Comparing the ICT industries of Silicon Valley and Route 128: What's law got to do with it?

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Abstract: Silicon Valley's legal foundation in recent years has surfaced on the radar of policy planners who model Silicon Valley's ICT industry. Precisely, the prohibition of covenants not to compete is linked to firm to firm knowledge spillovers by way of mobile workers positioned as nodes in a system of innovation. Meanwhile, traditional frameworks support enforcement of covenants not to compete as a way to encourage R&D into the worker and to prevent the worker's tacit knowledge and know-how from fleeing. This article examines the ICT industry in Silicon Valley and Route 128 to argue that California's unique law is a key factor in the success of Silicon Valley firms. Theoretically, we reconcile the ostensible strife between enforcement and prohibition frameworks by presenting an industrial approach. We contend that selective enforcement by industry can maximize the policy tools of discorded planners.

Keywords: Covenants not to compete, non-compete law, labor mobility, knowledge spillover, Silicon Valley, ICT Industry

I. Introduction

Firms located in Silicon Valley account for roughly a quarter of Nasdaq's 8.5 trillion dollar market cap (Exchanges, 2014). Most firms are in the information and communication technologies (ICT) which the OECD defines as the "compromise, limited to those industries which facilitate, by electronic means, the processing, transmission and display of information, and it excludes the industries which creates the information, the so-called content industries." While the OECD uses the International Standard Classification (ISIC), generally, the Standard Industry Classification system (SIC) and the North American Industry Classification System (NAICS) are used to categorize technology firms within the United States.

Under any classification, firms related to the manufacture and services of computers, telecommunications, and Internet, make up a large part of the ICT industry in which Silicon Valley firms dominate. But unlike most other regions or clusters, Silicon Valley's legal foundation is unique because covenants not to compete (CNCs) are prohibited. In most places, CNCs are a part of worker contracts and restrict a worker's ability to compete with the activities of the firm for the duration of the work contract and at times even for a period after the termination of a work contract (Leonard, 2001; Schwab, 2006). CNCs restrain the movement of the worker as long as an employer has a reasonable business interest and as long as the restraints are reasonable in scope, geography, and time (Restatements in Employment Law, 2011).

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In California, its legislature prohibits CNCs as a matter of public policy except when the worker has ownership interests in the firm he is absconding (Cal. Bus. & Prof. Code § 16600, 2009). This means workers are unrestrained from moving from firm to firm within California. That means knowledge spillover occurs when a worker hops around transferring tacit knowledge gained from a previous job to a new job. Abundant empirical and theoretical studies suggest knowledge transfer by workers is a potent form of learning by California firms and that California's CNC law plays an important role in the innovation of Silicon Valley (Gilson, 1999; Bishara, 2006; Marx and Fleming, 2007; Samila and Sorenson, 2011; Timberman, 2014).

Despite Silicon Valley's legal divergence, a rich theoretical underpinning from a neoclassical approach favors worker restraint. The literature suggests CNCs promote and protect human capital investments and is another layer of intellectual property protection (Glick, Bush, Hafen, 2002; Nicola, 2009). Moreover, most states favor the firm's interest despite a policy issue of workers unable to leave a firm to maximize opportunity. Simply, most states favor restraint and firm interests, which leaves California and Silicon Valley in the minority view. The chasm between traditional legal frameworks and the success of Silicon Valley is disconcerting for planners that have to decide between restraint and firm interests or mobility and employee interests. Ostensibly, the choice is a zero-sum game with winners and losers. Hence, we hope to reconcile the literature by offering a more fruitful framework based on industry that considers the optimal needs of different industries.

This article assets an exploratory hypothesis that Silicon Valley's CNC policy is a major cause for advantage against other ICT regions like Route 128 that have an enforcement policy. To address our concerns, we examine and compare the ICT industries of Silicon Valley and Route 128. We begin by introducing the literature review in section II and our analytical framework in section III. Section IV lays out our definition of an ICT industry. Section V covers our comparison of Silicon Valley and Route 128 and Section VI discusses implications and limitations and concludes the article.

