctrine, and often uses the doctrine indirectly to buttress its enforcement of noncompetition agreements in situations where trade secrets are potentially at risk.[119] North Carolina applies the doctrine in more straightforward fashion, and of the four states being discussed, seems to have adopted it most fully.[120] Texas also seems to favor the doctrine; it has not adopted it explicitly (in fact one court went out of its way to say the doctrine is not part of Texas law), but courts nonetheless use 'inevitable disclosure'-like reasoning to enjoin employees from competing when trade secrets are at issue.[121] Due to the relatively recent rise of this doctrine, and the uncertainty of its application, it does not seem that it significantly affects state noncompetition law for the purposes of this paper. However, should the doctrine continue to gain favor, particularly in California, it could drastically affect the state of the law regarding covenants not to compete.

F. Summary

35. Disregarding the inconsistent and uncertain effects of the inevitable disclosure doctrine, the preceding overview of the state laws of North Carolina, Massachusetts, Texas, and California regarding the enforceability of noncompetition clauses in employment agreements demonstrates that they each differ in the extent to which they will enforce such covenants:



36. California is the state most opposed to enforcing noncompetes; Texas technically can enforce such covenants, although the courts are reluctant to do so; North Carolina's counter-balancing idiosyncrasies create a favorable environment for enforcing such covenants; Massachusetts courts generally favor enforcement of reasonable covenants. If we are to believe Professor Gilson's arguments have predictive value, then we should observe that the recent economic experiences of the high technology economies resident in those states parallel the differences in noncompetition law. In other words, Silicon Valley should be the most successful regional high technology economy, followed by Austin, with the Research Triangle and Massachusetts bringing up the rear in economic development as a result of the negative effects created by their enforcement of noncompetition clauses. The next two sections will objectively examine the relative recent successes or failures of those regions.

IV. Business Growth

37. AnnaLee Saxenian's book and Ronald Gilson's critical response both relied on an examination of the history of Silicon Valley and the Route 128 area that spanned decades, reaching up to the early 1990s, and which was the result of a number of idiosyncratic factors. In order to put Gilson's postulate to the test, one must attempt to apply it to a larger data set, to see if different high technology regions' laws regarding the enforceability of noncompetition clauses correlates in any meaningful way with the relative successes of those regions. It is safe to assume that Silicon Valley's success is the gold standard: its economy, composed primarily of high technology companies of all flavors (biotechnology, the Internet, networking equipment, software, etc), has experienced growth unparalleled in the rest of the country, as measured by virtually any yardstick. With thousands of start-up companies, among the highest average income in the nation, and home to fifty-eight of the pillar companies of the Internet industry, it has been crowned by nearly every source as "America's leading overall high tech center."[122] In terms of the sheer number of companies, technology workers, new millionaires, the unbridled (at least until recently) success of its innumerable start-up companies, and explosive growth in a wide range of technology businesses, it is safe to assume, for purposes of this paper, that by any measure, Silicon Valley is the standard against which the other regions' economic successes should be judged, particularly in light of the doldrums it found itself in when the chip market crashed in the late 1980s and early 1990s. The question is whether Silicon Valley's success and renewal is unique, or just a question of magnitude.

A. Massachusetts

38. Despite the gloom and doom one would expect from Gilson's dark portrait of Massachusetts' lack of knowledge spillover effects, the greater Boston area, including Route 128, has recovered nicely from the dark days of the 1980s and early 1990s, and has been a leader in the technology revolution of the mid- and late-1990s.[123] "Boston's tech prowess is back."[124] Boston is "fully recovered from extinction of its minicomputer empire and [is] now a hip hotbed of exotic start-ups."[125] It currently boasts over 3,600 high technology companies, including the second-largest number of "Internet pillar" companies, of whom industry leaders Lycos and CMGI are but two.[126] Over seven hundred new software or Internet companies have formed in the last five years, with the total number of software and Internet companies reaching nearly three thousand, and a significant number of Boston-based companies made Fortune Magazine's "e-50."[127]

39. The origin of this resurgence is many-fold. First, Boston's once conservative financial resources are now becoming enamored with venture capital and investing large sums in local technology ventures.[128] Second, Boston is second to none in terms of intellectual talent: MIT, Harvard, and the established technology companies generate an immense technology talent pool.[129] Unlike before, many technical employees are changing jobs; this trend has become national, not just limited to the Valley, and the current labor market in the Boston/Route 128 area is extremely tight for companies seeking technology employees.[130] Larger technology-based companies, headquartered in Silicon Valley or elsewhere, are establishing large presences in the area to support and benefit from Boston's resurgent technology economy.[131] Finally, the university/research complex and local government has become actively involved with the for-profit technology industry occurring in the area, with MIT and Harvard investing themselves in high technology ventures, the state creating R&D tax breaks, and all joining in the

formation of the Massachusetts Technology Park. [132] Despite the dire predictions one should have drawn for the prospects of a rebirth in Massachusetts from Gilson's work, Boston has rebounded nicely despite its legal infrastructure.

B. North Carolina and the Research Triangle

40. North Carolina has enjoyed similar success. Dubbed the "Silicon Triangle" by one publication, "one of American history's premiere entrepreneurial successes" by another, North Carolina, and the Research Triangle Park ("RTP") area (including Raleigh, Durham, and Chapel Hill) in particular, has emerged as center of high technology growth.[133] A wellspring of home-grown ventures such as Red Hat, SAS Institute, leading business-to-business Internet company BuildNet, as well as the home of Cisco Systems' East Coast base of operations, IBM's premier personal computing R&D center, Nortel Networks, Lucent Technologies' research center, Glaxo-Wellcome's North American research complex, and innumerable high tech, Internet, and biotechnology start-ups, the region has thrived ever since emerging from the nation-wide economic slump of the late 1980s to early 1990s.[134] Entrepreneur magazine ranks the area as the third-best large-sized city for entrepreneurs; Inc. ranks it among the best places in America to own a business and one of the best for starting and growing a business; and, as a hometown publication touts, "N.C. emerges as hot tech center."[135]

41. What elements have created this boomtown? Obviously, like Boston and Silicon Valley, RTP is flush with brainpower from nearby UNC-Chapel Hill, Duke University, and N.C. State University. In addition, the region's state and local governments and nonprofit consortia have strived to create an environment which fosters technology companies through economic incentives (including significant R&D and small business investment tax credits), courted particularly significant research centers (the National Institute for Environmental Health Sciences) and technology-based major corporations (IBM and Glaxo, for example), uniquely encouraged collaboration and interaction between these companies, universities, and nonprofit research centers, and established a support network for emerging technology companies.[136] All of these measures have been in place since at least the 1980s, and in some cases, date back to the origin of the Research Triangle Park about forty years ago; the effort continues today, as evidenced by the formation of N.C. State University's eight-figure incubator, the "Centennial Campus." Some cities, hoping to emulate RTP's success, have drawn not only on the Silicon Valley model, but have closely examined the means by which North Carolina has achieved its success.[137] Although job-hopping is not as prevalent in the region as in others, this does not seem to have yet retarded RTP's growth; the long-term, collective efforts to build strong networks by government, civic, and business leaders, and the technology-support organizations which have grown up as a result (Council for Entrepreneurial Development, NC Biotechnology Center, MCNC, etc.), may have created significant critical knowledge spillover effects, even in the absence of full employee mobility.[138]

C. Austin

42. Like the Research Triangle, Boston, and Silicon Valley, Austin has thrived during the last few years' technology boom. Like RTP, Austin has made Cognetics' list of Entrepreneurial Hot Spots.[139] Close to two thousand technology companies make their home in Austin, including a few billion-dollar semiconductor plants –which were in part responsible for Silicon Valley's low point in the late 1980s and

early 1990s - and more than four hundred software companies.[140] Upside Magazine ranks it among the tech-savviest cities in the country, and it is home to one of the largest venture capital funds, Austin Ventures.[141] In recent years, Austin has even beaten out Silicon Valley in its increase in numbers of patents issued, one measure of a region's level of innovation.[142] Austin is home to major technology companies like Dell Computer and Advanced Micro Devices, to name just two, and innumerable start-up companies.[143] The technology business appears to be booming in Austin, which has risen from the recession of a decade ago despite its Silicon Valley-like domination by semiconductor companies.

