

Non-Competition Clauses and Protection of Investments in Human Capital: A Cost-Benefit Analysis

by

CASSANDRA L. FREDRICKSON TORGNES*

Investments in human capital are essential for growth in modern capitalist societies. Yet, unlike investments in physical or financial capital, a firm's investment in the human capital in their employees is relatively difficult to secure due to the mobility of employees (Coff, 1997). Non-competition clauses in employment contracts reduce employee mobility and provide the firm with exclusive usage rights, bounded by scope geography and time, to the firm-specific and general human capital possessed by the employee. Thus, non-competition clauses act as a form of protection for a firm's property rights in the human capital of their employees. The security offered by non-competition clauses provides incentives for firms to make investments in the human capital of employees bound by the clauses and thus provides a benefit to the firm and to society (Posner *et al.*, 2004; Rubin and Shedd, 1981). However, recent empirical evidence suggests that there are costs associated with the usage of non-competition clauses at an industry-level and regional-level. These include decreased rates of innovation and entrepreneurship, slower economic growth and loss of talent to jurisdictions where the clauses are not enforced (Garmaise, 2011; Marx *et al.*, 2015; Samila and Sorenson, 2011). The purpose of this paper is to analyse whether the potential benefits of positive investment incentives for firms related to the usage of non-competition clauses to protect their property rights in their human capital may be offset by the potential costs created by decreased employee mobility related to the usage of the clauses. The paper proceeds by critically reviewing the economic models and empirical evidence used to support the potential benefits and costs associated with the usage of the clauses.

* Norwegian School of Economics
PhD Research Scholar
Department of Strategy and Management
STOP Group

1. INTRODUCTION

At the very core, all forms of public regulation aim to increase the well-being of citizens. The regulations concerning non-competition clauses in employment contracts (“non-competes”) are no exception. Our ability to innovate, create, and improve our economic well-being is dependent on investments in human capital. Human capital is a very broad term and encompasses knowledge, skills, abilities, information, and the health of individuals (Becker, 2002). The human capital of interest here is specifically the knowledge, skills and abilities that can be acquired both through formal education and on the job training and that hold the potential for increasing economic productivity. Human capital investments are costly and the monetary cost of these investments is generally borne by the individual or by firms. These investments consist of both general human capital investments, which are investments in human capital that can be applied by any individual or firm, and specific human capital investments, which can only be applied by specific firms or individuals. Individuals are incentivized to make personal investments in their own human capital predominantly by the direct reward of improved real income that is obtained by applying their general human capital in a variety of settings (Becker, 1962). The incentive for individual investment in human capital is strong due to the fact an individual’s property rights in acquired skills and knowledge are automatically vested and rights to returns are thereby secured (Becker, 1962). Given that the property rights to human capital are vested in the individual, the prospect of employee mobility decreases the incentives for firms to undertake investments in employee human capital, since when the employee leaves, the potential returns to investment are largely lost to the firm providing the investment and are instead transferred to the individual or to other firms (Lester, 2001; Posner *et al.*, 2004; Rubin and Shedd, 1981; Trebilcock, 1986). This makes human capital investments tenuous. Non-competes, however, hold the potential to provide a form of security for firms’ investments in human capital. Non-competes prevent employees from employing the firm-sponsored human capital investments elsewhere and thus prevent the employees from usurping the firms’ investment in human capital. As non-competes are generally only enforced to the extent that they are reasonable in terms of professional and geographical scope, and in duration, the security that the clauses provide is likewise limited. Nonetheless, the limited restriction on mobility may be enough to encourage firms to invest more efficiently in the human capital of their employees (Posner *et al.*, 2004). Moreover, it may be enough to encourage riskier but, potentially, more innovative projects that rely on human capital investments (Younge *et al.*, 2015). Outside investors may also invest more in firms when they know that the firm’s human

capital assets are secured (Younge *et al.*, 2015). Given that investments in human capital are increasingly necessary for economic growth, and non-competes provide incentives for investments in human capital by providing security for the firm's investments, they are arguably a necessary legal tools that should be available to firms in today's knowledge intensive economies.

However, in addition to preventing the employee from reaping the benefits of the firms' investments in human capital in other employment, non-competes may also prevent the employee from reaping the benefits of their own investments in general human capital that they have acquired outside of the firm from which they are bound.. An employee that leaves a firm from which it is bound by a non-compete, can either choose a different field of employment, a different geographical location for employment or it can wait for the clause to expire (Marx, 2009; Marx *et al.*, 2015). In any case, both the individual and society miss out on the productive potential of the employee. If they chose to remain, they may expend less effort in the tasks assigned (Amir and Lobel, 2010; Bünstorf *et al.*, 2013; Motta and Roende, 2002; Kräkel and Sliwka, 2009) or they may not invest personally in their own human capital (Garmaise, 2011). Moreover, if they remain at the firm, bound by the non-compete, opportunities for entrepreneurship are lost (Samila and Sorenson, 2011). The purpose of this paper is to present and assess the evidence both for and against using non-compete clauses as a form of protection of a firm's property rights to the human capital of their employees.

