LEGAL RESTRICTIONS AND ENTREPRENEURIAL SPAWNING: A

RELATIONAL LOOK INTO NON-COMPETE POLICIES

An Undergraduate Research Scholars Thesis

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RESEARCH COMPLIANCE CERTIFICATION

Research activities involving the use of human subjects, vertebrate animals, and/or biohazards must be reviewed and approved by the appropriate Texas A&M University regulatory research committee (i.e., IRB, IACUC, IBC) before the activity can commence. This requirement applies to activities conducted at Texas A&M and to activities conducted at non-Texas A&M facilities or institutions. In both cases, students are responsible for working with the relevant Texas A&M research compliance program to ensure and document that all Texas A&M compliance obligations are met before the study begins.

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This project required approval from the Texas A&M University Research Compliance & Biosafety office.

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ABSTRACT

Legal Restrictions and Entrepreneurial Spawning: a Relational Look into Non-Compete Policies

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Non-competes come in the form of restrictions on employees and the key value they carry are to protect a business from future competition. On the other hand, entrepreneurial ventures are fueled by individual interests and by individuals looking to become new entrants. Naturally, these conflicting interests lead to a 'fight' – some fair and some unfair – between the business and the individual. This 'fight' and the question of how the two interests can co-exist within the business environment is an important question that should be addressed by state policymakers and firms alike. The purpose of this study is to explore the relationship between non-compete policies and entrepreneurial growth and to uncover the factors that may shape this relationship. Although non-competes do carry the *potential* to create a trade-off between benefits to firms and costs to individual workers, how much is this potential actually played out in practice? This was the initial driving question behind my research study. Given that non-compete provisions come in all shapes and forms, I created an interview study that aimed to collect a variety of experiences in relation to non-competes. In my data collection, I took an in depth, exploratory approach by asking a series of interview questions. Interview data was collected with

a total of 34 observations. Each respondent for the interview study was in a different position in what I call the 'non-compete cycle'. The non-compete cycle is made up of those who enforce the noncompete, those who currently fall under a non-compete, and those who have transitioned out of a non-compete. I used quantitative analysis and statistical methods to empirically test the relationship between non-competes and entrepreneurial outcomes. I also conducted a qualitative-level analysis by recording interview comments and experiences regarding this topic and noting themes that emerged from my interviews. The results of my regression models and T-test analyses indicate that there is a non-random relationship, and evidence of negative correlations, between variables impacting a non-compete, and outcome variables for entrepreneurial spawning. The results of my qualitative analyses indicate that there are intangible factors outside of a non-compete agreement that can protect business interests. My analyses further raises the question of whether a non-compete is truly meaningful in the business environment.

DEDICATION

To the Mays Business Honors Department for encouraging me to pursue my passions and challenge my curiosity, to Dr. Michael D. Howard for guiding me through the world of research and statistics, and to my sister Meryem Pecen for always encouraging me to be entrepreneurial.

ACKNOWLEDGEMENTS

NOMENCLATURE

'Entrepreneurial goals'   Variable dataset with numeric value responses for the question of whether the respondent has plans or goals to pursue and entrepreneurial venture.

'Comfortability level'   Variable dataset with numeric value responses to a 1 to 5 ranking scale on the responder's comfortability level with leaving a business (for real and hypothetical response scenarios).

'Impact on exit'   Variable dataset with numeric value responses for the question of whether a non-compete had an impact on the responder's exit from an employer.

'Key employee'   Variable dataset with numeric value responses for the question of whether the respondent is or was in a key employee position regarding their experience with an employer.

'Policy exclusiveness'   Variable dataset with numeric value responses for the question of whether the non-compete policy of a business applied to everyone or was exclusively applied to only certain employees.

'Visibility level'   Variable dataset with numeric value responses to a 1 to 5 ranking scale on the businesses' level of visibility to the public community.

'Unique knowledge'   Variable dataset with numeric value responses for the question of whether the employee engages with or has gained unique knowledge that is exclusive to their employer.

'Conf. material'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on how much an employee has access to confidential material.

'IP creation'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on how much intellectual property creation that an employee

                              is engaged with.

'IP ownership'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on the amount of intellectual property ownership of a

                              business.

'Strict perception'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on the how strict the responder perceives their non-compete

                              policy to be.

'Awareness level'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on how aware a respondent is, or was, on their individual non-

                              compete agreement.

'Enforcement level'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on how strict an employer is with enforcing a non-compete

                              policy.

'Client interactions'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on the respondent's amount of direct engagements with

                              business clients.

'Direct client importance'   Variable dataset with numeric value responses to a 1 to 5 ranking

                              scale on the importance of direct engagements with clients and

                              overall client relationships for an employer.

'Core alignment'   Variable dataset with numeric value responses to a high-middle-low

ranking scale on how much an employee's job position aligns with

the core business area of their employer.

'Non-compete clause'   Variable dataset with numeric value responses for the question of

whether the respondent is bound by a non-compete clause.

1. INTRODUCTION

1.1 The impacts of entrepreneurial spawning

Cultivating an entrepreneurial environment has proven to be an effective method for fostering economic prosperity in a community. Along with the growth of entrepreneurs and startups in a region comes economic and social values (Acs et al., 2013). This is because entrepreneurs contribute to "employment creation, productivity growth and produce and commercialize high-quality innovations" (Praag, 2007, p. 1) For instance, the U.S. Census Bureau reports that some states had as much as 12% of their new employment numbers were contributed to by startup companies. Additionally, the knowledge spillover that results from the creation of entrepreneurs and spinouts has a positive effect on economic growth (Urbano, 2019). This is because knowledge spillovers mostly come from R&D investments by firms, and this type of spillover leads to "social rates of return that are significantly above private rates" (Griliches, 1992) These values are a big motivator for research that looks to measure the positive impact of entrepreneurship and how societies can encourage its growth.

The question is, how is this "entrepreneur-friendly" environment cultivated? One approach to this question is that entrepreneurship is influenced by the institutional environment surrounding the entrepreneur (Praag, 2007). This is true because the institutional environment is what creates the conditions that can influence entrepreneurial decision making. In an article by the World Economic Forum, it was highlighted that creating conditions such as intentionally formulating resources for entrepreneurial activity like "start-up programs, venture capital financing and investment in R&D or technology transfer", focusing government policy on the growth of local industries, and equipping regional authorities with these resources would all lead

to the intentional creation of an entrepreneurial environment. Moreover, things like a firm environment, formal and informal rules across organizations and people, and the overall political-legal environment all play a role in shaping the institutional environment surrounding entrepreneurs.

1.2   The political-legal environment of an entrepreneur

In this paper, I explore an important aspect within the political-legal environment of institutions, which is public policy and non-compete agreements. Public policy is "a key component of the entrepreneurial ecosystem" (Hechavarria & Ingram, 2014).

This influence that public policy, and the legal-political environment, can have on stimulating entrepreneurial growth is now on the agenda of several state governments. Silicon Valley is an example of how entrepreneurial activity can significantly stimulate the economic growth of a state. The legal-political environment of Silicon Valley was (a contributing factor?). Hence, there have been efforts from state governments to replicate a similar environment with the motivation of growing the state economy. However, there has been a failure to replicate the kind of growth seen in the Valley, and this goes back to our argument there has to be the 'right' conditions present within an institutional environment (states/state governments in this case) to stimulate entrepreneurial activity. (In other words regional differences matter, and a big difference is the legal-political environment across states).

A big component of public policy that relates to entrepreneurial activity in an environment is non-compete laws and policies. Non-compete provisions are driven by many forces including political, economic, and business forces. Non-compete policies are vastly different across companies and states. This diversity amongst non-competes plays a big role in shaping the entrepreneurial ecosystem of a community in the context of new business creation

and innovation. In order to understand this relationship better, it is important for me to learn the incentives and deterrents that non-compete policies aim to achieve and the impact they have on a labor force.

According to survey data from the U.S. Labor Force, 18% of the labor force are bound by non-competes, 10% of employees negotiate their non-competes, and non-competes are common across both high-skill, high-paying jobs, and amongst low-skill, low-paying jobs (Starr et al., 2017). The labor force is clearly subject to non-competes, and there is this presence of contrasting incentives of the state. On the one hand the state wants to enforce private party contracts, and on the other hand the state also wants to encourage free competition. Because of the contrasting nature of these incentives, it results in an imbalance in the weight given to either incentive. This is especially prevalent when you compare the approaches to non-compete law across the states.