43. Similar to the Research Triangle, Austin's success is based upon an infrastructure originating decades ago in a concentrated local civic effort to attract high technology industry.[144] With a history that reaches back to the pioneering arrivals of companies like IBM, Motorola, AMD, Texas Instruments, and even Apple, Austin, like Research Triangle, has built its high technology foundation upon a world-class university and world-class high technology manufacturing and research.[145] The parallels between Austin and the Research Triangle are even more striking: many commentators have identified not just the presence of successful high tech industry and a large research university, but specifically noted as vital to the region's success the extensive efforts Austin's government and business leaders have made to foster a community of networks and support systems for emerging technology-based companies.[146] Despite maintaining a single-industry focus at one time, Austin's technology economy has grown explosively in the last few years. This resurgence is due in large part to the efforts of its community leaders in establishing networks which make possible the knowledge spillovers deemed crucial to successful, multi-generational technology economies; whether Texas' law regarding noncompetition covenants has affected Austin's economic prospects is unclear. What is clear is that Austin has experienced tremendous technology-related growth over the last five to ten years.

D. Summary

44. Although Silicon Valley has experienced the most breath-taking technology-related economic growth over the last five to ten years, it is equally clear that the other three regions have experienced a high degree of success as well. Boston has bounced back amazingly from its doldrums of only a few years ago, while Raleigh-Durham and Austin have continued a longer, more steady ascent, which has accelerated in the last few years. Regardless of each region's law regarding the enforceability of covenants not to compete, all four have enjoyed the highest levels of economic success, borne on the shoulders of innovation.

V. Venture Capital Investment

45. Since the anecdotal and objective evidence regarding general business trends and growth does not seem to provide any clear distinctions or differences in performance between the four regions – other than that Silicon Valley was way ahead, and continues to stay ahead –another measure of innovative, entrepreneurial activity may be used to compare the four regions: venture capital investment. As has been the case for years, Silicon Valley is home to the greatest levels of venture capital investment, as described below and in the attached Figures, but relative comparisons of the data illustrate that the four regions' recent experiences are not necessarily that different.[147]

46. Figure 1 illustrates the large differences in terms of amount of venture capital investment in each region by year; Figure 2 illustrates the identical information by region. Clearly, Silicon Valley dominates the venture capital landscape, with Massachusetts a clear but distant second, and North Carolina and Austin bringing up the rear. All four regions, however, appear to be exhibiting consistent growth in venture capital investment.

Figure 1: Venture Capital Investment By Year

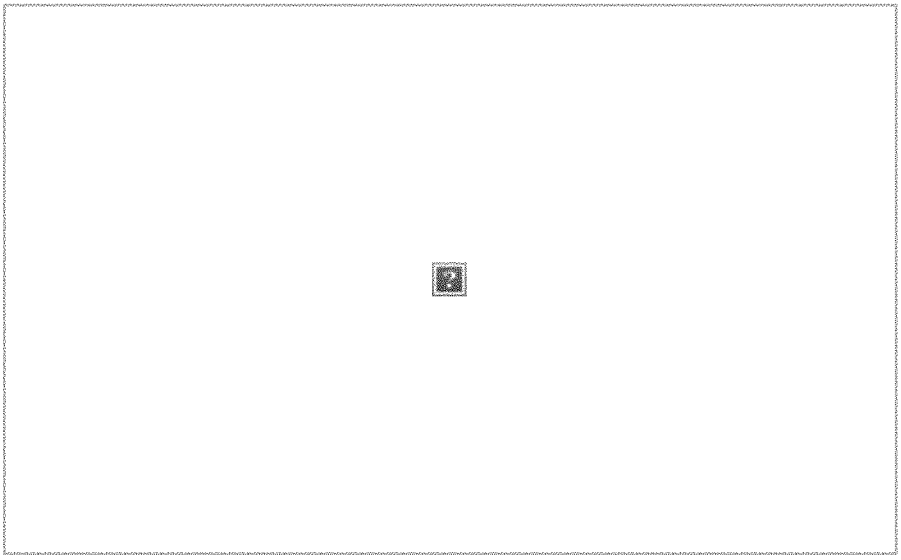
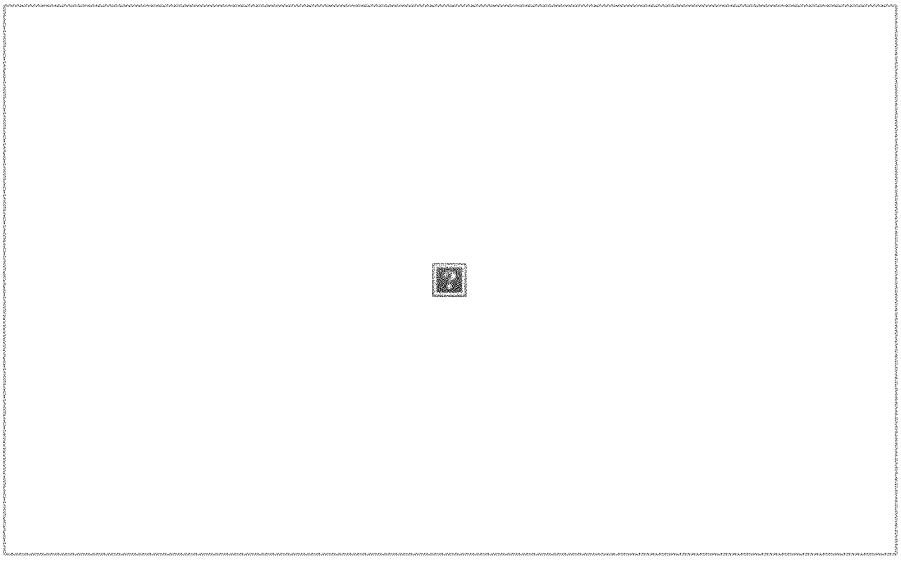
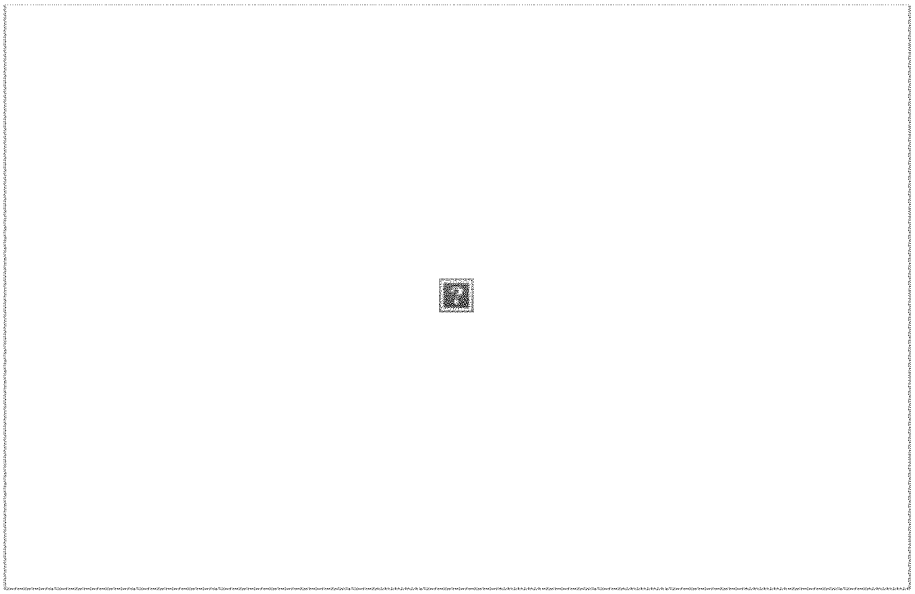