II. Literature Review

1. Silicon Valley and Route 128

Currently, Silicon Valley is without peer in ICT firms. But looking back at Silicon Valley and Route 128 provides insight on what makes Silicon Valley turn. Historically, Route 128 had all the advantages over Silicon Valley. It had greater venture capital, world-class universities, and some of the largest tech-firms in the country. But by 1975 Silicon Valley had more high-tech employment than Rout 128 and by the early 1980s drew more venture capital investment (Saxenian, 1996a). Silicon Valley's success as compared to Route 128 has been attributed to networks and culture (Saxenian, 1990), technological path dependence (Kenney and Von Burg, 1999), and legal infrastructure (Gilson, 1999).

Saxenian (1996b) emphasized Silicon Valley's laid back and open culture to the mutual adjustment and learning between horizontally networked firms. In contrast, Route 128 emphasized secrecy and corporate

loyalty in vertically networked firms. Silicon Valley workers entered and exited small and agile firms while Route 128 workers expected long and stable career jobs. This difference in culture she claims is the reason why Silicon Valley firms has been able to continuously learn and innovate while Route 128 firms found it difficult to re-innovate.

Kenney and Von Burg (1999) explained that the reason for Silicon Valley's explosive growth past Route 128 is because of new firm creation. They claimed different path dependence of technology between both places resulted in their relative success. Silicon Valley grew from semiconductors and Route 128 grew from minicomputers. He observed that the technological trajectories conditioned the possible organizational forms that arose to exploit that technology, such as consumer electronics. He even suggests that if William Shockley were to have located in Route 128 that the Fairchild story would have occurred there.

Saxenian (1999) responded by stating that Kenney et al. does not establish why technological trajectories formed or by what mechanisms formed the path dependency. She notes that it is nonsensical to argue that the flourishing industries in Silicon Valley such as software, biotech, and Internet applications, stem from the same family tree as semiconductors. Indeed, some of Silicon Valley's largest firms like Yahoo and Google and Facebook follow a different genealogy.

Gilson (1999) agreed with Saxenian's analysis but emphasized labor law. He pointed at the difference in CNC law in Silicon Valley and Route 128. Silicon Valley and California prohibits CNCs while Route 128 and Massachusetts enforces. To Gilson, this difference is the reason for Silicon Valley's denser networks and job-hopping. He claims that prohibiting of CNCs causes job-hopping that causes workers to spill knowledge and diffuse techniques in design, production, and marketing.

He extends Saxenian's account by offering CNCs as a cause for its culture and credits labor mobility for the constant resetting of product life cycles occurring there. He explains that under Massachusetts, where CNCs are enforced, workers would be risk-averse in changing employers or in organizing a start-up, leading to the culture of stable careers and vertical integration that Saxenian described. He adds in fact that many of the large firms like DEC in Route 128's heyday were startups from nonprofits like university or government run research labs where CNCs were unsecured.

In contrast, it is highly unlikely that a California court would enforce a CNC. Thus, Gilson notes that in Silicon Valley, employers had to accept that workers could leave and therefore adopted new strategies that evolved into a culture of job-hopping, horizontal networks, and knowledge spillover.

2. Legal Literature on CNC

CNC law in the U.S. goes back to common law in England to the early 15th century (Dyer's Case, 1414). In the early 18th century, with capitalism taking hold, enforcement of CNC became a part of contract based theory (Mitchell v. Reynolds, 1711). Currently, California is one of two states that prohibit worker restraints (other being North Dakota) but is the only state with hi-tech clusters. North Dakota prohibits CNCs but that does not mean a high-tech cluster will develop; rather, prohibition of CNCs aid the spillovers within a cluster or RIS. For more on California's law, see (Gilson, 1999; Trossen, 2009; Timberman, 2014).