1.3   The impacts of non-compete policies

1.3.1   The Michigan Experiment

A study that measures the impact of a non-compete policy reversal in Michigan finds that non-competes agreements do reduce employee mobility (Marx et al., 2009). For my study, I also want to achieve a similar finding and hope to do so by collecting data on entrepreneurs and employers that are regionally based in Texas. The Michigan experiment was important because it made it clear that non-competes are not just powerless provisions, rather they have the power to shift an employee's experience inside and outside the firm. My research project will similarly analyze non-competes as a legal constraint. However, my analysis will not only focus on the impact the legal constraint has on employees, it will also involve observations of entrepreneurs who left for a spin-out and employers who shape the policies.

1.4 Significance of my research

The aims of my study include the following: (i) to see if a relationship exists between non-competes in companies and entrepreneurial spawning in communities - and how strong or weak that relationship is; (ii) to build a better understanding of the magnitude of the impact that legal restrictions have on the incentives, opportunities, barriers, and fears of entrepreneurs; (iii) to identify the factors that impact the restrictiveness of a non-compete policy; and (iv) to better understand and identify the work environments that encourage or discourage entrepreneurial spawning.

There is a gap in this field of research in that state policy makers tend to only look into non-compete related disputes reported in state courts, especially ones involving high-scale parties, when shaping their policies surrounding non-compete laws. Oftentimes, they act with pressures from the businesses or individuals involved in a public case to reform their policies. However, I hope to close this gap by not just examining non-compete disputes, but by also examining how a non-compete shapes the thought process of employees who may be impacted by the non-compete when they decide to exit. I will achieve this by considering not just the standard characteristics of a non-compete clause that courts often look into, like time, geography, and scope, but also by considering characteristics including the nature of the job that can shape a non-compete such as the presence of unique knowledge and the extent of employee-client relationships. By conducting personal interviews, unlike what a survey data can achieve, I will achieve qualitative insight into the impact of these characteristics. In terms of research into the field of employee spinouts and new business creation, the legal environment of an entrepreneur is often overlooked. There is more of a focus surrounding research about how innovation and

new technology impacts the emergence of startups. However, I hope to also examine the legal

barriers that can inhibit new ideas from being formed and pursued in the form of a venture.

2.   THEORY AND HYPOTHESES

"Entrepreneurial spawning" is the term that describes the creation of venture capital-backed entrepreneurs and startups (Gompers et al., 2005). There are many factors that can lead to entrepreneurial spawning, and a big one is employee spinouts. Studies suggest that employee spinouts are often made with ideas that are developed from a parent firm, especially for spinouts in the same industry (Nikolowa, 2011). In a paper that addresses the question of why employees choose to pursue a spin-out, some major factors that contribute to this decision are highlighted as follows: employee's reward level in the company, returns on the company's core activities, employees with high ability, performance of the firm, knowledge transmissions between parent and spin-out, and the technology know how of the parent companies (Nikolowa, 2011). I took into consideration these factors and developed my sub-hypotheses claims in relation to how similar factors can strengthen or weaken the outcome of an entrepreneurial venture.

The hypotheses of my study are predictions of patterns that may or may not result from the interview study. The purpose of these predictions are to lay out expected patterns surrounding the discussions of non-competes and entrepreneurship that would help lead my search for what the real, and potentially unintended, implications of non-compete law and firm policies are. Because the main purpose of our interview study is to obtain qualitative data, I wanted to be open to the introduction of additional factors, exceptional circumstances, and all impacts underlying a firm's non-compete policy. Especially considering that entrepreneurs within an institution react very differently to their environments depending on their motivations, attitudes, prior knowledge, and other factors, it would be most effective to gather data on these individuals through semi-structured interviews (Bjørnskov 2016). This method of research is

nontraditional in that it combines two approaches to research by using the focused structure of a scientific method to prove or disprove a hypothesis and by using a qualitative-level analysis concerning the relationship between non-competes and entrepreneurship.

2.1   Hypotheses

The general hypothesis for my study is that tighter restrictions associated with a firm's non-compete policy is negatively correlated with entrepreneurial spawning.

Following this general hypothesis, I predict that there will be a list of factors that have the power to either strengthen or weaken this negative correlation between non-competes and new business creation. The sub-hypotheses that if true, will strengthen this negative correlation, and if false will weaken this negative correlation are as follows:

Sub-hypothesis 1: In businesses where employees outside of a 'key employee' role are also bound by a non-compete will employ tighter restrictions in their non-compete policies.

Sub-hypothesis 2: Larger businesses with a bigger reputation to uphold will employ tighter restrictions in their non-compete policies.

Sub-hypothesis 3: Firms that have a higher presence of and involvement with unique knowledge and intellectual property will employ tighter restrictions in their non-compete policies.

Sub-hypothesis 4: Firms with employees who individually perceive the businesses' non-compete policy as strict will lead to the perception of tighter restrictions in their non-compete policies.

Sub-hypothesis 5: Firms with a higher presence of and involvement with direct client interactions will employ tighter restrictions in their non-compete policies.

Sub-hypothesis 6: Employees whose jobs fall parallel with the firm's core area of

business will have tighter restrictions in their non-compete policies.

3.   METHODS

3.1   Sample and data source

As a topic, non-competes are a relevant factor to everyone in the workforce, whether it is something employees are currently bound by or have signed in the past, or whether it is something that an employee can potentially face in the future. To test the impact that non-compete policies can have on outcomes related to entrepreneurial spawning, I conducted a series of interviews with entrepreneurs, employees, and employers. With these interviews, I sought out to ask a series of questions about the decision-making process throughout an entrepreneurial venture or throughout the exit journey of an employee as it specifically relates to non-competes. In addition to observing what the exit journey might have looked like for an entrepreneur or employee, I also sought out employers and employees to gauge the current environment for non-competes and the potential for an exit. My goal with the sampling of the interview study was to cast a wide net and incorporate the responses and experiences of anyone who falls within what I call the 'non-compete cycle'. I define the non-compete cycle as one similar to a life-cycle where there is the birth of a non-compete starting at a firm, there is its growth and changes, and then its potential death when it expires. The non-compete cycle includes people who enforce, or give birth, to the non-compete, those who currently fall under a non-compete where its life develops, and then of course those who transitioned out of a non-compete where the non-compete may die or continue to be valid. This broad sample was mainly to help me collect as much variety in responses and capture experiences from all-around to be able to test with a smaller sample size. The only exclusions I made from my sample selection were for people whose sole experience was as an intern since they are not considered employees of a company. Also, a non-compete

agreement's power in the courts and limits on its use is mainly determined by the state. This is

why in my sample I focused on subjects with a relation to Texas courts. My interview study

yielded 34 observations and is sufficiently large to satisfy the central limit theorem, which

requires a sample to be at least 30 in size. Since 34 is a sufficiently large enough sample size, it

can better predict the outcomes for my study.

3.2   Measures

3.2.1   Outcome predicting variables

The ultimate dependent variable is entrepreneurial spawning, or new business creation.

To test for this outcome from the responses of my interview study, I chose additional variables

that could most closely predict the outcome for entrepreneurial spawning. These variables

include the following:

1.   entrepreneurial goals of the respondent;

2.   the respondent's comfortability level with leaving a business; and

3.   whether the respondent's exit was impacted by a non-compete.

Throughout my quantitative analysis, I used these variables as predictors for the likelihood of an

entrepreneurial venture.

3.2.2   Outcome affecting variables

The ultimate independent variable is the existence of a non-compete agreement or policy.

To test my hypothesis-strengthening claims, I asked questions related to the factors that I

predicted would strengthen or weaken the negative correlation between non-competes and

entrepreneurial spawning. From my interview questions, I chose a list of responses that I would

examine to see their direct effects on the outcome of entrepreneurial spawning particularly to test

my sub-hypotheses claims.