Figure 2: Venture Capital Investment By Region



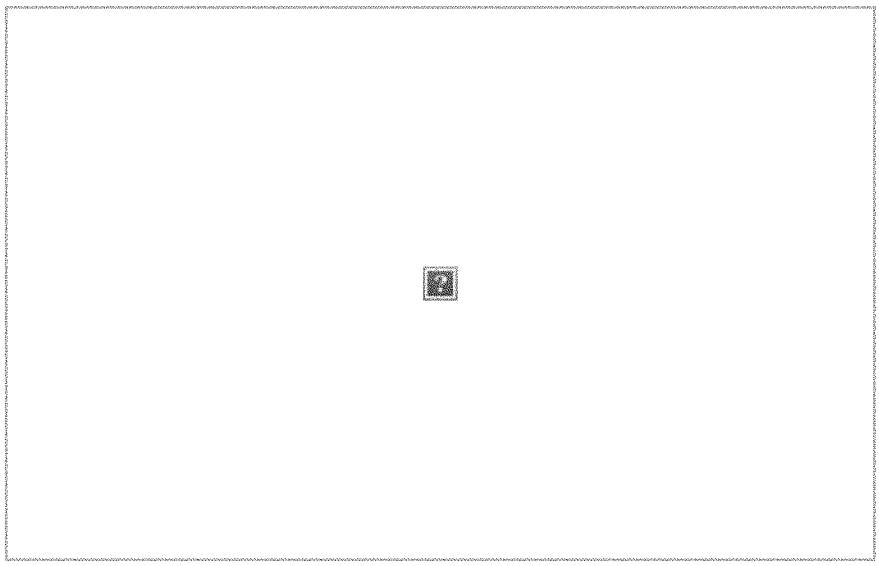
47. Figure 3 shows a more direct comparison of three regions over a four year period, so that their relative growth trends in venture investment can be seen more clearly; all three exhibit significant signs of growth, although Silicon Valley clearly leads the way again.

Figure 3: Venture Capital Investment



48. Figure 4 represents an 'adjustment for size': as seen in the legend, each region's venture capital investment total has been divided by the indicated denominator in an attempt to render all three regions measurable on the same scale. This attempt to compare their relative growths illustrates that all three regions, after adjusting for their relative 'sizes,' appear to be following relatively similar growth curves; that is, they are undergoing very similar growth spurts, just at different orders of magnitude.

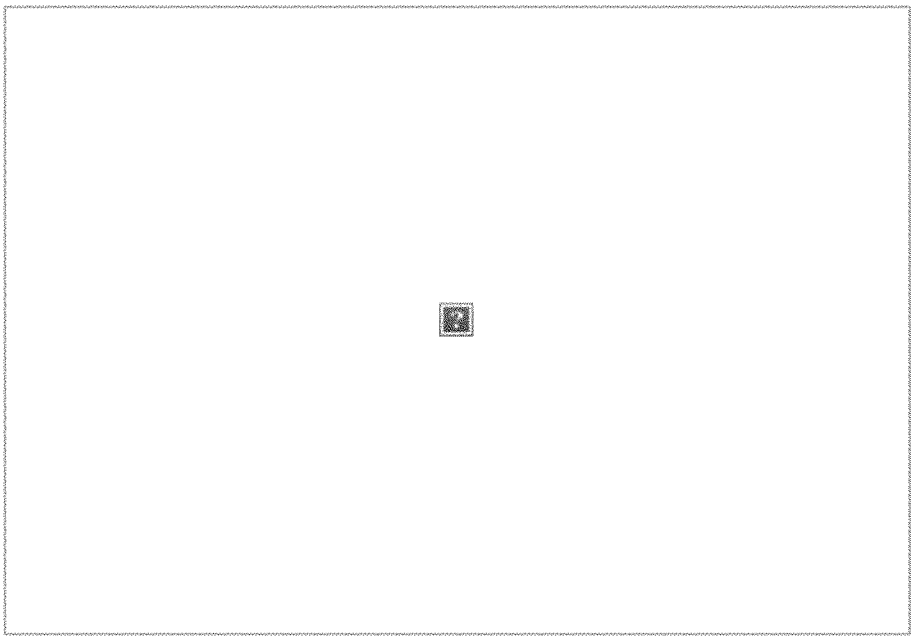
Figure 4: Adjusted Venture Capital Comparison



49. Figure 5 takes this form of comparison one step further. This chart shows the increase of each year's venture capital investment over the previous year's. For example, in the case of the first data point, the venture capital investment total for 1998 was divided by that for 1997, yielding the "Growth Factor" indicated on the graph; this was repeated for 1999/1998 to derive each region's second data point. The slope of the line between the two "Growth Factor" data points represents, therefore, a form of 'growth acceleration' measurement, measuring how quickly the rate of growth in venture capital investment is growing for each region. Somewhat surprisingly, the Research Triangle region exhibits not only the

largest Growth Factor, but also the steepest 'acceleration' slope, which may suggest that RTP is currently experiencing the fastest entrepreneurial growth.

Figure 5: Rate of Increase of Venture Capital Investment



50. Figure 6 compares the number of venture capital transactions completed in each state over three years, again demonstrating that the Silicon Valley dominates this landscape, with Massachusetts, Texas, and North Carolina following far behind. However, as seen in Figure 7, and as seen in the venture capital investment comparisons, all four regions are experiencing very similar rates of growth in the number of venture capital deals.