The paper begins by explaining what non-compete clauses are, their intended use and their actual use. The paper then presents studies that suggest how non-compete clauses may influence the behavior of firms and individuals and assesses how these effects impact the relative costs and benefits of using the clauses. The relative merits of the research both for and against non-competes are discussed before concluding with suggestions for future research.

1.1. Non-Competes Defined

Non-compete clauses, also referred to as non-compete agreements, restraints of trade, covenants not to compete or simply non-competes, are legal instruments that are often used in employer-employee relationships to restrain the employee from joining a competitor or establishing a competing business either during the term of employment, or most often, post-employment (Posner *et al.*, 2004). Non-compete clauses are also used to restrain sellers in contracts for sale of a business, and to restrain one or both parties in franchise contracts. In all instances, non-

compete clauses are generally limited in duration and geographical scope. The focus of this paper is non-competes in post-employment relationships.

The general purpose of a non-compete is to protect against losses caused by the departure of an employee. The losses are two-fold. Firstly, when an employee leaves a firm, the firm's ability to capture any further returns from investments made in recruiting and training the departing employee is greatly reduced (Bishara, 2014). In many industries, investments in training can be significant. A firm generally invests in both general and firm-specific training. As will be discussed in more detail later, firms having made investments in general training not only lose the potential for collection of the returns when they lose an employee, but they transfer this potential to the hiring firm or to the employee. Secondly, when an employee leaves a firm, the firm may suffer immeasurable damages in the event that the employee joins a competitor and takes with them valuable contacts and proprietary knowledge of products and processes (Friedman *et al.*, 1991; Marx, 2011). Jurisdictions that enforce non-competes vary with respect to how much they emphasize the first or the second type of potential losses as a justification for enforcement.

Overall, firms appear to rely on non-compete clauses for effective protection against losses in human capital. Whether the motivation is investments in training or prevention of a competitor retaining a key human capital resource, the protection of their property rights in the human capital of the employee is at the core. Although it is nearly impossible to determine how prevalent the use of non-compete clauses are, as neither employees nor employers are required to disclose their use, a quick survey of published cases indicates that they are nearly ubiquitous. They are found in employment contracts of employees at all skill and educational levels, in a variety of industries and in most of the developed world. Specifically, non-compete clauses can be found in the contracts of top executives in Fortune 500 companies (Pagnattaro, 2007), sandwich shop employees (Greenhouse, 2014) and summer camp counselors (DePhillis, 2015). Indeed, Woodman (2015) reports that Amazon even requires its seasonal warehouse workers to sign a contract that includes an 18-month non-compete clause. Moreover, litigation over non-compete clauses has also increased. In the US, the number of published cases involving non-compete clauses increased by 61 percent from 2002 to 2012 (Simon and Loten, 2013).

Moreover, although there are other legal instruments that can be used to protect firms against such losses, these are largely seen as inferior to the protection offered by non-compete clauses. Alternative legal protections include laws relating to trade secrets, patents, trademarks and

copyrights and non-disclosure and non-solicitation clauses. As compared to protection through trade secret law or non-disclosure agreements, non-compete clauses have the advantage that breach is much easier to detect. An employee's move to a competitor is generally visible, while disclosure of a trade secret can be difficult to determine (Lester, 2001). In addition, the burden of proof in trade secret cases is rather onerous. Not only does the firm have to prove actual transmission of the trade secret, but the firm must also prove that they made reasonable efforts to preserve secrecy (Posner *et al.*, 2004; Rubin and Shedd, 1981). Although they may be regarded as valuable trade secrets, it is difficult to prove efforts of keeping pricing and business strategy and customer details secret. Challenging a breach of trade secret law may also involve public disclosure of confidential information (Posner *et al.*, 2004). More generally, the disadvantage of the other legal protections mentioned above are that they are narrower in scope than non-compete clauses.