To test my sub-hypotheses, I examined the following variables in correspondence with *sub-hypothesis 1*: the presence of a non-compete agreement or policy; whether or not the respondent is a key employee; and whether or not the non-compete applies to everyone; with *sub-hypothesis 2*; size of the business; reputation of the business; and visibility level of the business to the public; with *sub-hypothesis 3*: respondent's use and involvement with unique knowledge; respondent's use and access to confidential material; respondent's creation of intellectual property; the level of intellectual property ownership of the business; and how strict the non-compete is enforced; with *sub-hypothesis 4:* respondent's strictness perception of their non-compete; how aware respondents are of their non-compete; and how strict the employer is with enforcing their non-compete policy; with *sub-hypothesis 5:*respondent's involvement with direct client interactions; importance of direct client interactions for the business; and how strict the employer is with enforcing their non-compete policy; and lastly with *sub-hypothesis 6:* alignment of employee's job with the core business of the company.

A summary table of all the variables I used to conduct my analyses, along with the corresponding number of observations, response scales, means, and standard deviations for each variable, is reported in Appendix A.

3.2.3   *Collection of data for analysis*

To facilitate the interpretations of all my variables, I asked questions that would yield responses that I can attach a numeric value to. The responses for the variables I chose to examine were structured on a scale of 1 to 5, yes or no in which I recorded a value of 1 if yes, and 0 if otherwise, or on a high-middle-low scale in which I gave a value of 1, 2 or 3. By using these value scales to ask structured questions, my interview study yielded numeric data sets for each variable. However, because the nature of my sample includes people with different experiences

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and positions within the non-compete cycle, some questions did not apply to all 34 of my observations. This resulted in missing responses in several of the variable sets. To handle the missing data, I used central tendency measures including mean, median, and mode to input values. This helped me in making all my variable sets out of 34 while ensuring that the analysis remained unbiased. The effect of this was that it helped add statistical power to my models and strengthen the F statistic and R Squared statistic when conducting regression tests. Appendix A includes the original sample size of my variable sets. In addition to recording the numeric values for my structured interview questions, I also recorded the responses of the open-ended interview questions. As a result, my interviews yielded a set of direct quotes and experiences of which I input into the table in Appendix B. The numeric data sets along with the interview comments both supplement my goal for a quantitative and qualitative analysis of my interview study.

3.3   Quantitative and qualitative level analysis

In order to test my hypotheses, I employed regression models and paired two-sample t-tests to conduct a quantitative-level analysis. The purpose of the regression analysis was to analyze the relationship between my independent variables for factors impacting non-competes and my outcome predicting variables for entrepreneurial spawning. The purpose of my t-test analyses was to identify any consequential relationships between my variables as they relate to my hypotheses claims. These two statistical analysis methods helped me gather reliable data and helped me objectively test the relationship between non-competes and entrepreneurship.

In order to employ a qualitative-level analysis and truly exploit the advantages of the open-endedness of my interviews, I compiled a list of notable comments and experiences. I used these comments and experiences to supplement my hypotheses analysis, especially if my statistical results were limited. I also used them to understand and report the different

perspectives on non-competes and capture the effects of non-competes on the respondents' thought processes. This is something the numerical response values of my structured questions could not achieve.

It is also important to note that for my quantitative-level analysis, the most useful predictor for an entrepreneurial outcome was the comfortability level of the employee with leaving. This is because testing for plans or goals for an entrepreneurial venture was too specific and too rare of an occasion to ask in my small, highly varied, sample size. The question also refers to a future scenario, so it didn't apply to entrepreneurs who had already carried out their venture. This is why the 'entrepreneurial goals' variable set did not yield variable responses enough to be used often in testing. However, by asking all the respondents about their comfortability level with exiting a business, regardless of whether it applied to a past, present or hypothetical exit-scenario, I could gather accurate responses for the question.

4.   ANALYSIS AND RESULTS

Table A reports the mean and standard deviation values of all the study variables used in my analysis. The results of the regression tests and the paired t-tests are presented in Tables 1 to 7.1. In addition to the quantitative findings, I present our qualitative findings in Tables B and B.1 that summarize interview comments and experiences from the study. Lastly, I present some themes outside of our predicted hypotheses that emerged from the interview study.

4.1   Mean and standard deviations of study variables

Table A: Mean and Standard Deviations of Study Variables

Observations	Response Scale	Study Variable	Mean	SD
34	1 to 5	Reputation of business	3.985	0.925
12	1 to 5	Visibility of business to public	2.958	1.010
19	1 to 5	Importance of client interactions to company	4.368	1.116
34	1 to 5	Degree of confidential material handled	4.118	1.122
14	1 to 5	IP ownership level of company	3.429	1.284
34	1 to 5	Size of business	3.368	1.345
31	1 to 5	Creation of IP by employee	3.290	1.395
34	1 to 5	Degree of client interactions by employee	3.647	1.515
27	1 to 5	How strict employees perceive their non-compete	2.815	1.570
21	1 to 5	How aware employees are of their non-compete policy	2.714	1.586
18	1 to 5	How strict employer is with enforcing their non-compete policy	2.722	1.602
15	high or low	Degree of loyalty to firm	0.733	0.458
22	high or low	Comfortability level with leaving employer	0.682	0.477
21	yes or no	Non-compete policy applies to everyone	0.143	0.359
15	yes or no	Key vs not a key employee	0.182	0.395
17	yes or no	Entrepreneurial goals	0.294	0.470
14	yes or no	non-compete impact on reason for exit	0.682	0.477
25	yes or no	Presence of unique knowledge	0.440	0.507
34	yes or no	Presence of non-compete clause	0.471	0.507
16	high, middle, low	Alignment of employee's role with employer's core business	1.875	0.957

I used all the variables in Table A to test our hypotheses and to locate any significant variances and potential correlations in our interview study. This table characterizes our data sample and was generated with only original responses from our study without any inserts to cover for missing responses. It is important to note that the variables had different response values. For the purposes of my study, some variables were treated as binary variables, meaning if the response was yes it took on the value of 1, versus a value of 0 if otherwise. The rest of the variables have response values ranging from 1 to 5. Relative to other binary variables, the responses for whether or not the subject was a key employee and the responses for whether or not the non-compete applied to everyone have the lowest variance. These two variables are essentially testing for whether the non-compete is exclusive to certain members in the firm. Also relative to other binary variables, the presence of unique knowledge and non-competes signed amongst employees have the highest variance. This tells us that in our sample, there weren't many 'exclusive non-competes' even though the degree of 'exclusive' material handled by the subjects varied a lot. It also tells us that in our sample the amount of non-competes signed varied a lot, and this is a strength for our data sample because I was able to examine non-compete experiences that were mostly different. Another highlight of our sample is that relative to other variables with a 1 to 5 scale, the reputation and visibility of the companies in our study had the lowest variances. With means on the higher end of the 1 to 5 scale, this tells us that our sample size represents mostly reputable and visible companies. Also relative to other variables with a 1 to 5 scale, how strict employees perceived their non-competes and how strict the employers were with enforcing the non-competes had high variances. This could be because our sample included employees and employers from varying industries and sectors that would impact how the non-competes are enforced. This high variance could also be impacted by the differences in

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management styles of these firms, which is a theme that emerged at the conclusion of our interview study and is furthered discussed in the results section of our paper.