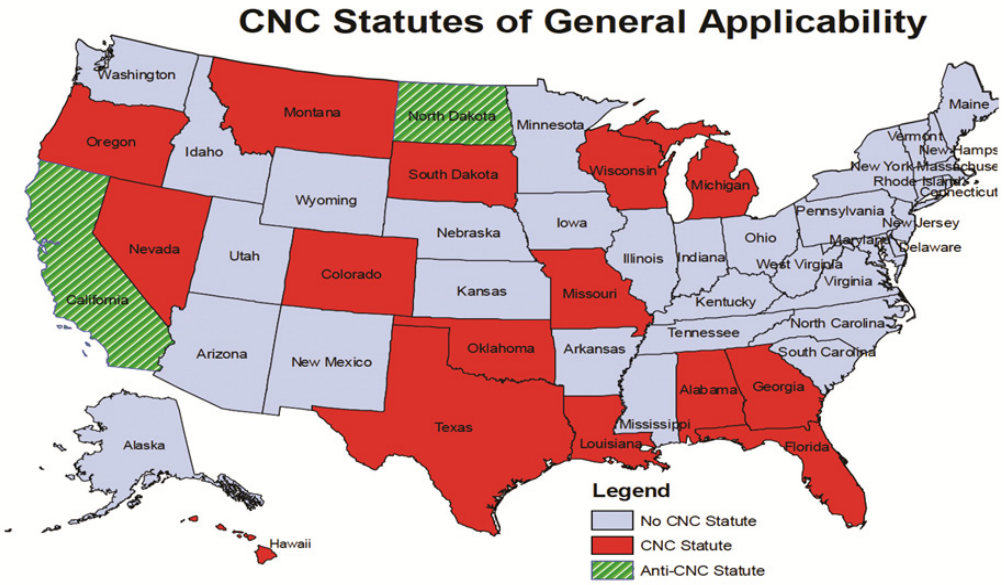

Figure 1: CNC in the U.S.

Source: Bishara (2006)

Theoretically, enforcement of CNCs find much support: the literature asserts securing human capital investments of firms (Rubin & Shedd, 1981; Gillian, 2001; Nicola, 2009; Bar-Gill & Parchomovsky, 2009) and the efficiency and benefits of CNC enforcement (Posner, Triantis, Trianis, 2004; Garmaise, 2009). Under classical economic models, CNC contracts are economical in the absence of market failure and are voluntary accords that are beneficial to both parties since it is Kaldor-Hicks efficient or wealth maximizing; it is wealth maximizing because an employer's net gain outweighs the worker's net loss in the event the worker fulfills their legal obligation (Glick et al., 2002).

Contrarily, Gilson (1999) asserts California's prohibition on CNCs result in knowledge spillovers between firms, comparing the difference in law of Silicon Valley and Route 128. Following Gilson, numerous studies link California's ban on CNCs to worker mobility, spin-offs, spin-outs, and innovation. Fallick, Fleischmann, Rebitzer (2005) using the U.S. labor finds greater mobility in the California computer industry. Franco (2000,2008) offers an economic model to explain the higher success of spin-outs and the link CNC to mobility in Silicon Valley and Sorenson (2011 et al.) using panel data from 1993 to 2002 demonstrate that worker mobility aids the effects of venture capital on innovation and even suggest that enforcement of CNCs could impede innovation.

But Marx et al. (2009) may add the greatest support using the U.S. patent database. Michigan had a similar CNC law to California but inadvertently reversed its policy in 1985 providing a perfect experiment to test the impact of CNC enforcement on mobility; the studies show mobility of inventors fell 8.1% and for "star" inventors fell 15.4% after Michigan's law change. Marx et al. (2010, 2011) further show brain drain from CNC enforcement zones to California and found by extensive surveys that workers in enforcement states often took career detours or avoided work altogether to avoid potential CNC disputes.

Accordingly, Fallick et al. (2005); Franco (2000, 2008); Sorenson et al. (2011), and (Marx et al., 2009,

2010, 2011) demonstrate that CNC law has a visible impact on the mobility of workers, especially in hi-tech industries. The article now turns to the literature on Silicon Valley and Route 128.