Figure 6: Number of Venture Capital Deals By State

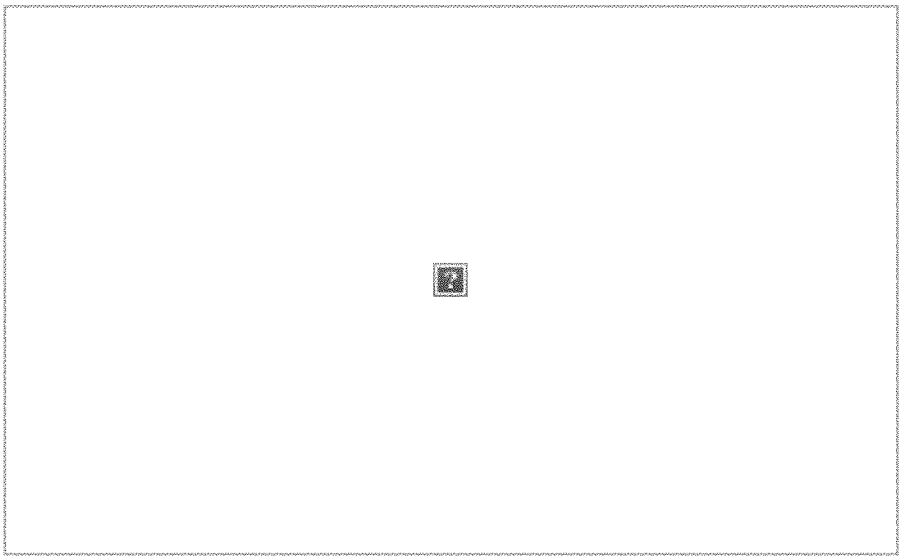
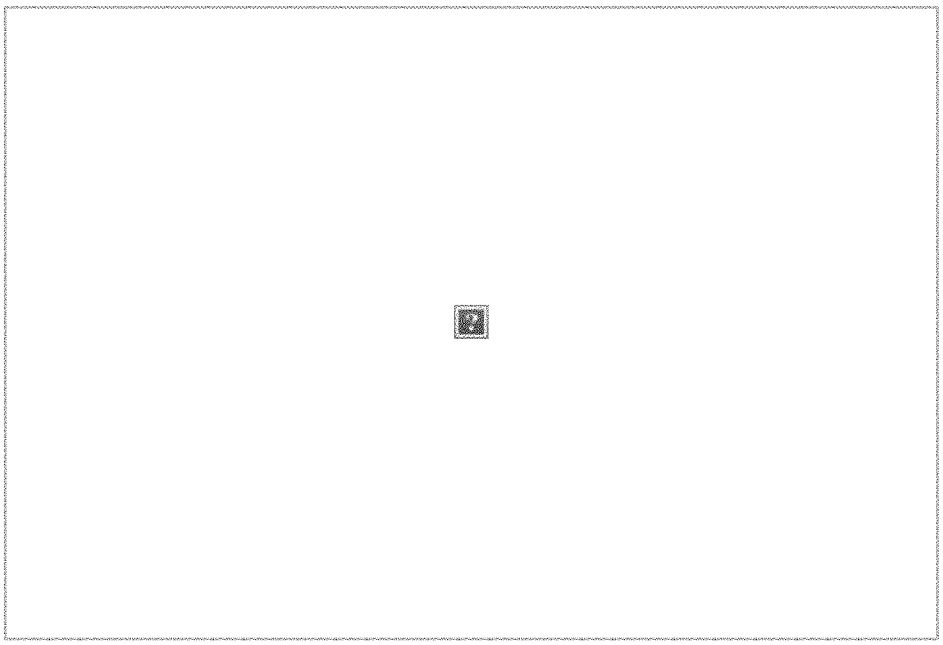


Figure 7: Growth Rate in Number of Venture Capital Deals



51. Examined as a whole, it seems reasonable to conclude that, while Silicon Valley has a tremendous lead in terms of absolute venture capital dollars invested and transactions completed, all four regions are actually experiencing very similar relative growth in these areas. Taken together with similar conclusions drawn from examining each region's recent economic climate in Section IV, it would appear that the results one would expect from the effects of Gilson's theory are being obscured by other factors, or that his argument does not possess significant predictive value and may not play quite the significant role that he would suggest. In looking at two other commonly identified factors that contribute to the development of regional technology-based agglomeration economies, all four regions seem to share the requisite intellectual capital, and differences in the availability of venture capital have been noted above. Beyond those factors, is there any other significant factor that may explain the abilities of Boston, the Research Triangle, and Austin to overcome Gilson's proposed legal obstacle to creating the knowledge spillovers necessary to ensure multi-generational innovation economies?

VI. Creating Knowledge Spillovers: Role of State/Local Activism in Solving the Collective Action Problem

52. According to Professor Gilson, "[t]he second stage agglomeration economy results from inter-company, intra-district knowledge spillovers that cause the entire district to function as an innovation laboratory."[148] The evidence from the long-term look at Boston and Silicon Valley undertaken by Saxenian, and critiqued by Gilson, seems to support this view, and the basic argument is not incompatible with the data presented in this paper regarding the more recent histories of the two districts, RTP, and Austin. Gilson extends things further by proposing that:

> [t]he web of knowledge spillovers, personal relations, start-up businesses, and absence of vertical integration owes its existence to the ease with which employees move from employer to employer, from established company to start-up, from customer to supplier, taking their employer's tacit knowledge with them and applying it in their new situations.[149]

53. According to Gilson, only an accident of legal history and resulting inability to enforce noncompetition covenants allowed California companies to sidestep the collective action problem that usually prevented the formation of such network effects.[150] In fact, a closer look at the histories of Route 128, Silicon Valley, RTP, and Austin reveals that there may be more than one way to solve the collective action problem.

A. Silicon Valley vs. Boston

54. Saxenian's account of the regions' histories takes note of the fact that, although Frederick Terman was trying to emulate Vannevar Bush's success in creating a technology-based industrial corridor, the actual environment created around Stanford was very different.[151] From the start, Terman had a vision of a 'community of technical scholars' surrounding Stanford, which included the building of interconnected relationships between technology businesses and academia.[152] Specifically, under Terman's leadership, Stanford established the Stanford Research Institute to conduct research and assist West Coast scientific ventures, opened its doors to local technology companies through a cooperative program (in which technology professionals to returned to school and students gained 'real world' experience with local companies), and promoted the development of the Stanford Industrial Park, one of the first such university-affiliated research parks in the nation.[153] These initial efforts, and the continued institutional support for them, laid the groundwork for the interconnected network of relationships which persists to this day. Indeed, many early Stanford students or academics from that area went on to found technology companies, where they maintained and nurtured the collegial nature of those networks. As the region grew on the backs of the Stanford alumni and these early industrial successes, the networks continued to grow and thrive. Without the vision and initial efforts of Frederick Terman, these types of academia-industry and company-company relationships and networks may never have developed, regardless of the nature of employment law in California.

55. Contrast Terman's efforts on Stanford's behalf with the modus operandi of MIT in dealing with the technology industry. Until the last decade or two, MIT provided only intermittent, half-hearted support for emerging ventures.[154] Furthermore, there was no concerted effort to develop close relationships between industry and academia, despite the geographic proximities of the institutions and the fact that most of the technology upon which the success of Route 128 was based originated in the university/research complex.[155] MIT did not actively promote spin-off companies or attempt to establish any type of local academic-industrial bridge network.[156] MIT was primarily concerned with extracting value from the technologies it developed, transacting primarily with large, established industrial concerns, and directed minimal effort to the types of activities which Terman saw as central to his vision.[157] Given the respective initial attitudes of the two intellectual communities, it is not surprising that one developed as a fluid, interconnected network of professional relationships, in which knowledge could spill over between companies, and from academia to industry, and the other led to the formation of many isolated, independent ventures.