4.2 Findings

4.2.1 Analysis of hypotheses

Sub-hypothesis 1: Tables 1, 1.1 and 1.2 all incorporate x-variables for my first hypothesis-strengthening prediction regarding key employees. While Table 1 shows the results of two regression analysis between those x-variables and the two outcomes predicting entrepreneurship, Tables 1.1 and 1.2 show the results of three paired-sample T-tests to compare means. In Table 1, when testing whether the key employee and policy exclusiveness datasets could predict the measured outcomes for entrepreneurial spawning, there were three p-values that satisfied the 95% confidence interval. Not only were the differences between the x-variable responses and the y-variable outcomes statistically significant, but in addition to the significant p-values, the associated negative and positive coefficients in Table 1 indicate the strength of a correlation that can support our first claim about employing restrictive non-competes across employees even outside of the key employee role. Evidently in Table 1, when tested for the outcome of entrepreneurship, the x-variable of key employee yielded a p-value of less than 0.05 and a negative coefficient. This may indicate that the more an employee was in a 'key' role within a company, the less entrepreneurial goals they had. We can supplement this interpretation with the T-test in Table 1.1 that resulted in a significant p-value between the datasets of key employee and non-compete clause. This tells us that the difference between key employee positioning and signing a non-compete is likely meaningful and not random. This may indicate that having a non-compete could be part of the negative impact on the negative correlation between a key employee and having entrepreneurial goals. Also evident in Table 1 is a p-value

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less than 0.05 between the x-variable of policy exclusiveness and the two outcomes for entrepreneurship. Another result in Table 1 that supports our first sub-hypothesis is the negative coefficient between policy exclusiveness and comfortability level. This may tell us that the more the non-compete policy applied to everyone across the firm, the less comfortable employees would be with leaving the firm. Although this is a strong claim to make, the low p-value and negative coefficient indicate that this correlation is likely not due to chance. It is also a point worth highlighting since the statistic can indicate that a non-compete restriction may impact the mobility of the employees in my study. However, a statistic that goes against that particular claim is the positive coefficient in Table 1 between policy exclusiveness and entrepreneurial goals. Although this positive correlation refutes the claim I just made, it is important to consider that using comfortability level as an outcome is a more realistic measure since it incorporates more of the potential to leave and isn't as specific as asking about current entrepreneurial plans amongst a small sample size. To further supplement our first sub-hypothesis analysis, the T-tests in Table 1.2 did yield a significant variance in means when comparing the non-compete clause dataset and the two outcomes for entrepreneurship. This difference was likely not due to chance, and further supports my hypothesis. Table 1 did pass the F-test of overall significance, therefore the regression models both have statistical power. My interpretations are therefore supported with models with high F-variables and made with statistical accuracy. Further statistics for this regression, and for the following sub-hypotheses analyses are reported in Section 5 of my paper.

Therefore, the regression results of Table 1 and the T-test results in Tables 1.1 and 1.2 do support my first hypothesis-strengthening prediction by providing some statistical support that having a non-compete varies with the responder's position as a key employee and can have a

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negative or somewhat significant impact on my two predicted outcomes for entrepreneurial spawning.

As part of my qualitative analysis, some interview comments I report in Table B provides experiences and perspectives on the involvement of key employees versus lower-level employees with non-compete policies. There was a high consensus especially amongst my observations of employees and entrepreneurs that it is reasonable to apply the non-compete policies and its restrictions on employees of a company who are more likely to become a risk to the employer if they were to leave and do competitive work. It is agreed that this risk and potential for damage on an employer is higher for employees typically in a key role and who serve in upper-level positions. The experiences also indicated that an employer needs a fair incentive to put a non-compete policy in place, and there usually isn't a fair incentive to have every member in a business sign one. However, an interesting experience was one where an employee was not in a key or high-level role within the company, but was still treated as strictly as someone in a high-level position would be. It was the fact that this person engaged in a lot of work that was integral in contributing to the company's profits. This led the company to act stricter than the employee's original non-compete allowed for. This is an important experience to highlight because it indicates that incentives can be used unfairly by employers and employers can still 'pick and choose' their actions with employees.

Table B.1: Interview Responses on Key Employee Involvement with Non-Competes

Interview Comments & Experiences on Key Employee Involvement with Non-Compete Policies			
"Because higher level executives have more knowledge, a non-compete would apply more to them than us, who are lower-level employees. Naturally the company would worry more about the knowledge they have to take with them more than other employees"	*"...the reality is, unless you are a key employee or a high-level executive, no one cares for an employee who will go work for someone else. It is rare that this employee who is leaving will make or break [the employer's] business. There is no use in chasing down the employee and putting money into that chase"*	*".... [if] you are at the very top and know all the company's secrets, and you can go out and run it on your own, then the non-compete is fair. But anyone who is lower than that, it's just a scare tactic that is unfair"*	*Experience Summary:* Employee believed that the reason his/her non-compete was enforced and he/she was not allowed to leave the company for a new offer was because their account was super important and his/her role was integral to keeping the client happy. This is why although his/her non-compete actually didn't apply to this new job title he/she would be transitioning to, it was still enforced because of how critical he/she was as compared to other employees who's noon-compete was not enforced the same way when leaving to competitors in the industry.

Sub-hypothesis 2: Table 2 incorporates x-variables for my second hypothesis-strengthening prediction regarding the size and reputation of a business. The results from my regression analysis indicate that there is a significant relationship between the x-variables of size and reputation of a business with the entrepreneurship-predicting variable of comfortability level. Evidently in Table 2, although using the outcome variable of entrepreneurial goals did not yield any significant correlations, when I used the outcome variable of comfortability level, both the size and reputation datasets had a p-value below 0.05. Along with this strong p-value, business size had a positive coefficient value, while reputation yielded a negative coefficient value. This tells us two things statistically - firstly that the larger a business was, the more comfortable an employee was with leaving, and secondly that the more reputable a business was, the less

comfortable an employee was with leaving. Some reasonable assumptions I can make from this negative correlation is that the employee could have more of an opportunity cost with leaving a highly reputable firm. On the other hand, regarding the positive correlation, the size of a business could mean less of a cost associated with losing an employee so that brings up the comfortability level. However, to be able to accurately test sub-hypothesis 2, I looked to see if the size or reputation of a business varied with non-competes policies. Neither of my models yielded any significant variances, so we cannot say that this negative correlation with comfortability level had anything to do a non-compete restriction. However, I can confidently say that this negative statistic between reputation and comfortability level is reliable, because when I ran two regressions with the outcome of comfortability level, one with a smaller set of x-variables, and another with a larger set of x-variables, the strong p-value and associated negative coefficient still prevailed in two different versions of the regression model. In addition to being reliable, table 2 does pass the F-test of overall significance so my regression models have statistical power.

Therefore, the regression results of Table 2 provide only slight support to my second hypothesis-strengthening prediction by providing some statistical support that comfortability level varies with the reputation of a business and can have a negative or somewhat significant impact on the employee's potential for leaving. Although I did not see any statistical evidence on whether the size of a business had any impacts on non-compete policies, I did collect qualitative data regarding this relationship. Table B.1 one employer mentioned that they don't feel the need to discuss non-competes because they are smaller in scale. This comment does support my sub-hypothesis, but interestingly another employer mentioned that because a non-compete is limited geographically, being a business with operations across different regions can actually provide

ways to get around a strict non-compete. These two comments add depth to my sub-hypothesis claim about the relationship between non-competes and the size of a business.

Sub-hypothesis 3: Tables 3 to 3.4 incorporate x-variables for my third hypothesis-strengthening prediction regarding involvement with intellectual property and unique knowledge. The regression models in Table 3 indicate two significant p-values that are important for us to examine. There was a significant negative relationship between unique knowledge involvement and comfortability level, and there was also a significant negative relationship between conf. material and the outcome of entrepreneurial goals. This gives us statistical evidence in support of sub-hypothesis 3. It indicates that the more unique knowledge a respondent was involved with, the less comfortable they were with leaving and similarly, the more confidential material a respondent engaged with, the less they had entrepreneurial goals. Although, it is important to note that I did not generate a model that indicated any variance between unique knowledge and non-competes, therefore we cannot say that this negative correlation in Table 3 is because of a stricter non-compete policy. However, when I tested the model using intellectual property as my x-variables, I did see two significant negative correlations with entrepreneurial outcomes along with a statistic that can support that a non-compete policy may have impacted this negative correlation. More specifically, this correlation is evident in Table 3.2 where IP creation had a significant and negative correlation with entrepreneurial goals. It is also evident in Table 3.3 that reports a significant variance in means between IP creation and IP ownership with non-compete clauses. Because of the extremely strong p-value of 0 in both T-tests, this variance between means is likely not due to chance. Therefore, Table 3.3 may tell us that a respondent's non-compete clause significantly differs based on IP creation and IP ownership. I wanted to examine this relationship even further by testing for variance between my IP variables with both

perception and enforcement of a strict non-compete policy. The T-tests in Table 3.4 show the results of my tests and reports a significant variance between IP involvement variables and both enforcement level and strict perception. Clearly, the results of my regression models and T-tests provide support for sub-hypothesis 3, and are especially strong in evidence regarding involvement with IP. Additionally, my regression models in both Table 3 and Table 3.3 yielded a strong F-value that indicates statistically strong results. What these results may tell us is that the more intellectual property, and unique knowledge an employee gains and is exposed to while on the job, the less comfortable they seem to be with leaving the business or planning an entrepreneurial venture. The results also tell us that these are also the employees who are more likely to be bound by a strict non-compete. This is an important finding particularly in my discussion of how non-competes can prohibit knowledge spillovers that are critical to enhancing state startup activity and contributing to economic growth.