1.2. Non-Legal Alternatives to Non-Competes

In addition to the alternative legal remedies, other non-legal remedies may be used to restrict employee mobility and protect firm investments in human capital. The rather obvious alternative is paying the employee to stay in the event that the employee receives an alternative job offer. The advantage of this alternative is that the firm may avoid any of the potential negative effects on employee effort that may arise in conjunction with the use of non-compete clauses (Kräkel and Sliwka, 2009). In addition, the firm may gain insight into the value of the employee (Kräkel and Sliwka, 2009). The insight is gained due to the fact that an employee is more likely to consider, and a firm is more likely to become aware of, alternative employment offers when the employee is not bound by a non-compete clause. Alternative employment offers provide a fairly clear signal of the employee's worth (Kräkel and Sliwka, 2009). One of the disadvantages of this alternative, is that it transfers bargaining power from the firm to the employee. Without a non-compete, an employee may hold-up the firm knowing that the firm will want to recoup as much as its investments in the employee's human capital as possible (Posner *et al.*, 2004). Essentially, the employee could demand the total sum that the firm stands to lose from loss of investments in training and potential exposure of sensitive firm information. If several employees are privy to the sensitive information, the demands of the employees could easily exceed the value of the human capital (Posner *et al.*, 2004). Moreover, knowing that the employee may leave at any time can lead to underinvestment in employee training, which is discussed below (Lester, 2001; Posner *et al.*, 2004).

Another alternative is to have employees compensate the firm for their access to the firm's information and training through reduced wages. This alternative has the potential to benefit both parties. The firm is protected against loss in the event of employee departure and the employee enjoys the returns to its investment post-employment through career advancement and higher wages. The firm also gains from the increased productivity of the employee while they are employed at the firm. The issue with this alternative is that most employees could not afford to pay an amount sufficient to compensate the firm. The value of firm strategy, customer lists and other sensitive information could be worth millions. Thus, this alternative is not realistic. (Posner *et al.*, 2004)

Finally, a firm could create an environment where it is difficult for employees to appropriate valuable information. For example, the firm could ensure that no single individual has privity to all parts of the firm's strategy or production processes. This would prevent possible loss associated with other firms capturing the firm's investment in the human capital of the employee. Of course, the firm would lose out on increased productivity associated with firm-sponsored training and resource complementarity. Overall, this option does not deserve much attention as the inefficiencies resulting from such fragmentation are very likely to result in costs greater than any benefits accruing from this form of safeguarding of information. (Posner *et al.*, 2004)

The alternative non-legal approaches mentioned above for achieving the same results of non-compete clauses are either too costly, unrealistic or inefficient as compared to the use of non-compete clauses. The list of alternatives is not exhaustive. However, this list includes the alternatives that are discussed most frequently and that hold the most promise to approximating the results of non-competes.

2. ANALYSIS: NON-COMPETES, FIRM AND INDIVIDUAL BEHAVIOR

Assessing the suitability of non-competes as appropriate tools for protecting a firm's property in their human capital investments involves assessing whether the positive influence that non-competes have on firm behaviour is offset by the negative influence they have on individual behaviour. Both effects stem from the fact that non-compete clauses function to reduce labor mobility (Fallick *et al.*, 2006; Garmaise, 2011; Marx *et al.*, 2009). At the firm level, the reduction of mobility provides a sense of security for firms and induces investments in human capital and complementary assets (Posner *et al.*, 2004; Rubin and Shedd, 1981); investments, in turn, increase firm innovation and production (Almeida and Carneiro, 2009; Ballot *et al.*,

2001; Bassanini *et al.*, 2005; Conti, 2005; Frazis and Lowenstein, 2005; Pischke, 2005). At the individual level, the same perception of barriers for pursuing outside options that leads to the reduction in mobility, may also create disincentives for exertion of effort (Amir and Lobel, 2010), personal investments in human capital (Garmaise, 2011), and entrepreneurship (Franco and Mitchell, 2008; Stuart and Sorenson, 2011). If the firm level effects are positive and greater than those at the individual level, then the clauses may be deemed effective for protecting human capital investments and thus desirable from a societal perspective.

2.1. Non-Competes and Mobility

For non-competes to have any effect, they must reduce labor mobility or at least be perceived to be able to, and indeed, various studies have linked the enforcement of non-compete clauses to reduced labor mobility (Fallick *et al.*, 2006; Garmaise, 2011; Marx *et al.*, 2009). Fallick *et al.* (2006), found lower levels of inter-firm mobility among college-educated male employees working in the computer industry in various US cities located in states where non-compete clauses are enforced as compared with computer clusters in California, where non-compete clauses are not enforced. Marx *et al.*, (2009) compared the mobility of inventors in Michigan pre-1985 when statutory regulations prevented non-compete enforcement and post-1985 when the regulation was repealed so as to allow for non-compete enforcement. They found an 8.1% drop in inventor mobility post-1985, with even greater drops for inventors with greater levels of firm-specific knowledge or skills. Garmaise (2011), used time-series and cross-sectional variation in the enforcement of non-compete clauses across the US and found, among other things, that an increase in non-compete enforcement reduces rates of executive mobility. Accordingly, there is sufficient evidence to suggest that non-competes do influence labor mobility. The question is then whether they influence investment behavior by firms, which is the intended effort, and whether they have more unintended consequences.