B. RTP & Austin

56. Interestingly, RTP and Austin followed a variation of Terman's model in attempting to establish a sustainable technology-based agglomeration economy. Whereas Silicon Valley's origins can be traced to

the vision and efforts of a single individual, whose efforts spawned even more ambitious efforts by numerous individuals and groups in subsequent years, in RTP and Austin local government, civic, and business leaders joined forces to try to establish academic-industrial and inter-company networks. In North Carolina, it began with the founding of the Park itself over 40 years ago by a visionary local leader, continued with the courting of IBM, industry research consortia, and Glaxo, and has continued to the present day with the development of an incredibly strong support network for emerging technology companies in the form of the Council for Entrepreneurial Development, the North Carolina Biotechnology Center, and others. In Austin, the local Chamber of Commerce, in conjunction with the University of Texas, took it upon themselves to attract nonprofit research centers and major high technology manufacturers to the area, and, like RTP, have followed up these initial efforts by continually working to foster the development of academia-industry and company-company networks which will allow the knowledge spillovers necessary to maintain a dynamic, flexible, and innovative agglomeration economy.

57. The collective efforts over the last few decades by the civic leaders of these two regions, designed not only to attract technology-based businesses, but also to equally focus on establishing an infrastructure of relationships and creating endless opportunities for networking, have played the same role that Terman and his early disciples' efforts did in Silicon Valley. Despite the presence of legal obstacles to the knowledge spillover effect in both states, community leaders have seemed to solve much of the collective action problem. They helped create regional networks before the economy and its industries became fully established, so that companies could all enjoy the efficiencies of knowledge spillovers, much like Terman did in the Silicon Valley.

VII. Conclusion

58. There is no doubt that Silicon Valley has experienced unmatched success over the last few years, but when data reflecting the success of the four regions is adjusted to measure the successes of the four regions in relative terms, it seems clear that all four areas are experiencing very high rates of growth, in terms of the number of new technology-related businesses, the amount of venture capital investment, and the number of venture capital transactions. In short, all four are high technology boomtowns. If there is validity to Professor Gilson's theory that California's prohibition of noncompetition clauses in employment agreements was a critical factor in the development of Silicon Valley culture and its associated success, then one would expect the four regions' levels of success, as measured by growth in the high technology and emerging companies sector, to correlate in some fashion with the extent to which each region tends to enforce such covenants. Unfortunately, the available data for the last few years does not seem to correlate with each region's law in such a fashion: despite significant legal differences between the regions, they all seem to be experiencing phenomenal growth and success. There are a few possibilities that may explain this apparent inconsistency with Gilson's hypothesis.

59. First, the entire nation, particularly areas rich in high technology industry, is experiencing unprecedented economic success. It is possible that such "times of plenty" obscure the advantage supposedly provided by disfavoring covenants not to compete. Additionally, there are larger amounts of venture capital being invested than ever before. Retirement and investment funds, growing ever larger as the baby boomers continue to contribute to them at peak levels, have 'discovered' the high-risk, high-yield world of venture capital. Because it has been so profitable of late, such funds have increased the portion of their assets annually devoted to such investment. Should times turn bad, and call for more conservative investment strategies, the current large sums of venture capital could dry up. As it is, there is so much to be invested

that it will naturally find a home in the regions offering high-growth technology companies as potential investments. The sheer volume of investment cash showered down upon the venture capital world may obscure any relative advantage enjoyed by Silicon Valley due to its employment law doctrines.

60. Secondly, record low unemployment has been another result of the country's recent boom, particularly for technical employees. A tight labor market is an employee's market. Unlike the conditions that existed for most of the 1970s and 1980s, employees currently have a great deal of bargaining power in establishing the employment relationship. This phenomenon may prevent employers from putting in place the noncompetition clauses that may once have prevented employees in Massachusetts, North Carolina, and Austin from freely changing jobs and creating knowledge spillovers. Without such covenants in place, employers in RTP, Austin, and Boston are in the same position as those in California, with no legal means of preventing employee flight (outside of trade secret law).

61. In lieu of relying on noncompetition clauses, employers may be relying on stock option plans in an attempt to prevent employee flight. Prolonged vesting schedules and extensive substitution of options for salary may serve the same purposes in California that noncompetition agreements can in other jurisdictions.[158] However, the impact of such measures on the employee will never be as drastic as that of an injunction, so this is a partial solution for employers at best.

62. One must also consider that complete employee freedom, which creates a great deal of knowledge spillover, is not necessarily the most efficient system by which companies can capture the value of technology and innovation. In fact, excessive 'job-hopping' by employees may be inefficient, as the continual outflow of knowledge and talent, and absorption of new employee 'start-up' and training costs, prevents any one company from developing its technology most efficiently. This phenomenon, which may be especially prevalent in 'start-up crazy' times like the present, may outweigh any efficiency advantages provided by employee freedom.[159]

63. The economy-wide adoption of just-in-time inventory practices and supplier outsourcing by a wide variety of American businesses have in some ways eliminated one of the primary advantages of the Silicon Valley's network-based economy. Years ago, high technology companies in Silicon Valley that were not vertically integrated and who relied on shifting relationships with external suppliers were unique in doing so. They enjoyed the efficiencies of such corporate structures for years while most other American industries were still operating under the traditional, vertically integrated structure (as seen in Route 128). In the 1980s and 1990s, the widespread adoption of outsourcing practices across a wide range of industries allowed companies everywhere to enjoy the efficiencies that once provided the Silicon Valley with a competitive advantage.

64. Finally, as described above, long-term commitments by state and local leaders to establish intra-/inter-industry, inter-company, and industry-academia networks have been successful in replicating the network effects and knowledge spillovers seen in Silicon Valley, albeit on smaller scales. It may be possible for states that do not possess California's conducive legal framework to solve the collective action problem through alternative means. If true, this could explain the successes of North Carolina's and Austin's entrepreneurial technology businesses in the face of what Gilson would consider an unfavorable legal infrastructure.

65. The effect of all of these possibilities is unclear to say the least; the only certainty is that the formula for

creating a sustainable technology-based agglomeration economy consists of a large number of extremely complex, interrelated factors. Based on the evidence presented, and the potentially obscuring or countervailing factors described above, it seems that Gilson's factor is either (1) not nearly as significant as he maintains or (2) currently obscured by other factors in the equation. Concentrated, methodical, long term efforts by local leaders, as seen in Austin and RTP, may achieve many of the same advantages provided by employee freedom from noncompetition covenants, and in fact may be much more significant in a region's development. Passing final judgment on either argument will require longer-term (spanning at least an entire technological life cycle), more scientific research comparing these high technology regions and others to determine which factor(s) are most closely correlated with creating a multi-generational technology economy. Those regions attempting to emulate the success of Silicon Valley and its smaller cousins, for whom changing their laws regarding the enforcement of noncompetition covenants is currently infeasible and unwise, would unquestionably benefit from attempting carefully-planned, long-term, and concentrated collective efforts to create institutions and incentives that encourage the formation of local networks and the efficiencies they can confer to the local economy.

---

[1] J.D. 2000, University of Virginia School of Law; Associate, Wyrick, Robbins, Yates & Ponton LLP, Raleigh, NC.

[2] ANNALEE SAXENIAN, REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128 (Harvard University Press) (1994).

[3] *Id.* at 29, 59.

[4] *Id.*

[5] Ronald Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. REV. 575 (1999).

[6] *Id.* at 613.

[7] *Id.*

[8] *Id.*

[9] *See,* SAXENIAN, *supra* note 2.

[10] *Id.*

[11] *See id.* 59-78.

[12] *Id.* at 12-13.

[13] *Id.* at 65-65.