However, when looking into the interview comments that I collected, I realized that this is not always the case. Non-competes are not entirely strong in prohibiting knowledge spillovers. One respondent, who had signed a non-compete, provided the following comments:

> *My [past] experience is directly related to what I am doing now [as an an entrepreneur] and I still do a lot of those things, and it makes me more dangerous as an innovator and disruptor in the industry.*
>
> *[In fact] a lot of the people who were on the board with me left and went into the start-up world. Because of everything we learned at the board...we could take and create organizations that apply the practices that we learned, in a non-competitive way, because we are building client-type organizations [for our past employer].*

This experience is important to examine, because it is an example where a knowledge spillover was beneficial in creating ventures that would complement, and not compete with, the employer. In these instances, a non-compete would no longer want to be used by both parties, even if in

theory, it could protect the knowledge that was transferred by the former employee. Once again, incentives come to play and they can change the way a non-compete is employed.

Sub-hypothesis 4: Table 4 incorporates x-variables for my fourth hypothesis-strengthening prediction regarding the perceptions on non-compete policy. In the regression model, I examined the relationship between the perceptions that respondents may have about their non-compete policy and an entrepreneurial outcome. As Table 4 shows, the model did yield two significant p-values and 2 negative coefficient values for awareness level and strict perception. This result tells us that the more aware a respondent was of their company's non-compete policy, and the stricter they perceived this policy to be, the less comfortable they were with leaving. This confirms my sub-hypothesis 4 as correct. In addition to strengthening a negative correlation, this result may also tell us that many of the respondents perceive a non-compete as a barrier or obstacle to leaving. This is an important assumption to consider, because even if the respondent's perceptions do not hold true in practice, this statistic indicates that simply feeling afraid of a policy can affect the decision making of a potential entrepreneur. That is why it is important to also research the perceptions that a law or policy may create, even if the perception may not hold true in practice.

Sub-hypothesis 5: Tables 5 and 5.1 incorporate x-variables for my fifth hypothesis-strengthening prediction regarding engagements with clients. The regression model in Table 5 yielded a significant p-value and a positive coefficient between client interaction and comfortability level. This tells us that the more a respondent directly engaged with the firm's clients, the more comfortable they were with leaving. This finding refutes sub-hypothesis 5. To further examine what may have contributed to this positive correlation, I generated a T-test between client interactions and a non-compete policy related dataset. The results in Table 5.1

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indicate a significant variance in the means of client interactions and enforcement level. This variance indicates a potential correlation between involvement with clients, and how strictly the company enforced their non-compete policy. It would be reasonable to assume that firms prefer to follow through with a strict non-compete if they are afraid of employees leaving with client relationships, however the regression result in Table 5 indicated the opposite. We can examine the interview comments from Table B to make assumptions about this counterintuitive result. Particularly in regard to the comments I collected about client interactions, I noticed that client engagements are important in building an employee's network and exposure to people. This skill and activity are indeed important indicators for the success of an entrepreneur. Additionally, leveraging client relationships in a non-competitive and transparent way has served some entrepreneurs as a success factor to starting their own business. These are some reasons to believe there is a positive relationship between client interactions and being comfortable with leaving a firm for a potential entrepreneurial venture.

Sub-hypothesis 6: Tables 6 to 6.2 incorporate x-variables for my sixth hypothesis-strengthening prediction regarding core alignment. The regression models in Table 6 yielded a strong p-value and a negative coefficient value between core alignment and comfortability level. This statistic supports sub-hypothesis 6 because it indicates that the more an employee's job aligned with the core business area of their employer, the less comfortable they felt with leaving. This is an important statistic because it tells us that the type of work an employee does and how much the work contributes to the firm's core competency does have an impact on the potential for an exit. This negative relationship may be due to many factors, but to test this correlation with how it may relate to a non-compete policy, I generated several T-tests that are reported in Table 6.1. The T-tests in Table 6.1 yielded a significant variance in the means of core alignment

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with non-compete clause, strict perception, and comfortability level. This statistic indicates that a relationship does exist between how aligned an employee's job is with a core competency and the non-compete that they have. Additionally, Table 6.1 shows the results of a T-test that yielded a much higher mean value for non-competes for those employees within the tech industry who's job aligned with the core area of business. This is also another statistic that confirms sub-hypothesis 6, and it is an important finding because it is a reasonable explanation to the intent behind an employer's non-compete. This intent to protect business interests, and stay competitive with their services, will likely lead them to be stricter on employees who play a huge part in keeping them competitive. This business intent does reflect onto their non-compete policies and can contribute to the negative correlation that I predicted.

4.2.2 *Findings outside of hypotheses*

In addition to conducting statistical tests that were geared towards testing my sub-hypotheses, I also examined themes outside of the predictions I made. At the conclusion of my interview study, I gathered two additional trends that were prevalent throughout my study. Two major themes that were prevalent across my interviews were: loyalty of employees as an impact variable on non-competes and entrepreneurial spawning; and using alternative methods in replacement of non-competes.

Many respondents introduced a grey area for the implementation and practical use of a non-compete law. Although non-competes have a general purpose and employers mainly use them as a method of protection against potential business damage in the future, leveraging them in the courts isn't as clear cut. In many instances they are nothing but a part of an employment agreement until a situation necessitates its use. For example, in one experience from the interview study, the employer did not have a non-compete until they wanted to address their

turnover problem. In another experience from my study, it was a lesson learned after a former employee left and used identical strategies with a competitor. However, I noticed that several respondents mentioned that their loyalty towards the business is something that keeps them from leaving to a competitor in the first place – regardless of whether they were bound by a non-compete. Therefore, the respondents introduced a new factor that can impact an employee exit or potential spinout. This led me to begin asking about loyalty in my observations and record any mentions of it. To see if there is a relationship relevant to loyalty, I conducted a regression model and a T-test using the loyalty level dataset. The regression model in Table 7 yielded a significant p-value and negative coefficient between loyalty level and entrepreneurial goals. This may indicate that the more loyal employees felt towards their employer, the less entrepreneurial goals they had. To supplement this statistic, the T-test in Table 7.1 yielded a significant variance in the means of loyalty level and entrepreneurial goals. This tells me that there likely a meaningful correlation between loyalty and an entrepreneurial outcome. This is an interesting because I found that high levels of loyalty achieved the same negative correlation that a non-compete would with entrepreneurship. Therefore, I realized that variables outside of a non-compete policy, such as feelings of loyalty, could have had an impact on the negative correlations I identified throughout my statistical analysis.

Another theme that emerged from my study was that alternative methods were often used to achieve the same purpose of a non-compete provision. These alternative methods would be employed by employers and entrepreneurs to eliminate the need for a non-compete. Here are all the alternative methods mentioned throughout the interviews:

- Including a non-disparagement clause to protect reputation;

- Equity compensation rules and penalties for employees with ownership stakes;

- Non-disclosure agreements (4 respondents mentioned they were bound by a non-disclosure but did not sign a non-compete);

- Leveraging 'hidden agreements' to keep employees from leaving to a competitor;

- Implementing strong IP protection;

- Non solicitation agreements;

- Requiring commission pay for client solicitations;

- Partnership opportunities with a spillover company;

- Building trust and loyalty with employees;

- Giving opportunities for ownership and feedback to employees;

- Holding reputation as a high value within firm or industry; and

- Matching the competing job offer with a similar or better deal to retain the employee.