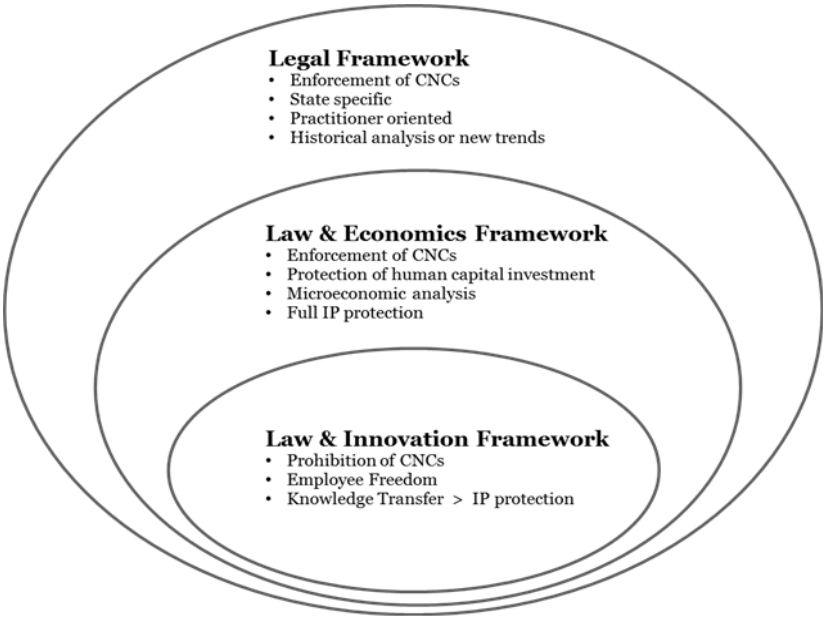

Figure 2: CNC Literature

Source: Timberman (2014)

III. Analytical Framework for CNC

Legal and economic theories wrangle over prohibition or enforcement of CNCs. Bishara (2006) reconciles the literature from a framework based on worker status: "creative" or service." He defines creative workers as scientists and engineers and service workers as bankers and lawyers. Under his analysis, service workers should be restrained because enforcement would aid efficient human capital investment and because non-enforcement of service workers would lead to negative spillover and disincentive firm investment. On the other hand, for creative workers, restraint would hinder innovation; therefore, creative workers should be set free from CNC law to spillover knowledge.

This article disagrees with Bishara's framework for the development of hi-tech districts. First, workers rapidly change positions and careers and regulation would prove to be an administrative obstacle. Second, giving some workers freedom while denying others could lead a boss to explain "knowledge spillover is good for our region so the law allows our creative members to work wherever they want but not you." Naturally, this type of communication could potentially harm firm atmosphere. Third, his approach lacks focus on the agglomeration of certain industries; he focuses on creative workers everywhere, instead of creative workers in a special cluster or hi-tech district. The disregarded issue is that mobility is unpractical or harmful depending on the industry.

Currently, ICT industries in Korea, Japan, Taiwan, China, and the U.S. are often characterized by high

percentages of R&D, a sense of constant change, unpredictability, and fast product cycles. But only in Silicon Valley, is a prohibition of CNCs a policy. Silicon Valley as an example, policy planners should explore the matching of prohibition to a cluster of ICT firms, to spark labor mobility and knowledge exchange.

For finance and insurance industries where confidentiality is important, planners could favor enforcement (Bishara, 2006). An enforcement regime may also better suit oil and mining, since there are few players in the industry as well as a high barrier entry. For industries that relate to national security or industrial secrets, enforcement may be essential if not critical. Even high-tech industries like aerospace could favor enforcement since firms have a motive to invest in substantial long-term R&D into the worker or team in the hopes of achieving radical innovations (Conti, 2013). Ultimately, an industrial approach attempts to enforce or prohibit based on industry traits. Moreover, an industrial framework is narrower than cluster or region but specific enough to regulate and monitor.

Table 1: Analytical Framework for CNC

Perspective	Law and Innovation	Law and Economics
Region	Silicon Valley	Route 128
CNC	Prohibition	Enforcement
Worker	Freedom	Restraint
Human Capital Investment	Highest Bidder	Protection
Tendency	Spillover > protecting IP	Secret and IP Protection
Industries	Computer Services (proven) Biotechnology Software, Scientific Research Venture Capital	Oil and Mining Low-tech Manufacturing Defense, Aerospace Banking and Insurance

Source: Author's design

Ⅳ. Definition of ICT

This article is a comparison of the ICT industries of Silicon Valley and Route 128. To investigate our objectives and to compare the two, the focus was on hi-tech employment and on the comparison of ICT firms. To compare hi-tech employment, Government data was gathered from County Business Patterns of the U.S. Census Bureau. Saxenian (1996a) in an earlier study used census data to compare the two regions but this study gathered more recent statistics from the years 2000, 2004, 2008, and 2012. Comparisons were made under NAICS code 31-334 Computer and Electronic Product Manufacturing; code 51-511 Publishing Industries (including software); and code 54-5415 Computer Systems Design and Related Services.