2.2. Non-Competes and Firm Investments

Reflecting their intended use, the most obvious potential benefit of using non-compete clauses is efficient firm investments in the human capital of employees that ultimately improve societal welfare. Providing the most efficient level of investments in training for employees can lead to large gains in productivity (Almeida and Carneiro, 2009; Ballot *et al.*, 2001; Bassanini *et al.*, 2005; Conti, 2005; Frazis and Lowenstein, 2005; Pischke, 2005). Specifically, for firms that provide training, the average rate of return has been estimated to be 8.6 percent (Almeida and

Carneiro, 2009). The prospect of employee mobility decreases the incentives for firms to undertake investments in training since when the employee leaves, the potential returns to investment are largely lost to the firm providing the training and are instead transferred to other firms (Lester, 2001; Posner *et al.*, 2004; Rubin and Shedd, 1981; Trebilcock, 1986). Since non-compete clauses can bind employees to the firm, they provide incentives for investment and thus incentives for increasing efficiency and firm performance.

In particular, in the models created by Posner *et al.* (2004), which analyze non-competes under the guidance of incomplete contract theory, non-competes, so long as they are open for renegotiation, allow for both first-best ex-ante investment and first-best ex-post performance levels. Under the models, investment includes both general and firm-specific training and may be of a technical nature or may be in the form of informal knowledge sharing. An efficient ex-ante level of investment is the level that maximizes the value of the employee's output. An efficient ex-post performance result is one that optimizes the fit between the employee and the firm. The models compare investment and performance outcomes of non-compete clauses (as enforced with injunctive relief) with the alternative legal contract breach remedies of specific performance (requiring the employee to refrain from leaving the firm) and liquidated damages (requiring the employee to pay a predetermined sum if she leaves). According to the models, a pure specific performance remedy leads to overinvestment, while a pure liquidated damages remedy leads to underinvestment in the human capital of employees. When the non-compete clause is not renegotiable, it functions as a hybrid between the two alternative remedies in that the employee must refrain from leaving the firm to join a competing firm within the scope of the non-compete, but the employee is free to join other firms outside of the scope of the non-compete, which is equivalent to paying a sum of zero in liquidated damages. When the non-compete is renegotiable, overinvestment results from the opportunity for bargaining to permit the employee to move to another firm within the scope of the non-compete clause. Underinvestment results from the fact that the employee is still able to move outside the scope of the non-compete clause, thereby lessening the security of the investment. For a renegotiable non-compete, being a hybrid of the two, the two effects may counter each other to create an efficient outcome. Specifically, under the models, non-compete clauses are even more efficient than setting liquidated damages to zero for moves to all firms, which is equivalent to no restrictions on mobility.

If indeed non-compete clauses do provide incentives for efficient investments in human capital and if investments in human capital do lead to better firm performance, firms with non-compete

clauses should have higher levels of human capital and better firm performance relative to their close competitors. Existing empirical studies look at links between non-compete clauses, investments in human capital and firm performance at the industry or state level (Garmaise, 2009; Starr, 2014). The focus is on the differences between firms and industries located in American states that enforce non-compete clauses and firms located in states that do not enforce them. For example, Garmaise (2011) found no statistically significant difference between firm value and performance levels for firms located in jurisdictions with high levels of non-compete enforcement versus firms located in jurisdictions with low levels of non-compete enforcement. However, the study was not able to isolate the effects on value and performance for firms that actually use non-compete clauses. Thus, there may be positive externalities for industries in jurisdictions with low non-compete enforcement levels, and indeed there is evidence to suggest this, which may offset the benefits for individual firms that use non-compete clauses in the high non-compete clause enforcement jurisdictions (Garmaise, 2011).

Moreover, Starr (2014) does find that increased enforcement of non-compete clauses is correlated with higher levels of firm-sponsored training, especially for those in high-skilled, high-earning occupations. Although the study could not directly connect higher levels of firm-sponsored training with actual non-compete clause usage, it comes closer than previous studies by exploiting and controlling for the fact that only occupations present in litigation are likely to be impacted by the state enforcement scheme. Although more research is needed, the theoretical models and empirical findings of Starr do suggest that non-compete clauses do indeed provide incentives for efficient investments.

2.3. Non-Competes and Acquisition Interest

Another potential benefit is the increase in attractiveness for investors, which was recently identified by Younge *et al.* (2015). As human capital is increasingly the most important asset for many companies, Young *et al.*, reasoned that firms that were able to demonstrate a certain level of security in the firm's human capital assets, were more likely to become an acquisition target. Testing this hypotheses, they exploit the natural experiment conditions that were created with the non-compete enforcement policy reversal in Michigan in 1985 (the "Michigan Experiment"), which unexpectedly repealed the prohibition on non-compete enforcement that had been in effect since 1905. They test their hypotheses using both in-state, pre- and post-policy change data for Michigan and multi-state data pre- and post-policy change. Young *et al.*, used a statistical approach called differences in differences to try and tease out a causal

relationship based on differences between states that had consistent levels of non-compete enforcement or non-enforcement and the incidence of acquisition in Michigan, which was subject to a non-enforcement shock. Confirming their hypothesis, they found that acquirers are sensitive to human capital mobility issues and thus were more likely to acquire a firm if non-competes could be enforced.