This long list of alternatives to a non-compete policy begs the question of whether non-competes are truly meaningful for businesses and whether its negative impacts can be avoided with alternative methods. It is also important to consider how significant of a role the intangible assets play into prohibiting the damages that non-competes are meant to protect against. These intangibles, such as company culture and employee loyalty, were often mentioned throughout my interviews as having a huge impact on employee exits and for shaping the way the company

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employs non-competes. I gathered specific comments and experiences regarding these

alternative methods and emerging themes in Table B of the Appendix section.

5.   STATISTICAL TABLES

Table 1: Regression Analysis of Key Employees with Entrepreneurial Outcomes

Regression Statistics				Coefficients	P-value
R Square	0.40		Intercept	0.045	0.430
Adjusted R Square	0.33		key employee	*-0.375*	*0.029*
Standard Error	0.27		non-compete clause	0.191	0.119
Observations	34		policy exclusiveness	*0.556*	*0.004*
F	6.530		*y = entrepreneurial goals*		
Significance F	0.002				

Regression Statistics				Coefficients	P-value
R Square	0.40		Intercept	0.909	0.000
Adjusted R Square	0.34		key employee	-0.125	0.545
Standard Error	0.33		non-compete clause	-0.090	0.550
Observations	34		policy restriction bin	*-0.778*	*0.001*
F	6.683		*y=comfortability level*		
Significance F	0.001				

Table 1.1: T-Test for Key Employee and Non-Compete Clause

	key employee	non-compete clause
Mean	0.118	0.353
Variance	0.107	0.235
Observations	34	34
P(T<=t) one-tail	*0.002*	
P(T<=t) two-tail	*0.003*	

Table 1.2: T-tests for Non-Compete Clause and Entrepreneurial Outcomes

	non-compete clause	entrepreneurial goals
Mean	0.353	0.118
Variance	0.235	0.107
Observations	34	34
P(T<=t) one-tail	**0.005**	
P(T<=t) two-tail	**0.009**	

	non-compete clause	comfortability level
Mean	0.353	0.794
Variance	0.235	0.168
Observations	34	34
P(T<=t) one-tail	**0.001**	
P(T<=t) two-tail	**0.002**	

Table 2: Regression Analysis of Business Size and Reputation with Entrepreneurial Outcomes

Regression Statistics	
R Square	0.05
Adjusted R Square	-0.04
Standard Error	0.33
Observations	34
F	0.54
Significance F	0.66

	Coefficients	*P-value*
Intercept	0.31	0.398
Size	0.03	0.562
Reputation	-0.10	0.219
visibility level	0.03	0.750
y=entrepreneurial goals		

Regression Statistics	
R Square	0.05
Adjusted R Square	-0.04
Standard Error	0.33
Observations	34
F	2.55
Significance F	0.07

	Coefficients	*P-value*
Intercept	0.88	0.044
Size	**0.17**	**0.011**
Reputation	**-0.18**	**0.052**
visibility level	0.03	0.797
y=comfortability level		

Regression Statistics	
R Square	0.46
Adjusted R Square	0.35
Standard Error	0.33
Observations	34
F	3.91
Significance F	0.01

	Coefficients	*P-value*
Intercept	1.32	0.003
Size	**0.20**	**0.001**
Reputation	**-0.20**	**0.034**
Conf. material	0.01	0.856
unique knowledge	**-0.34**	**0.019**
IP creation	0.04	0.406
IP ownership	-0.14	0.108

Table 3: Regression Analysis of Unique Knowledge with Entrepreneurial Outcomes

Regression Statistics				Coefficients	P-value
R Square	0.19		Intercept	0.81	0.00
Adjusted R Square	0.13		Conf. material	0.03	0.66
Standard Error	0.38		unique knowledge	*-0.37*	*0.01*
Observations	34		*y=comfortability level*		
F	3.54				
Significance F	0.04				

Regression Statistics				Coefficients	P-value
R Square	0.16		Intercept	0.53	0.01
Adjusted R Square	0.11		Conf. material	*-0.11*	*0.03*
Standard Error	0.31		unique knowledge	0.11	0.36
Observations	34		*y= entrepreneurial goals*		
F	2.95				
Significance F	0.07				

Table 3.1: T-Test for Unique Knowledge and Key Employee

	unique knowledge	key employee
Mean	0.32	0.12
Variance	0.23	0.11
Observations	34	34
P(T<=t) one-tail	*0.01*	
P(T<=t) two-tail	*0.02*	

Table 3.2: Regression Analysis for IP Involvement with Entrepreneurial Goals

Regression Statistics	
R Square	0.12
Adjusted R Square	0.06
Standard Error	0.32
Observations	34
F	2.06
Significance F	0.14

	Coefficients	*P-value*
Intercept	-0.02	0.95
IP creation	***-0.08***	***0.09***
IP ownership	0.11	0.13

y= entrepreneurial goals

Regression Statistics	
R Square	0.09
Adjusted R Square	0.03
Standard Error	0.40
Observations	34
F	1.49
Significance F	0.24

	Coefficients	*P-value*
Intercept	1.33	0.00
IP creation	-0.03	0.65
IP ownership	-0.13	0.16

y=comfortability level

Table 3.3: T-Tests for IP Involvement and Non-Compete Clause

	IP creation	*Non-compete clause*
Mean	3.29	0.35
Variance	1.77	0.24
Observations	34	34
P(T<=t) one-tail	***0.00***	
P(T<=t) two-tail	***0.00***	

	IP ownership	*Non-compete clause*
Mean	3.41	0.35
Variance	0.65	0.24
Observations	34	34
P(T<=t) one-tail	***0.00***	
P(T<=t) two-tail	***0.00***	

Table 3.4: T-Tests for IP Involvement and Strictness of Policy

	IP creation	Enforcement level
Mean	3.29	2.71
Variance	1.77	1.32
Observations	34	34
P(T<=t) one-tail	**0.04**	
P(T<=t) two-tail	**0.07**	

	IP ownership	Strict perception
Mean	3.41	2.81
Variance	0.65	1.94
Observations	34	34
P(T<=t) one-tail	**0.01**	
P(T<=t) two-tail	**0.02**	

	IP ownership	Enforcement level
Mean	3.41	2.71
Variance	0.65	1.32
Observations	34	34
P(T<=t) one-tail	**0.01**	
P(T<=t) two-tail	**0.01**	

Table 4: Regression Analysis for Perceptions and Entrepreneurial Outcomes

Regression Statistics	
R Square	0.00
Adjusted R Square	-0.06
Standard Error	0.34
Observations	34
F	0.04
Significance F	0.96

	Coefficients	P-value
Intercept	0.08	0.68
awareness level	0.00	0.95
strict perception	0.01	0.78
y= entrepreneurial goals		

Regression Statistics	
R Square	0.45
Adjusted R Square	0.41
Standard Error	0.31
Observations	34
F	12.52
Significance F	0.00

	Coefficients	P-value
Intercept	1.55	0.00
awareness level	**-0.10**	**0.03**
strict perception	**-0.18**	**0.00**
y= comfortability level		

Table 5: Regression Analysis for Client Involvement and Entrepreneurial Outcomes

Regression Statistics			Coefficients	P-value
R Square	0.03	Intercept	1.00	0.02
Adjusted R Square	-0.07	Client interactions	0.03	0.64
Standard Error	0.42	Enforcement level	-0.04	0.52
Observations	34	Direct client importance	-0.04	0.68
F	0.30	*y=entrepreneurial goals*		
Significance F	0.82			

Regression Statistics			Coefficients	P-value
R Square	0.28	Intercept	-0.14	0.76
Adjusted R Square	0.19	Client interactions	**0.20**	**0.05**
Standard Error	0.46	Direct client importance	-0.01	0.91
Observations	**19**	*y= comfortability level*		
F	3.18			
Significance F	0.07			

Table 5.1: T-test for Client Involvement and Strictness of Policy

	Client interactions	Enforcement level
Mean	3.65	2.71
Variance	2.30	1.32
Observations	34	34
P(T<=t) one-tail	**0.01**	
P(T<=t) two-tail	**0.01**	

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Table 6: Regression Analysis for Core alignment and Entrepreneurial Outcomes