Table 2: ICT Industries Covered

31: 334 Computer and Electronic Product Manufacturing	51: 511 Publishing industries (except Internet)	54: 5415 Computer Systems Design and Related Services
33411 Computer and Peripheral Equipment Manufacturing	511 Publishing Industries (except Internet)	541511 Custom Computer Programming Services
334112 Computer Storage Device Manufacturing	51111 Newspaper Publishers	541512 Computer Systems Design Services
334118 Computer Terminal and other Computer Peripheral Equipment Manufac-turing	51112 Periodical Publishers	541513 Computer Facilities Management Services
3344 Semiconductor and Other Electronic Component Manufacturing	5112 Software Publishers	541519 Other Computer Related Services

Note: North American Industry Classification System (NAICS)
Source: County Business Patterns (2014)

To compare Silicon Valley and Route 128 firms, data was gathered from the Nasdaq and NYSE. Only firms in the technology sector, related to computer industries were included. California had a total of 177 firms related to our criteria of which 136 have headquarters in Silicon Valley and Massachusetts had a total of 28 firms on the stock exchanges of which 26 belong to Route 128. Our sample of ICT firms from both regions are all in industries that fall under NAICS codes 31,51, and 54, and hence, relate to the data on employment.

For employment data, this article defined Silicon Valley as by San Jose, Sunnyvale, and Santa Clara even though other cities could be said to form a part of Silicon Valley.[1] On the other hand, Route 128 was generously defined using Essex, Middlesex, and Norfolk counties, of which Route 128 was historically a part of.

Table 3: Population

Silicon Valley		Route 128	
San Jose	982,765	Essex County	787,744
Sunnyvale	146,197	Middlesex County	1,552,802
Santa Clara	119,311	Norfolk County	687,802
Total Sum	1,248,273	Total Sum	3,028,348

Source: U.S. Census Bureau (2014)

Generously defining Route 128 against Silicon Valley is an attempt to clearly see the difference in innovation of both regions. Hi-tech employment and the market value of firms are proxy variables as to the innovation of the region, since firms hire workers to achieve profits and since market value considers investor interest in the future innovation of the firm.

1) However, the year 2000 for Silicon Valley only covered San Jose, since Sunnyvale and Santa Clara only became part of the Santa Clara county data from 2003.

V. Comparison

1. Employment Data

Despite Route 128's population size being roughly three times that of Silicon Valley, the difference in the number of workers in the manufacturing, information, and the professional, scientific, and technical services industries is not as great. Seemingly, Route 128 has more workers overall in those industries because of a larger population size. And surprisingly, under NAICS codes 31, 51, and 54, both regions have the largest sub-industries: computer and electronic manufacturing in code 31; publishing industries to include software in code 51; and computer systems design in code 54. Thus, the largest sub-industries in both regions were similar, making for a convenient comparison.

However, in 2008 and in 2012, Route 128 had more jobs within scientific research and development services than computer systems design within industry code 54. For example, in 2008, Route 128 had 43,336 jobs in scientific research over 34,869 jobs in computer systems design and in 2012 had 37,854 jobs in scientific research over 35,795 jobs in computer systems design. This is not surprising considering the world-class universities located within Route 128. Nevertheless, to focus on the ICT industry, we still compared computer systems design from both regions in code 54. Overall, both regions in codes 31, 51, and 54 have the most jobs in computer related industries, staying true to their historical reputations as hi-tech districts.