There are two important implications for considering the relative costs and benefits for non-compete usage and enforcement as a tool for protecting a firm's property rights in the human capital of their employee that come out of this study. First, the study demonstrates that non-competes are effective instruments for creating incentives to invest, not only for the current firm, but for subsequent purchasers. Hence, acquiring firms view non-competes as effective tools for protecting the human capital portion of their acquisition investment. The second and related implication concerns the societal benefit of the increased incentives for investment through acquisition. As acquisitions are a means for allocating capital to where it is most valued, non-competes, by removing the risk associated with human capital investments and encouraging such investments, may increase market efficiency. As the importance of human capital assets increases in the future, removing risks associated with potential employee mobility post-acquisition, will arguably become more important for encouraging efficient investments via mergers and acquisitions. Albeit, the counter to this is that human capital mobility is reduced. Reductions in labor mobility, likely leads to a higher rate of employee-firm mismatch. The relative effects of increased financial capital mobility and decreased employee mobility need to be researched further.

2.4. Non-Competes and High-Risk, High-Return Project Pursuit

Another potential benefit is the increased incentives for high-risk, high-return projects. When a firm fails to secure its investments in its human capital investments and the employee leaves the firm, the firm transfers its future positive net benefits to rivals. When, however, a firm makes investments in human capital that do not yield positive net benefits, the firm alone bears the cost of the investment regardless of whether the employee leaves or not. This is the impetus behind a study by Conti (2014) whereby they proposed, and found support for, the notion that firms located in areas with stronger non-compete enforcement pursue more high-risk R&D projects as the relative benefits for high-risk projects are greater than those for low-risk R&D projects. This is important for considering the relative costs and benefits of non-competes since first, it indicates that firms do indeed perceive non-competes as offering a form of security for

human capital investments. Second it indicates that the riskiest investments, which are also the ones that are most likely to lead to novel technology on which future economic growth requires, are less likely to occur if the firm does not feel that its investments are secure.

2.5. Non-Competes, Entry, Spin-Offs and Spin-Outs

Several studies suggest that non-competes influence firm entry and entrepreneurship decisions. In particular, Silicon Valley, with its high rate of entrepreneurship, is often cited as evidence that non-compete clauses are not only unnecessary, but are actually obstacles to growth and innovation (Gilson, 1999; Hyde, 2010). Many of the current firms operating in Silicon Valley are spin-outs from existing firms (Franco and Filson, 2006; Franco and Mitchell, 2008; Gilson, 1999). Spin-outs are new firms created by the ex-employees of incumbent firms in the same industry, as opposed to “spin-offs”, which are formed on the firms’ initiative (Franco and Mitchell, 2008). By binding the employee to the firm, non-competes arguably create barriers to entry for “spin-outs” (Franco and Mitchell, 2008). Franco and Mitchell (2008) created a simulation which they argue supports the finding that the divergent outcomes of the high technology districts in Silicon Valley and in Massachusetts’ Route 128 was in part due to the hindrance of spin-outs created by non-compete enforcement in the latter district. Samila and Sorenson (2011), using panel data from metropolitan areas in the US, similarly find that increases in venture capital in jurisdictions with non- or weak enforcement lead to more entrepreneurship.

The potential total societal impact of non-competes hindering spin-outs is multifaceted. On the one hand, spin-outs have the potential to become productive businesses that increase societal welfare, indicating that by hindering spin-outs, non-competes impose a cost on society. On the other hand, spin-outs create a particularly significant threat to industry profits for incumbent firms as they generally perform better than other entrants with respect to profits and survival (Agarwal *et al.*, 2004; Franco and Filson, 2006). In addition, spin-outs often produce similar or identical goods to the parent firm from which they came and are therefore more likely to be closer competitors to the parent than new entrants would be (Franco and Mitchell, 2008). Spin-outs are also frequently able to offer a higher quality product or service at the same marginal cost or the same product or service at a lower marginal cost than their parents (Agarwal *et al.*, 2004; Franco and Mitchell, 2008). Moreover, spin-outs started by employees with high levels of human capital are often able to take customers with them, especially when they identify the employee with the “face of the firm” (Campbell *et al.*, 2012). Campbell *et al.* (2012) calculate

the net loss in revenues for a US firm that results from losing an employee earning an average of \$481,000 to be \$1,000,007. Rauch (2015), using an untested model, suggests that the potential risks faced by firms in jurisdictions that do not enforce non-competes will result in fewer original entries, which in turn, will lead to fewer spin-outs. So long as would be spin-outs are not financially constrained, total firm creation, from both entrants and spin-outs, is maximized with strong non-compete enforcement as firms human capital risks are minimized, which increases original firm entry and would be spin-outs would be able to buy-out their contracts in most cases, which does not hinder spin-outs. If the would be spin-outs are financially constrained, however, there may be less total firm creation. Overall, there are good arguments both for and against non-competes being positive for total new firm creation. Ideally, however, more models would be tested on data obtained outside of the US and with other natural experiments. This will be discussed in the final sections of the paper.