Regression Statistics				Coefficients	P-value
R Square	0.265		Intercept	-0.163	0.036
Adjusted R Square	0.242		core alignment	*0.157*	*0.002*
Standard Error	0.208		*y=Impact on exit*		
Observations	34				
F	11.531				
Significance F	0.002				

Regression Statistics				Coefficients	P-value
R Square	0.151		Intercept	1.081	0.000
Adjusted R Square	0.124		core alignment	*-0.203*	*0.023*
Standard Error	0.384		*y=comfortability level*		
Observations	34				
F	5.680				
Significance F	0.023				

Table 6.1: T-Tests for Core Alignment

	Core alignment	Comfortability level		Core alignment	Non-compete clause		Core alignment	Strict perception
Mean	1.412	0.794	Mean	1.412	0.353	Mean	1.875	3.375
Variance	0.613	0.168	Variance	0.613	0.235	Variance	0.917	1.850
Observations	34	34	Observations	34	34	Observations	16	16
P(T<=t) one-tail	*0.001*		P(T<=t) one-tail	*0.000*		P(T<=t) one-tail	*0.001*	
P(T<=t) two-tail	*0.001*		P(T<=t) two-tail	*0.000*		P(T<=t) two-tail	*0.003*	

Table 6.2: Equal Variance T-Test for Core Alignment with Industry Interaction

```
Two-sample t test with equal variances

    Group |     Obs       Mean    Std. Err.    Std. Dev.    [95% Conf. Interval]
----------+---------------------------------------------------------------------
        0 |      18    1.166667    .1212678    .5144958    .9108139    1.422519
        1 |      16      1.5625    .2230237    .8920949    1.087136    2.037864
----------+---------------------------------------------------------------------
 combined |      34    1.352941    .1258295    .7337059    1.096939    1.608943
----------+---------------------------------------------------------------------
     diff |           -.3958333    .2462556               -.8974396    .1057729
----------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                  t =  -1.6074
Ho: diff = 0                                   degrees of freedom =        32

    Ha: diff < 0                   Ha: diff != 0                   Ha: diff > 0
 Pr(T < t) = 0.0589         Pr(|T| > |t|) = 0.1178         Pr(T > t) = 0.9411
```

Table 7: Regression Analysis for Loyalty Level and Entrepreneurial Outcomes

Regression Statistics				Coefficients	P-value
R Square	0.19		Intercept	0.50	0.00
Adjusted R Square	0.16		Loyalty level	*-0.43*	*0.01*
Standard Error	0.30		*y=entrepreneurial goals*		
Observations	34				
F	7.40				
Significance F	0.01				

Table 7.1: T-Tests for Loyalty Level and Entrepreneurial Outcomes

	Loyalty level	entrepreneurial goals		Loyalty level	comfortability level
Mean	0.88	0.12	Mean	0.88	0.79
Variance	0.11	0.11	Variance	0.11	0.17
Observations	34	34	Observations	34	34
P(T<=t) one-tail	*0.00*		P(T<=t) one-tail	0.16	
P(T<=t) two-tail	*0.00*		P(T<=t) two-tail	0.32	

6.   DISCUSSION

6.1   Significance of results

My findings indicate that a correlation does exist between non-competes and the potential for entrepreneurship. More specifically, the significance of my interviews were that I identified some factors that are limiting to entrepreneurial outcomes, and I also identified intangible factors that can shape how this policy is used in our society. The limits that a legal restriction can have on the potential for new business creation and employee mobility is an important consideration for state policymakers and lawmakers. As discussed in the introduction, not only should the state look into court outcomes and precedents regarding non-compete disputes, but to best reflect the public's interest in state policies, the perspectives of employees, entrepreneurs, and employers across the population are crucial. These are perspectives that are difficult to get and to interpret, which is why my research is an important step into achieving this difficult task. The intangible factors discussed in my results, which include loyalty, employee perceptions, and the culture of an organization, call attention to the importance of the management style and its implications within a firm. My findings tell us that the type of environment that management encourages or discourages relates to how much a non-competes purpose is fulfilled and also the likelihood of an employee to compete. (This finding is especially prevalent in my interview comments in Table B). The uniqueness of my study was that it collected data on how non-competes can impact both present and future exits from a firm since I examine real and hypothetical scenarios. Therefore, my research provides data to policymakers regarding not just for the occurrence of a new venture, but also for the potential for it. Another unique aspect of my study was that it

captured the thought processes of individuals, which can be useful in gauging public interest surrounding this topic.

6.2   Limitations and future research

Although I have attempted to examine the relationship between non-competes and entrepreneurial spawning, my study is limited in its sample focus, observation size, and response accuracy. These limitations may all lead to sampling errors and misinterpretations of my findings. More specifically, because I was open to all participants, my sample was very broad and generated a lot of variation regarding industry type, job descriptions, and level of employment. Although this variation in my sample was an advantage in examining my research question since my goal was to test an effect on a whole population representing the workforce, it also limited the accuracy of my results. This discrepancy was evident when I attempted to test the interaction effect of industries on my x-variables for measuring entrepreneurial outcomes. The results of my regression that included the interaction of the types of industries prevalent in my study did indicate some significance when the factors of IP and unique knowledge interacted with certain industries. As a result, some of the trends I predicted in my sub-hypotheses further strengthened or weakened within certain industries. Therefore, because I didn't include all industries in my random sample, the weight of observations in some industries over others could have impacted the results. I also couldn't further measure the impact of industries because I did not have sample focus groups, and my observations were not nearly enough to test the variations amongst industries. Another discrepancy in my sample was that I did not have any control variables for the respondents of my study, so although I can report a correlation between non-competes and entrepreneurship, I cannot conclude from my study that non-compete policies cause a decrease in entrepreneurial spawning. My sample size was also small and so increasing

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my number of observations would help to enhance the significance factors of my observations, including the F-values and coefficients in my models. Also because of my small sample size and a lack of control variables, my interview study resulted in missing data that I had to input when running my statistical tests. This limited meaningful insight in some datasets. Response bias is also a potential discrepancy in interview studies. For my study, lack of knowledge amongst employees, and the potential for employers to report false or exaggerated responses to the questions about their non-compete policies is possible. To mitigate the potential for response inaccuracies, I would employ objective third parties to interpret HR policies of firms, which would help strengthen the accuracy of my qualitative interpretations.

My findings did show significant correlations between factors influencing non-competes and entrepreneurial outcomes, however future research should be conducted to test the causality of the relationship. This can be done by designing a more experimental study to test the cause and effect between non-competes and entrepreneurship as opposed to my more correlational research study. Additionally, I have found that factors like perceptions, loyalty, and other intangible factors of a firm are important yet unexplored areas that influence the impact of restrictive covenants employed in the workplace. These unexplored factors, and other negative correlations that resulted from my findings provide a number of important questions for future research. For example, can business interests still be protected with alternative methods instead of non-compete clauses? Do non-competes limit internal spinoffs or new ideas in firms? Does an overall increase in knowledge about the law change the role that non-compete clauses play? Data collected from the interview study can also be used to supplement future work that explores the impact of legal restrictions on entrepreneurs.

7. CONCLUSION

I examine non-competes as a critical legal restriction that impacts the likelihood and potential for entrepreneurial spawning. I develop a framework to identify the factors that influence a non-compete policy and the potential for an employee spinout. I provide empirical tests to test my assertions regarding these factors through statistical tests and qualitative reporting of interviews. My study examines the experiences and perspectives of the entrepreneurs, employees, and employers who make up the 'non-compete cycle'. Consistent with my theoretical framework and hypothesis-strengthening claims, I find that these factors do have a correlation with non-competes and do carry the potential to influence entrepreneurial outcomes. In addition to my identified factors, I also identified two unforeseen factors that play a role in shaping the use of non-competes and the potential for an employee spinout. My work offers important data and contributions to research on the potentials for entrepreneurship, employee mobility, and policies on restrictive covenants.