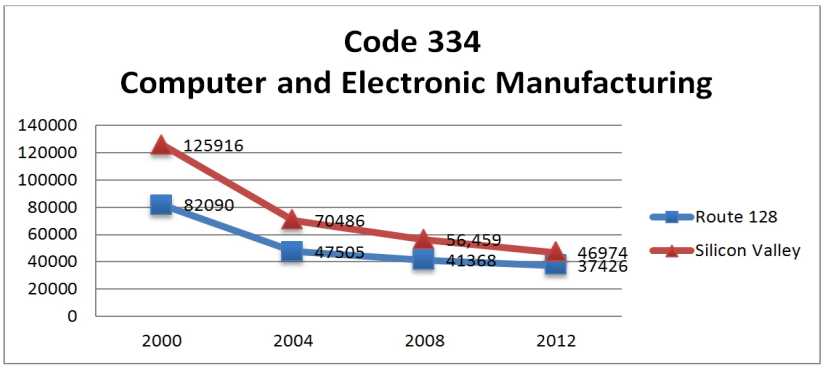

Figure 3: Computer and electronic manufacturing

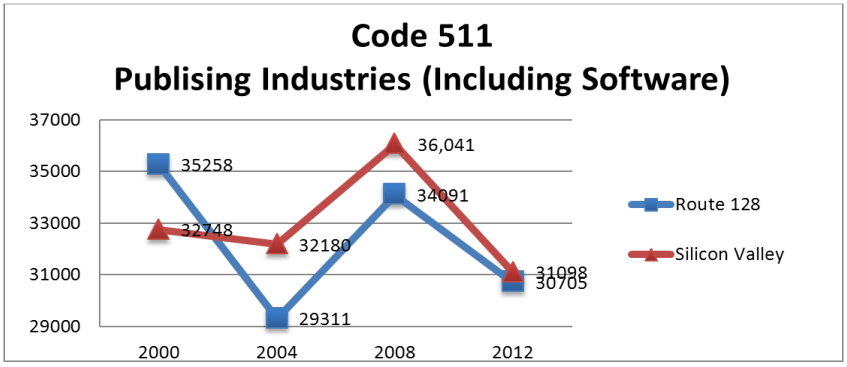

Figure 4: Publishing

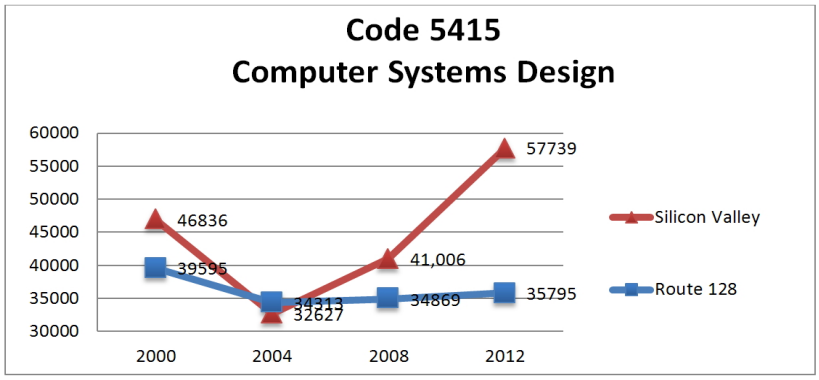

Figure 5: Computer systems design

Source: County Business Patterns (2014)

2. Firm Data

The difference in hi-tech innovation is not easily comprehended just from the hi-tech employment data. Once Silicon Valley firms surpassed Route 128 firms around the mid-1970s, there has been no turning back. Silicon Valley has a greater number of firms exceeding a billion dollars in market cap as well as a greater number of firms overall.

Table 4: Market value of public ICT firms (billion US$)

Index		California		Massachusetts	
		B	M	B	M
NASDAQ	No of firms	69	71	16	10
	Sum	2251	19.9	127.1	2.5
	Mean	32.6	0.28	7.9	0.25
NYSE	No of firms	22	15	2	n/a
	Sum	385	6.5	3.1	
	Mean	17.5	0.43	n/a	

Source: NASDAQ and NYSE (2014)
Note: B = market cap exceeding a billion dollars, M = market cap is less than a billion dollars

Table 5: Industrial structure of public ICT firms

Industry	California		Massachusetts	
	NYSE	NASDAQ	NYSE	NASDAQ
Total firms	37	140	2	26
Semiconductors	6	58		6
S/W	12	34	1	11
electronic data processing	12	20	1	7
computer communications equipment	4	10		
computer peripheral equipment	3	7		1
computer manufacturing		5		
electronic components		5		1
business services		1		

Source: NASDAQ and NYSE (2014)