[14] *Id.* at 12-14.

[15] *Id.* at 17, 19.

[16] *Id.* at 69-73.

[17] *Id.* at 73.

[18] *Id.* at 72, 75.

[19] *Id.* at 75-77.

[20] *Id.*

[21] *See id.* at 83-104.

[22] *See id.* at 12-20, 65-69.

[23] *See, id.* at 15.

[24] *Id.*

[25] *Id.* at 65-69.

[26] *Id.* at 71.

[27] *Id.* at 72.

[28] *Id.* at 78-80.

[29] *Id.*

[30] *Id.* at 80.

[31] *Id.*

[32] *See generally, id.* at 78-80.

[33] *See id.* at 20-27.

[34] *Id.* at 20.

[35] *Id.* at 22.

[36] *Id.*

[37] *Id.* at 22-23.

[38] *Id.* at 23.

[39] *Id.* at 23-24.

[40] *Id.* at 30.

[41] *Id.* at 32-34.

[42] *Id.* at 26-27.

[43] *Id.* at 27.

[44] *Id.* at 34-35.

[45] *Id.* at 42.

[46] *Id.* at 38-39.

[47] *Id.*

[48] *Id.* at 40, 43.

[49] *Id.* at 34-36.

[50] *Id.* at 39-39.

[51] *See generally, id.* at 20-27, 39-41.

[52] *See id.* at 88-95, 105-31.

[53] *Id.* at 83.

[54] *Id.* at 88-89.

[55] *Id.* at 89.

[56] *Id.*

[57] *Id.* at 105.

[58] *Id.* at 105-31.

[59] *Id.*

[60] Gilson, *supra* note 5 at 589-92.

[61] *Id.* at 592-95

[62] *Id.* at 607-09.

[63] *Id.* at 603-07.

[64] *Id.* at 609.

[65] *Id.* at 593.

[66] *Id.* at 603-04.

[67] *See, id.* at 606.

[68] *See, id.*

[69] *See, id.* at 609.

[70] See, *id.* at 603-07.

[71] *See, id.*

[72] *See, id.*

[73] *See, id.*

[74] *Id.* at 607-09.

[75] *Id.* at 627-29.

[76] *Id.*

[77] Gregory M. Curley, *The Use of Noncompetition Agreements to Protect Proprietary Information: Baxter International, Inc. v. Morris*, 27 CREIGHTON L. REV. 915, 921 (1994) (citing Maureen B. Callahan, Comment, *Post-Employment Restraint Agreements: A Reassessment*, 52 U. CHI. L. REV. 703, 704 (1985)).

[78] *See id.*; Tracy L. Staidl, *The Enforceability of Noncompetition Agreements When Employment Is At-Will: Reformulating the Analysis*, 2 EMPLOYEE. RTS. & EMP. POL'Y J. 95 (1998).

[79] CAL. BUS. & PROF. CODE §16600 (1999).

[80] Richard R. Mainland, *Contracts Limiting Competition by Former Employers: A California Law Perspective*, 340 PLI/PAT. 119, 123 (1992).

[81] *See id.* at 124; Kolani v. Gluska, 64 Cal. App. 4th 402, 406-07 (1998) (intermediate appeals court did not even bother to cite authority for the proposition that noncompetition clauses in employment agreements, outside of a few narrow exceptions, are void and unenforceable, because the doctrine is so entrenched in California law); Application Group, Inc. v. Hunter Group, Inc., 61 Cal. App. 4th 881, 895 (1998); Scott v. Snelling & Snelling, Inc., 732 F. Supp. 1034, 1042 (N.D. Cal. 1990).

[82] *See* Mainland, *supra* note 80, at 128 (citing Bosley Medical Group v. Abramson, 161 Cal. App. 3d 284 (1984)).

[83] *See id.* at 130.

[84] *See id.*; Gluska, 64 Cal. App. 4th at 406; Int'l Bus. Mach. v. Bajorek, 191 F.3d 1033 (9th Cir. 1999); Boughton v. Socony Mobil Oil Co., 231 Ca. App. 2d 188 (1964); Hanna Bui-Eve, *To Hire or Not to Hire: What Silicon Valley Companies Should Know About Hiring Competitors' Employees*, 48 HASTINGS L.J. 981, 1001-02 (1997).

[85] CAL. CIV. CODE §3426 (West 1999); *see also* Mainland, *supra* note 80, at 130-39.

[86] *See* Mainland, *supra* note 80 at 131-34. Covenants should be narrowly drawn to only protect the trade secret (or other information for the other exceptions).

[87] *See* Application Group, 61 Cal. App. 4th at 902-05. The *Application Group* court held that, under California's choice of law rules, California law should govern the contract because California has a materially greater interest than Maryland in the application of its law to the dispute, and that California's interests would be more seriously impaired if Maryland law (allowing the enforcement of such clauses under

the rule of reason) were allowed to govern. "To have done so would have been to allow an out-of-state employer/competitor to limit employment and business opportunities in California" and would be "contrary to this state's fundamental policy." *Id. See also* Maxxim Medical, Inc. v. Michelson, 51 F. Supp. 2d 773 (S.D.Tex. 1999), *rev'd on other grounds*, 182 F.3d 915 (5th Cir. 1999); Frame v. Merrill Lynch, 20 Cal. App. 3d 668, 673 (1971); Scott, 732 F. Supp. at 1039-40, 1041. However, some states' courts have enforced noncompetition clauses against employees wishing to depart for California employers. *See* Equifax Services, Inc. v. Hitz, 905 F.2d 1355 (10th Cir. 1990) (affirming issuance of a preliminary injunction prohibiting former Kansas-based company employee from violating a covenant not to compete by going to work for California competitor, even though employee worked solely in California); Shipley & Co. v. Kozlowski, 926 F. Supp. 28, 30 (D.Mass. 1996) (applying Massachusetts law over California law to enforce noncompetition clause because trade secret is at issue and Massachusetts has materially greater interest in the matter).

[88] See Gilson, *supra* note 5, at 603-07; Shipley, 926 F. Supp. at 30; Christine M. O'Malley, *Covenants Not to Compete in the Massachusetts Hi-Tech Industry: Assessing the Need for a Legislative Solution*, 79 B.U. L. REV. 1215, 1217-27 (1999); Michael Parker Boudett, *The Goodwill Interest in Non-Competition Cases: Still Undefined Despite Decades of Litigation*, 43-OCT. B. B.J. 6 (1999).

[89] O'Malley, *supra* note 88, at 1218-22 (summarizing and citing numerous Massachusetts noncompete cases).

[90] *See id.* at 1226.

[91] Boudett, *supra* note 88, at 6.

[92] *See* Dynamics Research Corp. v. Analytic Sci. Corp., 400 N.E.2d 1274, 1283 (Mass. App. Ct. 1980); Nat'l Hearing Aid Ctr., Inc. v. Avers, 311 N.E.2d 573, 576 (Mass. App. Ct. 1974); O'Malley, *supra* note 88, at 1219.

[93] *See* O'Malley, *supra* note 88, at 1220 (citing a number of Massachusetts cases all considering these factors in the 'scope' prong of the rule of reason).

[94] *See id.* (citing Novelty Bias Binding Co. v. Shevrin, 175 N.E.2d 374, 376 (Mass. 1961)). Increasingly, reasonable scope may include the entire country, possibly the world, for the internet or companies whose businesses involve in similarly global technologies or interests. *See id.* at 1220 (citing Marcam Corp. v. Orchard, 885 F. Supp. 294, 297 (D. Mass. 1995)).