2.6. Non-Compete Clauses and Motivation Disincentives

A potential cost of using non-compete clauses is that they may negatively impact employee effort. There are two experimental studies that look at whether the presence of non-compete clauses in employment contracts influence the amount of effort expended by employees. In the one study, Amir and Lobel (2010) analyzed the interaction between contractual restrictions, such as non-compete clauses, and employee performance. Using a behavioral experiment, they found that individuals are less determined, less engaged and more prone to failure when working on tasks requiring pure effort when performing under contractual constraints, such as the restraint of a non-compete clause. In tasks involving internal talent and creativity, they found that individuals were still less engaged, but the general quality of their performance was the same as under conditions of human capital constraints as it was under no constraints. Thus, they posit that firms who use non-compete clauses may suffer from lower employee performance. In contrast, in the other study by Bünstorf *et al.*, (2013) using similar experimental methods, they found no reduction in employee effort where non-compete clauses were used. Instead, they found that employers anticipated a potential reduction in effort when inserting non-compete clauses into contracts and therefore offered a higher wage to induce a higher level of effort from the employee. The offering of a higher wage is, however, contrary to Garmaise's (2011) empirical findings which suggest that executive compensation is lower, rather than higher in states with non-compete enforcement. However, this does not necessarily mean that Amir and Lobel's findings are more correct. Garmaise's findings are complicated by the fact

he looks at firms that are subject to potential non-compete enforcement, rather than actual non-compete use. Moreover, there are issues with both of the experimental studies, which are discussed below.

In addition to these experimental studies, some papers use theoretical models to predict how the use of non-compete clauses may affect employee effort and firm performance. The model created by Motta and Roende (2002) suggests that the presence of a non-compete clause reduces efforts and profits for the firm. The intuition behind their model is that the absence of a non-compete allows for a higher-powered incentive scheme in that it forces the firm to reward the employee's innovations to avoid the employee joining the competitor. Only in cases where the firm's investment in research and development is more important than the employee's, does the presence of a non-compete clause allow for an efficient outcome as the clause helps the firm appropriate their investment. Similarly, Kräkel and Sliwka's (2009) model proposes that having non-compete clauses in employment contracts reduces the incentives for employers to reward employees' performance such that excluding them can provide a credible signal to employees that the employer is willing to reward good performance. This signal, they reason, induces better performance. In addition, although, not mentioned by the Kräkel and Sliwka study, the signal may also increase the ability of the firm to attract high-skilled human capital.

Both the experimental studies and the theoretical models implicitly assume that employees consciously consider whether or not they are subject to an enforceable non-compete clause while performing their tasks for the firm. While this assumption may be true for some, it is unlikely to be true for the majority. In some cases the employee may never even be aware that they signed a non-compete clause (Starr, 2014). In the majority of cases, however, it may be more likely that an employee only considers whether or not they are bound by a non-compete clause after performing well enough to receive alternative job offers or when they consider developing their own competing business ideas. The assumption of continuous, conscious contemplation of whether one is bound by a non-compete clause is critical to the findings of the studies and models cited above. Absent evidence of the reasonableness of this assumption, it is difficult to assess their findings. A survey of employees that could provide insight into their awareness of whether they are bound by a non-compete clause and what impact this has on their performance, may assist in testing the validity of the findings of these studies and models.

Furthermore, something that is captured in part by Amir and Lobel's study, but not by the others, is the consideration of how incentives other than monetary rewards may affect employee

effort. Amir and Lobel distinguished between tasks that are routine versus tasks that are creative, and found that the non-compete clauses reduce effort less in cases where the tasks are creative. Indeed, in many of the industries where non-compete clauses are likely to have the most strategic value, the individuals that a firm will want to restrain will be those who possess unique, innovative capabilities. These individuals are probably more likely to want to utilize these abilities regardless of the presence or absence of legal restraints on mobility. Thus, even if individuals are conscious of being bound by non-compete clauses when performing firm tasks, the intrinsic pleasure that they receive from performing these tasks may motivate the employee to perform well. Moreover, if individuals are constantly mindful of being bound by a non-compete clause, it is possible that the knowledge of the lack of alternative employment in the given industry creates incentives for employees to make the best of the situation and excel in their current position. Overall, there is still a lack of understanding and empirical observations on how non-compete clauses impact employee effort.