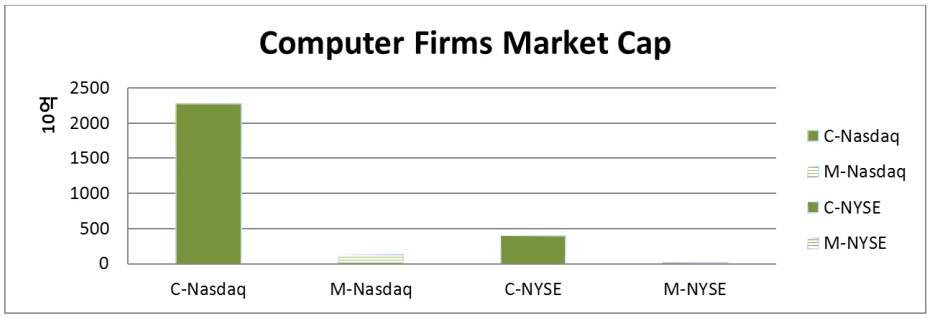

Figure 6: Market cap of public computer firms

Source: Nasdaq and NYSE (2014)

Note: C=California; M=Massachusetts

3. IPOs

Data confirmed that Silicon Valley has a far greater number of initial public offerings (IPOs) than Route 128. And Silicon Valley firms have a much more dynamic rate of IPOs in recent years, which suggests that it also has more firms in the earlier stages of growth that have yet to make a public offering. The table shows that IPOs in Silicon Valley really started from the 1970s. 1996-2000 had 33 IPOs for California firms right up to the dot.com bubble but there were even more IPOs in the recent years of 2011-2015 with 52. Another surprising finding is that the NYSE had a total of 29 IPOs in 2011-2015, which are more public offerings that all previous years on the NYSE combined. The amount of IPOs by California firms in recent years suggests that the ICT industry in Silicon Valley is yet again undergoing a cycle of growth.

The reason of IPO numbers in 2011-2015 is the change of policy of NYSE. “The NYSE, which had a 12 percent share of all tech IPOs as recently as 2006 had 58% of the market for tech IPOs during the first half of 2011.” (Institutional Investor, 2011)

Table 6: IPOs by year

IPOs	California		Massachusetts	
	NYSE	NASDAQ	NYSE	NASDAQ
1970-1975	0	1	0	0
1976-1980	0	1	0	0
1981-1985	2	4	0	0
1986-1990	0	9	0	0
1991-1995	0	11	0	4
1996-2000	0	33	0	4
2001-2005	1	11	0	0
2006-2010	3	12	0	5
2011-2015	29	23	2	4

Source: Nasdaq and NYSE (2014)

VI. Discussion, Limitations, and Conclusion

1. Discussion

Our findings are as follows:

- Employment data confirmed that Silicon Valley has a greater number of hi-tech employment in computer related industries, despite the large difference in population size.
- Surprisingly, Route 128 still employed the greatest number of workers in manufacturing, information, and professional, scientific, and technical services in computer related industries. This finding suggests that Route 128 is still a computer-centric hi-tech district.
- Data confirmed that Silicon Valley has a greater number of computer related firms than Route 128, along with having more firms exceeding a billion dollars in market cap.
- Data confirmed that Silicon Valley has a far greater number of IPOs than Route 128.

In RISs around the world, traditional models dictate that enforcement of CNCs is the correct policy. Yet, traditional orthodoxy does not always hold true for every industry. For example, IP law fails to protect the fashion industry, but instead of deterring innovation, copying of fashion just accelerates new innovation as copied clothing goes out of fashion, leading to faster product cycles by fashion designers (Raustiala and Sprigman, 2006). Similarly, there are different scopes to the analysis on worker mobility against worker restraint based on the traits of an industry.

In Silicon Valley, the literature of the past 15 years empirically shows that worker mobility is tied to knowledge spillover. For Asian planners, Silicon Valley's unique legal framework may be that missing sauce to add to the other ingredients: venture capital, world-class universities, research institutes, technology.

Also, Silicon Valley's unique law may be the cause for its unique culture. There, firms encourage workers to network with competitors and learn so they can bring back value to the firm; likewise, workers expect to utilize their network and knowledge at firm A to possibly advance their careers in firm B (Hoffman, Casnocha, Yeh, 2014). Unaffectedly, in Silicon Valley, workers have incentive to network freely, whereas the opposite is true in enforcement jurisdictions. This sort of worker-employer relationship in Silicon Valley is a paradigm shift from most other places, and it occurs because workers are unrestrained.