[95] *See id.* at 1221-26.

[96] *See* Boudett, *supra* note 88, at 18.

[97] O'Malley, *supra* note 88, at 1221 (citing Bowne of Boston, Inc. v. Levine, No. 97-5789A, 1997 WL 781444 (Mass. Super. Ct. Nov. 25, 1997)).

[98] Modis Inc. v. Revolution Group, Ltd., No. 991104, 1999 WL 1441918, *5 (Mass. Sup. Ct. Dec. 29, 1999).

[99] *See* Welcome Wagon v. Morris, 224 F.2d 693, 698 (4th Cir. 1955) (for its own holding and citing to numerous North Carolina cases); Am. Hot Rod Ass'n v. Carrier, 500 F.2d 1269, 1276-77 (4th Cir. 1974); Kadis v. Britt, 224 N.C. 154, 158-65 (1944); United Lab., Inc. v. Kuykendall, 322 N.C. 643, 648-50 (1988).

[100] *See* Triangle Leasing Co. v. McMahon, 327 N.C. 224, 228 (1990); Whittaker Gen. Med. Corp. v. Daniel, 324 N.C. 523, 525 (1989); Cox v. Dine-A-Mate, Inc., 501 S.E.2d 353, 356 (N.C. App. 1998); A.E.P. Industr. v. McClure, 308 N.C. 393, 402-03 (1983). Some courts applying North Carolina law have included a sixth requirement – "fairness to both parties" – which appears to be of little analytical use, because the other five factors typically touch upon the very same issues raised by this sixth factor. *See, e.g.*, New Hanover Rent-A-Car v. Martinez, No. COA99-321, 2000 WL 155592 (N.C. App. Feb. 15, 2000); Am. Hot Rod Ass'n, 500 F.2d at 1277.

[101] *See* Cox, 501 S.E.2d at 356 (continued employment is insufficient consideration to uphold a covenant not to compete); Whittaker, 324 N.C. at 527 (raise in pay and promotion sufficient consideration); New Hanover Rent-A-Car, 2000 WL155592 at **3 (closely analyzing whether signature requirement was satisfied). Elements two and three sometimes overlap in their analysis: if a noncompete is entered into at the outset of new employment, the new position is usually considered sufficient consideration to support the covenant as validly enforceable; if, however, the covenant is put in place after employment has commenced, additional consideration – such as a raise, promotion, special training, etc. is required for the covenant to be valid. *See* Staidl, *supra* note 78, at 103-07.

[102] John Reid Parker, Jr., *Injunctive Russian Roulette and Employment Noncompetition Cases:* A.E.P. Industries, Inc. v. McClure, 63 N.C. L. REV. 222 (1984). *See also* A.E.P Industr., 308 N.C. at 759-60.

[103] Parker, *supra* note 102. *See also* A.E.P. Industr., 308 N.C. at 759-60; Triangle Leasing, 327 N.C. at 227-28; Cox, 501 S.E.2d at 355-56.

[104] *See* Parker, *supra* note 102; A.E.P. Industr., 308 N.C. at 759-60.

[105] A.E.P. Industr., 308 N.C. at 410 (quoting, H. Costangy, *Employment Covenants Not to Compete: Enforceability Under North Carolina Law*, 10 WAKE FOREST L. REV. 217 (1974)).

[106] Travel Masters, Inc. v. Star Tours, Inc., 742 S.W.2d 837, 840 (Tex. 1987) (citing Hill v. Mobile Auto Trim, 725 S.W.2d 168, 170-71 (Tex. 1987)).

[107] Hill, 725 S.W.2d at 172. *See also* Crystal L. Landes, *The Story of Covenants Not to Compete in Texas Continues...*, 33 HOUS. L. REV. 913 (1996).

[108] *See* Christi L. Johnson, Travel Masters v. Star Tours*: A Recent Texas Supreme Court Decision Highlights the Tension Between the Court and the Texas Legislature Regarding Covenants Not to Compete*, 44 BAYLOR L. REV. 937 (1992) (citing legislative history of the original version of the Texas 'Covenants Not to Compete Act'); Landes, *supra* note 107 (citing legislative history of the original 'Covenants Not to Compete Act').

[109] *See* Travel Masters 827 S.W.2d at 830; Johnson, *supra* note 108, at 937. *See also* DeSantis v. Wackenhut Corp., 793 S.W.2d 670 (Tex. 1990) (refusing to enforce covenant as not necessary to protect legitimate business interest of employer).

[110] Texas Bus. and Com. Code §15.50(a) (1999).

[111] *See* Light v. Centel Cellular Co. of Tex., 883 S.W.2d 642 (1994) (refusing to enforce an otherwise reasonable covenant not to compete in an employment agreement, reasoning that §15.50's requirement of a legitimate business interest to be protected, in the context of previous Texas law, requires that the enforceable

agreement itself must give rise to the valid employer interest to be protected); Terminex Int'l Co., L.P. v. Denton. No. 04-99-00563-CV,2000 WL 84888 (Tex. App.-San Antonio Jan. 26, 2000) (enforceable as promises given by employer in exchange for a non-ancillary noncompete were illusory).

[112] *See* Xavier Rodriguez, *Using Employment Agreements to Protect Business Assets*, Feb. 7, 2000 Tex. Law. 38 (despite being generally disfavored by courts, author recommends steps to take to ensure or maximize the chances for successful enforcement of noncompetition clauses under Texas law); Teresa Schneider and Mark Guthrie, *Constructing a Noncompete Covenant: Can You Keep That Employee From Competing Against You?* March 16, 1998 Tex. Law. 25 (describing how to draft successful covenants not to compete under Texas law).

[113] *See* Pepsico, Inc. v. Redmond, 54 F.3d 1262 (7th Cir. 1995); Maxxim Medical Group, 51 F. Supp. 2d 773, 784-87, *rev'd on other grounds*, 182 F.3d 915 (5th Cir. 1999); Merck & Co. v. Lyon, 941 F. Supp. 1443, 1457 (M.D.N.C. 1996); Stephen L. Sheinfeld and Jennifer M. Chow, *Protecting Employer Secrets and the 'Doctrine of Inevitable Disclosure'*, 600 PLI/LIT 367, 405-06 (1999); Michele B. Fagin, *Non-Compete by Non-Disclosure: The Doctrine of Inevitable Disclosure*, 28-SEP. COLO. LAW. 73 (1999).

[114] *See generally id.*

[115] N.C. GEN. STAT. § 66-152(3) (1999) (state statute based on the UTSA).

[116] *See* Sheinfeld and Chow, *supra* note 113 at 407 ("the presence of a present and real danger of disclosure is sufficient" and "the focus must be on inevitability, not possibility of disclosure").

[117] *See, e.g.,* PepsiCo, 54 F.3d at 1267.

[118] *See* Maxxim Medical, 51 F.Supp. 2d at 773 (a federal court in Texas applying California law). However, a federal court has held that California does not apply the inevitable disclosure doctrine. *See* Bayer Corp. v. Roche Molecular Sys., Inc., 72 F. Supp. 2d 1111, 1118-21 (N.D. Cal. 1999).

[119] *See* Unitrode Corp. v. Linear Tech. Corp., No. 985983, 2000 WL 281688 (Mass. Super. Dec. 17, 2000); Sheinfeld and Chow, *supra* note 113, at 415-16.