2.7. Non-Competes and Incentives for Personal Investments in Human Capital

While firms may have increased incentives to invest in the human capital of their employees with the use and possibility of enforcement of non-competes, Garmaise (2011) argues that this is offset by disincentives for employees that are bound by non-competes to invest in their own human capital. However, the study by Garmaise contains no direct empirical evidence of the actual composition of human capital expenditures. Instead, Garmaise reasons that firms with higher skilled workers will benefit most from expenditures in research and development and therefore, if non-compete clauses increase investments in employee training, then firms in high-enforcement jurisdictions would spend more on research and development. Since he did not find that, he states that this is support for his model that shows that while firms might invest more in the human capital of their employee when non-compete clauses are enforced, individuals will invest less. Garmaise finds even greater reductions in capital expenditure per employee associated with higher non-compete clause enforcement. Here, Garmaise reasons the relatively greater reduction in capital expenditures indicates that there are possibly two effects at play. The first is the same mentioned above, that individuals are discouraged from investing in their own human capital. The second is that non-compete clauses work to protect the intellectual capital flowing from research and development investments, but not from physical capital expenditures. Overall, although Garmaise uses empirical data to support his contracting models, there is no actual data on firm or individual investments in human capital. Indeed, there

is no data on actual human capital investments at all. Given this shortfall, Garmaise's suggestion that non-compete clauses provide disincentives for employees to invest in their own human capital needs to be treated cautiously.

2.8. Non-Competes and Talent Acquisition and Retention

Non-competes may also have an impact on talent acquisition and retention. Non-competes can be a valuable tool for firms to retain their top talent. If firms are able to bind their employees at the commencement of employment with a non-compete, they have a powerful negotiating tool in the event that the employee is confronted with competing job offers. Indeed, as employees that are bound by non-competes are arguably more likely to be exposed to more firm-sponsored training, their value and thus outside options are likely to increase at a rate greater than those that are not similarly bound. Thus, from a firm-perspective, the mobility limiting effect on talent that is created by non-competes is positive. However, at the jurisdictional level, which ultimately filters down to the firm level, talented individuals may choose to locate in areas where non-competes are not enforced, and for those employees who are already bound, the lack of options within the enforcing jurisdiction may prompt employees to move to other jurisdictions where non-competes are not enforced. Marx *et al.*, (2015) refer to these effects as brain drain and find evidence to support that brain drain increases with the level of non-compete enforcement. Although they look at the mobility of inventors as measured by their rates of patenting, the results, they contend, are applicable to employees in general. Moreover, Marx *et al.*, found the inventors that were more likely to leave the jurisdiction were those that were more collaborative (measured by patent co-authorship) and more impactful (measured by patent citations). Thus, although individual firms may be able to hold on to their top talent with non-competes, for those firms that cannot, the pool of talent may be smaller and of inferior quality than it otherwise would be in the absence of non-compete enforcement.

2.9. Non-Competes and Patenting and Innovation

Innovation and economic growth can come from within existing firms, or from new firms. There are multiple instruments that can be used to protect investments in human capital and intellectual property. For some types of investments, patents and trade secret law protections might be seen as substitutes, for others, they are complements. At least two studies have used patents as proxies for innovation and have argued that non-competes reduce innovation since the rate of patenting is greater for non-enforcing jurisdictions (Marx *et al.*, 2009; Samila and

Sorenson, 2011). However, given that patents and non-competes may be substitutes for protecting human capital investments, patents as proxies for innovation in the context of non-competes is likely misleading.

2.10. Non-Competes and Economic Growth

Interest in non-competes increased dramatically with the rise of Silicon Valley as the model of innovation and economic growth. Academics and policy-makers were seeking to find the secret to its success. Although culture was cited by many as the driving force, others sought more tangible and replicable sources of success, such as the prohibition against non-competes. Gilson (1999) was one of the first to do so. In particular, he looked at the divergent development of Massachusetts' Route 128, where non-competes are enforced, and California's Silicon Valley, where non-competes are prohibited. He argued that both started with similar potential, but that the enforcement of non-competes hindered the progress of Route 128. Rather than attempting a causal empirical analysis, Gilson employs a more casual approach using general facts and anecdotal evidence. However, any attempt at establishing a direct causal link between economic growth and non-compete enforcement is a futile pursuit. This is discussed more below.