Anecdotal evidence from other examples suggests we are right: Michigan's dynamic auto industry and spin-offs occurred in an era when the CNC law was strikingly and unusually similar to California's (until 1985) (Klepper, 2010; Marx et al., 2009). Not to mention Tel Aviv, a hotbed of spin-offs and innovation, also prohibits the enforcement of CNCs (On and Lobel, 2013; Royker, 2011). More clues abide if one examines places like Ontario, Canada or Daejeon, Korea that share much discussed ingredients of a system of innovation, but lack the innovation and growth of Silicon Valley.

To summarize how prohibition of CNCs works, the first point of recognition is that talent comes to Silicon Valley because of the available option to work at its numerous ICT firms. Workers also realize that entering into one firm does not mean life at that firm. Second point of recognition is that firms also

agglomerate in Silicon Valley, partly due to the influx of top talent, despite a prohibition of CNCs. Often they learn from a competitor firm by the poached worker of that firm who may go on to add value to another firm. Hence, workers and firms circulate in a positive feedback look within an agglomeration of firms where both sides benefit.

This article contributes to literature by examining the ICT industries of Silicon Valley and Route 128. We posit that the prohibition of CNCs gives individuals freedom to innovate, opens up the culture of firms, aids clustering of firms and industries, and advances the spillover of knowledge by workers positioned like nodes in a system within an agglomeration of ICT firms. Asian policy planners are warned to consider Silicon Valley's legal foundation, instead of forming policies in the tradition of orthodoxy economics and worker restraint, especially for hi-tech districts.

And to address the divided literature, this article theoretically proposes an industrial framework to guide an iterative process of unlocking worker mobility in ideal industries to spur the spillovers from knowledge embedded in the worker. To our knowledge, an approach by industry on CNC policy has not been previously exposed or adequately described.

2. Limitations and Suggestions for Future Research

This article lacks analysis on the trade secret and intellectual property law violations made possible by workers going from firm to firm. Gilson (1999) pointed at the reputation damage of a Silicon Valley firm if they sued a worker for an IP violation and the slow procedural and substantive legal battle to prove the worker violated the law as reasons for why knowledge spillovers work in despite of IP law considerations. Still, issues of trade secret and IP law violations by mobile workers need closer examination. Also, the trade secret and IP issues special to ICT firms need closer examination. However, our model on knowledge spillover is not based on workers violating IP law and trade secret violations from firm A to firm B. Rather, it is about the delivery of tacit knowledge, human networks, experience, and know-how to aid the development of a new product or service into the future.

Likely, most workers would be afraid to cross the psychological rubicon of violating IP violations for the sake of helping a new firm. Moreover, firms would as well be inclined to avoid an expensive and lengthy IP law suit based on what IP or secrets they could get from a poached worker. Despite these lingering considerations on IP law in ICT industries, this article suggests that the characteristics of the ICT industry allow much spillover to occur, without violations in IP or trade secret law.

Another limitation of this article is the difficulty of empirically pin-pointing prohibition of CNCs as the sole reason or biggest factor for the dominance of ICT firms in Silicon Valley. Silicon Valley is a mosaic of factors that are all important in creating its environment and success. This article just points at the legal foundation as a factor for its success. Hence, as with other factors, we suggest that a pinpointing of one factor as the greatest factor is a difficult standard to meet. Regardless, the prohibition of CNCs in Silicon Valley is a unique trait not yet followed by modeling RISs around the world today, especially in Asia.

Some suggestions for future research are: What Asian clusters or systems of innovation have industries ready to prohibit CNCs? Exactly how would a prohibition of CNCs affect the mobility of workers in Asian

industries? What other laws aid the process of innovation in a system of innovation?

3. Conclusion

This article examines the ICT industries in Silicon Valley and Route 128 and argues that a key factor in the different trajectories of each region is the difference in CNC law. A previous study comparing hi-tech employment for both regions used data prior to the year 2000. This study compared hi-tech employment using more recent data and added the comparison of publicly traded ICT firms from both regions. Our current study shows consistency with the broader empirical and theoretical findings that link Silicon Valley's CNC law to its labor mobility, knowledge spillover, and innovation.

Despite the literature on Silicon Valley's prohibition of CNCs, traditional models still support an enforcement view. To reconcile the literature, this article advances an industrial framework that offers a rational approach to chase dual policy objectives. In conclusion, the article suggests that some industries reap greater gains by restraining the worker, while others, especially in the ICT industry, reap greater gains by encouraging knowledge spillover.

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