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APPENDIX A: MEAN AND *SD* OF STUDY VARIABLES

Table A: Mean and Standard Deviations of Study Variables

Observations	Response Scale	Study Variable	Mean	*SD*
34	1 to 5	Reputation of business	3.985	0.925
12	1 to 5	Visibility of business to public	2.958	1.010
19	1 to 5	Importance of client interactions to company	4.368	1.116
34	1 to 5	Degree of confidential material handled	4.118	1.122
14	1 to 5	IP ownership level of company	3.429	1.284
34	1 to 5	Size of business	3.368	1.345
31	1 to 5	Creation of IP by employee	3.290	1.395
34	1 to 5	Degree of client interactions by employee	3.647	1.515
27	1 to 5	How strict employees perceive their non-compete	2.815	1.570
21	1 to 5	How aware employees are of their non-compete policy	2.714	1.586
18	1 to 5	How strict employer is with enforcing their non-compete policy	2.722	1.602
15	high or low	Degree of loyalty to firm	0.733	0.458
22	high or low	Comfortability level with leaving employer	0.682	0.477
21	yes or no	Non-compete policy applies to everyone	0.143	0.359
15	yes or no	Key vs not a key employee	0.182	0.395
17	yes or no	Entrepreneurial goals	0.294	0.470
14	yes or no	non-compete impact on reason for exit	0.682	0.477
25	yes or no	Presence of unique knowledge	0.440	0.507
34	yes or no	Presence of non-compete clause	0.471	0.507
16	high, middle, low	Alignment of employee's role with employer's core business	1.875	0.957

APPENDIX B: INTERVIEW COMMENTS

Table B: Summary of Interview Comments and Experiences

Interview Comments and Experiences							
Impact of nature of industry or job	**Impact of business size & reputation**	**degree of client relationships**	**involvement with unique knowledge and IP**	**Loyalty amongst employees**	**Knowledge spillovers**	**employee perception of non-competes**	**employer perception of non-competes**
I know that a lot of people have bounced from placed to place in the consulting world for health care.	*Because our company isn't big in scale and we aren't competing for a tight market share, we just don't discuss...non-competes.*	*Working on products for the purpose of commercial sale versus for internal use really sets the difference on where I leave to work with. I couldn't go work for a competitor who also sold software [to clients] but I was able to work for a company who built software for internal use only.*	*I would say, if I was building an app and we had a team of coders then we would need to have some non-compete language for them since they can build the same thing somewhere else.*	*Even if things end badly with an employer or I didn't sign anything, I am a loyal person who would not spill secrets or share project details with a competitor.*	*Because the nature of the work between the two companies [was] so different, and the sectors [were] very different, the [previous employer] did not mind [me leaving] because there wouldn't be a transition of any unique knowledge*	*Non of the companies I've worked with ever bring it [the non-compete] up on their own, it is something I always make sure to bring up. Sometimes...[the non-competes] get hidden in the fine lines. None of the companies openly say "hey this is your policy".*	*The only leverage that we have, since we don't want to limit someone's employment elsewhere, is to have some penalty in the form of withholding equity payment for that key employee.*
Being at a company that was stuck in their old ways to coming in and being creative as a new plan [was a skill that I learned and now I bring to my startup].	*Usually there is some sort of geographic limitation [to employee's non compete] and since we operate nation wide..and not regionally, we usually can find [a way where we don't violate their previous employer's noncompete] - usually [the new hire] has to move or they may have to go into a different industry [within our company], but we are able to move [the new hire].*	*Non-competes are more in place so that people don't irrationally go out and steal clients. As long as it [the actions of an employee] doesn't hurt [the company] financially, [they won't enforce t].*	*Our upper management or company CEO didn't even teach us anything we didn't know, in fact we were bringing to the table what they didn't know, so it was unfair to be signing a non-compete for knowledge that we already knew.*	*If we're building the right culture and we're creating an environment where people can grow and they can thrive and they can feel ownership ...then that would limit the [desire] for someone to go and compete with us. If they have a place where they can innovate and their ideas can be heard and be executed on, then [they don't see a] need...to build something that is similar [or competitive]. My entire team wants to move towards this [same] vision and if we continue [this] then we won't have as many concerns about someone leaving.*	*Because higher level executives have more knowledge, a non-compete would apply more to them than us, who are lower level employees. Naturally the company would worry more about the knowledge they have to take with them more than other employees.*	*The company was really persistent on us signing [the non-compete] and I had to google it because they played it off as if it wasn't a huge deal. When they brought out this new provision they did not explain it at all. We all had to sign it because if not we would not be able to work there.*	*I am concerned with who to share my concepts with [for the business] but in order to protect my concepts, I am focusing on protecting our IP instead of using a non-compete.*

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In chemical engineering, it's just the norm to double check non-compete policies before transitioning between companies.			*although a refinery and oil and gas equipment fall on the tech side, a refinery is not really proprietary [so there is nothing to unique to protect]. Every refinery is pretty much the same.*	*If the [company] had a segments within their organization that allowed people who wanted to innovate, and to do that within the company, then that would eliminate a lot of the non-compete headache.*	*I knew someone who left a previous consulting firm , and started his own consulting firm that in some ways can both compete with and partner with his previous employer. They have a great relationship and there is no bad blood between them, so the relationship is very complementary.*	*They got into a lot of lawsuits that they lost, so they used the non-compete just to have something more to feed their case if they were to ever sue again. They got tired of losing and wanted to use the non-compete in the future.*	*After the marketing director left to be a marketing director for a previous employee of the company, the company wanted to prevent this from happening again so they created a new employment contract with a strict non-compete provision and wanted to make everyone resign their employment contracts*
I knew someone who worked as a chemical engineer, and they couldn't leave to work for a direct competitor within 2 years of leaving				*If their previous employer had listened and focused on a different culture and had given them the opportunity to innovate, then they wouldn't have had to...go and build something better.*	*I would say I use some of the research I did in my previous company in the sense of understanding information about the market that I retain now. There are somethings that I have been able to take from there that I use directly for my business. For example, I learned social media marketing strategies that I apply now...I learned about demographic behaviors, but I don't use any of this information in a competitive way.*	*non-compete should be accompanied by a compensation package if the employer is preventing someone from working for a time period*	*although we have non-solicitation agreements, we don't have non-competes but we try to solve this potential risk with our non-solicitation.*
Not much loyalty on the corporate or retail side of an oil and gas company, so because there isn't much of any hooks tying the employee to the business...[there's] no point in a non compete				*If they [the employer] like you enough and you made an impression on them enough and you're not going to intentionally go out and give away company secrets, I don't see my company taking that to court.*		*I would say it is definitely a negative thing, because now you are limiting yourself*	*Because there is a really large barrier to entry that our employees would face if they were to try to contract with tech companies the way we do, they would find it really difficult to try an compete with us, so we don't have [nor do we need] a non-compete... so because it is not a risk to us, we don't put non-competes in our employment contracts.*

I would say most people in the tech world have a pretty clear understanding of their non-compete				We want to give our employees the experience that would [make] them want to stay with us. We don't want them to leave, but if they want to leave then we did not do our job of giving them a culture [for] them to stay.		The new provision was difficult to understand, but it seemed too restrictive. The new non-compete policy seemed unfair and we left instead of resigning our employment contracts.	I see non-competes as mostly a threat and not something that is very enforceable
				Loyalty is created by giving [opportunities for] ownership within the business, otherwise it is difficult to develop loyalty.		as a founder, if you put non-compete in front of your employees, and it's looked at negatively by certain people	We definitely look for employees who don't have a non-compete because it makes it easier for us. Having a non-compete [for our employees] allows us to be more secure in hiring them. Mostly because this is a start-up environment, and everyday is different, we want to prevent anyone leaving us scrambling.
						as an individual employee, I would never really worry about someone suing me, because if anything the company wouldn't sue me, they would sue the company. usually its the in house lawyers going to war, and as an employee it isn't much of a worry because the company wouldn't think its worth it to chase down the employee they would rather chase down the company	We take a pretty strong stance…if our employees don't want to be here, then they should go where they are happier. We don't believe in noncompete [because] we shouldn't force somebody to stay with us. A lot of times what we will do [if an employee wants to leave] is that we will match their new offer or give them a better deal.
						Instead of being able to take an opportunity freely you will always have in the back of your mind whether what you signed will be an issue.	
						As an employee, if you make me sign a non-compete and you replace me, not only are you replacing me, but you are also taking away my options. It doesn't add up. Instead of this, its [more reasonable] to put a non-disclosure.	