[120] *See* Merck & Co., 941 F. Supp. at 1464-65; Glaxo, Inc. v. Novopharm Ltd., 931 F. Supp. 1280, 1303 (E.D.N.C. 1996). These federal court cases rely on North Carolina trade secret cases which do not explicitly mention the doctrine, but decide whether or not to issue preliminary injunctions on behalf of employers against former employees by analyzing the typical 'inevitable disclosure' factors.

[121] *See* Sheinfeld and Chow, *supra* note 113, at 421.

[122] *See* Maryann Jones Thompson, *The Valley Still Reigns*, THE STANDARD, July 26, 1999.

[123] *See* Marc Hequet, *Where The Jobs Are*, TIME, Jan. 20, 1997, pg. 54.

[124] Jennifer Tanaka, *Where Wired is a Way of Life: Boston, Mass*, *at* http://newsweekparentsguide.com/nw-srv/issue/19_98b/printed/us/bz/bz0419_4.htm (last visited Dec. 6, 2000).

[125] Steven Levy, *The Hot New Tech Cities*, *at* http://newsweekparentsguide.com/nw-srv/issue/19_98b/printed/us/bz/front.htm (last visited Dec. 6, 2000)

[126] *See id.*; Thompson, *supra* note 122.

[127] *See* Kevin Ferguson, *Beantown Boomtown*, THE STANDARD, March 20, 2000; *Fortune e-50,* FORTUNE MAGAZINE, December 6, 1999.

[128] *See* Ferguson, *supra* note 127. Please refer to Section V of this paper for a more detailed look at venture capital investment in each region.

[129] *Id.*

[130] *Id.*

[131] *Id.*

[132] *Id.*

[133] Michael Perkins, *The Information Highway*, RED HERRING, Oct. 1, 1995; *North Carolina: America's Major Growth Market*, INC. MAG., June 1, 1989 (special advertising section); Kirk Ladendorf, *The Research Triangle: Fast-Growing Collection of High-Powered Companies Transforming North Carolina Economy*, AUSTIN AMERICAN-STATESMAN, June 13, 1994; Vanessa Richardson, *The South Will Rise Again – In Technology*, RED HERRING, March 6, 2000. All sources generally recognize North Carolina or the Research Triangle area as a leading, fast-growing high technology economy.

[134] *See* Ladendorf, *supra* note 133.

[135] Mark Hendricks, *Hot Cities*, ENTREPRENUER, October 1999, *available at* http://www.entrepreneur.com/Magazines/MA_SegArticle/0,1539,270695----1-,00.html; John Case, *The Best Cities in America To Own a Business*, INC. MAG., Aug. 1, 1992; Cognetics, Inc., *Entrepreneurial Hot Spots: The Best Places in American to Start and Grow a Company*, *at* http://www.cogonline.com/corpdem/repehs.htm; Emily Barker, *The Best Cities in America for Starting and Growing a Business*, INC. MAG., Dec. 1, 1999; J.C. Zoghby, *N.C. Emerges as Hot Tech Center*, TRIANGLE BUS. J., Aug. 23, 1999.

[136] *See* Council for Entrepreneurial Development, *available at* www.cednc.org (detailed history of the region available through web site of the nation's largest entrepreneurial support organization); Ladendorf, *supra* note 133; Jim Erickson, *High Energy Move to Draw High-Tech: Seattle Sees a Model in North Carolina*, SEATTLE POST-INTELLIGENCER, May 27, 1996, at B3.

[137] *See* Erickson, *supra* note 136.

[138] *See* Richardson, *supra* note 133 ("Employees haven't started jumping around from job to job like they do [in Silicon Valley].").

[139] *See* Cognetics, Inc., *supra* note 135.

[140] *See* T. Trent Gegax, *Where Wired is a Way of Life*, *at* http://newsweekparentsguide.com/nw-srv/issue/19_98b/printed/us/bz/bz0419_1.htm); Darrell Dunn, *High Tech's Friendly Rivalry*, Electronics Buyers' News, Nov. 16, 1992; *Austin, TX*, ENTREPRENEUR, Oct. 1, 1996, *available at* http://www.entrepreneur.com.

[141] *See* Jason Kelly, *Austin Stands Apart*, UPSIDE MAGAZINE, Feb. 1, 2000.

[142] *See* Neil Orman, *Austin Tops in Patent Growth*, AUSTIN B. J., Dec. 2, 1996.

[143] *See* Michael Oden, *Austin Sui Generis? The Strength and Resiliency of the High-Tech Complex*, TEX. BUS. REV., Feb. 1, 1998, at 1; Adam Marcus, *'Cool' Austin Heats Up With High-Technology Growth*, ELEC. ENG'G TIMES, Sept. 13, 1999.

[144] *See* Gegax, *supra* note 140; Dunn, *supra* note 140; Kelly, *supra* note 141.

[145] *See* Oden, *supra* note 143; *Austin Flourishes With High-Tech Help*, THE PANTAGRAPH, June 21, 1994, at D6; Suzanne Oliver, *Cow Chips to Computer Chips*, FORBES, Oct. 21, 1996, at 258.

[146] *See* Oliver, *supra* note 145 at 258 (collaborative efforts of University of Texas and local Chamber of Commerce resulted in the landing of two major research consortia, which in turn contributed to the decisions of many large technology companies to locate in Austin); Janin Friend, *America's New Growth Regions Are Blossoming Despite the Slump*, BUS. WEEK, Oct. 19, 1992, at 80 (recognizing the unique and vital role played by an alliance of local government, business, and academic leaders in courting new businesses and encouraging the growth and development of start-ups); Oden, *supra* note 143 (arguing that important networking linkages – between industries, local R&D institutions, the University of Texas, and the business community in general – have been purposefully forged by civic and business leaders in Austin, which has led the city to become "a major center of new product innovation").

[147] The data used in this paper and to generate these figures consists of dollar amounts for venture capital investment and raw number of venture capital investments made in the four states and/or specific regions, as measured by PriceWaterhouseCoopers and the Council for Entrepreneurial Development (CED). The Figures were created using that raw data directly, or by manipulating it using simple arithmetic as described in the Figures' textual descriptions. Many thanks to Clare C. Knight of PriceWaterhouseCoopers for providing me with free access to their MoneyTree database, and to Monica Doss of CED for her assistance and generosity in providing me with CED's data. The scope of the data used in the Figures was limited to the years 1996-1999 by necessity; unfortunately, consistent, comprehensive, same-source information was not readily available across all regions for other years.

[148] Gilson, *supra* note 5, at 593.

[149] *Id.*

[150] *Id.* at 609.

[151] SAXENIAN, *supra* note 2, at 20-27,

[152] *Id.* at 22-23.

[153] *Id.* at 23.

[154] *Id.* at 14-15.

[155] *Id.* at 12-20, 65-69.

[156] *Id.*

[157] *Id.*

[158] *See* Eileen Buckley, *There's A Reason They're Called Handcuffs*, THE INDUSTR. STANDARD, Dec. 6, 1999 (options are increasingly used in such a fashion, but not without significant negative effects for the company and its employees).

[159] *See* O'Malley, *supra* note 88, at 1223. *See also* Ferguson, *supra* note 127 (overabundance of start-ups in Boston may actually retard realization of companies' and economy's full economic value).