3. DISCUSSION

Which findings should policymakers believe in? In Scandinavia, it appears that governments are convinced by the studies indicating that there are serious negative societal externalities associated with non-compete usage. In particular, both the Danish and Norwegian governments made changes to their laws on non-competes in late 2015 so as to make it more difficult for firms to use them by further limiting the employees that may be bound by the clauses and the compensation that is required for their enforcement (Danish: LOV nr 1565 af 15/12/2015; Norwegian: Arbeidsmiljøloven §14A). The studies mentioned in this paper that indicate negative externalities associated with non-compete usage were cited in the analyses that formed the basis for the justification of the change in the laws in both countries. I argue that the move to restrict non-compete use is a premature move. The existing studies are not sufficiently conclusive on the issue of the effect of non-competes on individual and firm behavior and welfare outcomes. I alluded to this above in my presentation of the studies. However, below I set out three reasons as to why more research needs to be done before concluding that non-compete usage should be prohibited or severely restricted.

First, none of the existing studies, or even a combination thereof, are able to capture the micro-level behavioral foundations underlying the alleged societal outcomes. In other words, they are unable to capture the causal mechanisms at play. Although the use and the consequences of the use of non-competes are social phenomena (i.e. they occur in an open system), and as such, the causal mechanisms behind non-compete usage and its effects on the individual, firm and society can never be fully understood, it is possible to focus studies on micro-level behavior and gain better insight into the causal mechanisms at play. In particular, very few studies look at what actually happens in firms that use non-competes. Instead, in the existing studies, the independent variables are measured in the aggregate at the industry or state-level (i.e. rates of economic growth, rates of entrepreneurship) and the dependent variable is measured at the state-level (i.e. general level of enforcement by the courts of non-competes in a particular state). Just because the ability to enforce the clauses exists, does not mean that firms actually use them. The actual impact of non-competes on the firms that use them has not been studied empirically. Moreover, it may be that what is good for society is good for individual firms, but this should not be assumed. Most likely, the costs and benefits of individual firms using non-competes in their employment contracts will be contingent on many factors. Such factors might include the industry growth rate, state of industry development, supply of suitable human capital assets, sufficiency of patent protection for the knowledge that the firm is trying to protect and general firm location. For example, non-compete use by firms in an industry where patents are widely used and are generally considered effective for protecting firms' research and development efforts, might have little effect on productivity. However, a firm in a new industry where the stock of human capital required to service this industry has not yet developed, may benefit significantly from the strategic use of non-competes.

Second, almost all of the empirical research on non-competes has been conducted in the US, which includes California with its infamous non-enforcement of non-competes, and perhaps even more infamous, Silicon Valley. There are good reasons for choosing the US for testing the impact of non-competes. The varied enforcement of non-competes across the states, as well as the changes in non-compete policy within particular states, provide natural experiment conditions for empirical testing. However, the inclusion of California with Silicon Valley and the impact of its unique culture of openness and knowledge sharing (Saxenian, 1996) are difficult to control for. Expanding studies beyond the US is particularly relevant for implementing changes in laws in Europe and Scandinavia where different cultural phenomena and different sets of legal institutions may induce different behavioral responses.

Finally, the measurement issues associated with researching non-compete usage are biased in favor in finding negative, rather than positive externalities associated with their usage. In particular, the main, and likely greatest positive externality is the inducement of efficient investments in human capital, which happen to be very difficult to verify empirically. Some investments are made through formal training programs, most however, and indeed the most powerful, are not. They are tacit in nature. They are made through increased exposure to firm strategy, culture and routines and general on the job experience. There are no accounting measures for these. Moreover, the innovation that results from these activities is also not well-documented. A firm that develops a new product or innovation internally generally does not document this in a way that can be used by researchers. A firm that has secured its human capital investments through non-competes has less of an incentive to patent, i.e. property rights secured through non-competes may be a substitute for patents. Patents, on the other hand are easy to measure. So too are new firm start-ups. As these substitutes are easily documented, it will be easy to see the negative impact that non-competes have on patenting and new firm startups, but difficult to measure internal firm innovations.

4. CONCLUSION

It is a basic tenet of law and economics that the property rights of the producers of intellectual property ought to be protected. Without such protections, producers will not be able to reap the full benefits of their labor, and as such, too little intellectual property will be produced (Gilson, 1999). The production of the intellectual property encased in the human capital of the employee is a joint effort. No formal rules exist for assigning property rights to firms for their contribution to the human capital of their employees vis a vis the property rights of the individual. Instead, absent servitude, the property rights are assumed to reside with the individual. Non-compete clauses, however, may present a compromise that allows some security for a firm's investments in the human capital of their employees. This security may create incentives for investment. Whether they do indeed create enough incentives to induce investments and whether or not this is offset by disincentives and other negative externalities remains to be demonstrated. Further research that drills down to the micro-level behavior of individuals and firms that are actual users of the clauses and research that is able to fully defend its use of measures is needed before a final conclusion can be made as to if, and under what circumstances, non-compete clauses are efficient instruments for providing security for a firm's investments in the human capital of their employees.

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