# The Promotion Paradox: Organizational Mortality and Employee Promotion Chances in Silicon Valley Law Firms, 1946–1996[1]

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This article argues that there is a "promotion paradox"—a negative relation between firm life chances and employee promotion chances. I argue that this is due to a firm's bargaining power, which increases with the firm's competitive strength. I find strong support using data on 50 years of Silicon Valley law firms and attorneys. Young, small, specialist, and low-status firms are more likely to fail but are also contexts with the highest promotion likelihood. Moreover, except for those firms that are "near death," an associate's promotion likelihood increases with the law firm's probability of failure.

## INTRODUCTION

Many studies in organizational theory, as well as articles in the popular press, suggest that employees are most likely to obtain career advancement and long-term employment within firms that have favorable life chances (e.g., survival, productivity, profitability). An association between firm life chances and firm growth underlies this positive relationship (Whetten 1987). Favorable life chances imply more openings within an organization, generating greater mobility. Indeed, the argument that firm life chances and employee promotion chances are positively related has great intuitive appeal.

However, previous findings have underappreciated that a firm's rela-

[1] I would like to thank Joel Podolny, Bill Barnett, Roberto Fernandez, Mike Hannan, Pam Haunschild, Thomas Hellman, Charles O'Reilly, W. R. Scott, and the *AJS* reviewers. I would also like to acknowledge the helpful comments from Ron Burt, Roger Gould, Paul Lomio, Katherine Williams Phillips, Jesper Sorensen, Olav Sorenson, Toby Stuart, Erika Wayne, and the participants in the American Bar Foundation Speaker Series seminar. Direct correspondence to Damon Jeremy Phillips, Graduate School of Business, 1101 E. 58th Street, Room 318H, Chicago, Illinois 60637. E-mail: damon.phillips@gsb.uchicago.edu


0002-9602/2001/10604-0006$02.50

tion to its employees and the labor market is affected by its competitive position. A consideration of the dynamics surrounding the bargaining strength of an employer suggests that there is a negative relation between firm life chances and employee promotion chances. In the exchange of rewards between the employer and employee, the stronger the firm's bargaining position, the less the firm will be compelled to cede rewards and resources to the employee in the form of promotions. Therefore, employers with favorable life chances may actually disadvantage employee attainment. Ironically, this negative relation exists alongside the advantages due to growth.

Likewise, this negative relation can be predicted from the potential employee's perspective if one considers that employees choose jobs as a function of the expected value of income from employment. Using this rational choice approach, the expected value is the income earned as a junior employee plus the probability of being promoted times the net present value of the income stream associated with being a senior employee, manager, or owner.[2] If the expected value is observable and constant across all firms, there is a tradeoff between promotion rates and the net present value of the income stream. In other words, firms that are more likely to fail offer less future income and thus must offer a higher promotion rate to recruit employees.[3]

This rational choice perspective is consistent with the bargaining power approach since firms with favorable life chances have bargaining strength to the extent that they have resources that members of the labor market value: higher future income. Similar to the notion of bargaining power within economics (see Lindblom 1948; Lindbeck and Snower 1986), perspectives on the employment relationship are most effective when they are consistent from both the perspective of the employer and employee (Siow 1994). It is reasonable to expect that the bargaining power and individual rational choice explanations are consistent rather than in competition. Whether due to the career choices of potential employees evaluating the firm's competitive position, or firm decisions that incorporate its competitive position, the resulting prediction is that there exists a negative relation between firm life chances and employee promotion chances.

This article focuses on the likelihood of making partner in a law firm from the firm's perspective. The bulk of the sociological research pointing to a relationship between firm life chances (e.g., firm growth) and employee promotion chances features conceptual and empirical analyses from the

[2] An employee may incorporate (discounted) postemployment opportunities as well.

[3] I am grateful to an anonymous reviewer for noting the relevance of this alternative perspective.

standpoint of firms (Pfeffer 1983; Stewman and Konda 1983; Stewman 1986), often explicitly considering firms as conduits of attainment (Baron and Bielby 1980; Hannan 1988). A similar framework exists within the efficiency-wage theories that dominate much of neoclassical economics in which all labor market power rests with the firms (Lindback and Snower 1986). Therefore, this article's perspective builds upon influential contributions to organizational sociology, stratification, and labor economics. At the same time, this article does not distinguish between which perspective (firm or individual) most accurately explains the "promotion paradox." It is likely that the "promotion paradox" is the product of the rational decisions of firms and potential employees.

## The Relationship between Organizational and Career Processes

This research agenda fills a void in our understanding of the relationship between organizational and career processes. Within the organizations community, the open-systems perspective has made commonplace our understanding that an organization's environment has relevant ramifications for the strategy, structure, and life chances of firms (Lawrence and Lorsch 1967; Meyer and Rowan 1977; Hannan and Freeman 1977; Scott 1992).

Despite this acknowledgement, researchers of labor markets and careers have yet to fully incorporate the relationship between employers and their environment to understanding stratification, in general, and career processes, in particular (Baron and Bielby 1980). Most studies have focused on individual or positional influences on promotion or the effect of organizational or environmental characteristics on the existence of employment-related structures. For example, studies of within-firm promotions have often focused on the role of vacancy chains and their relationship to the employer's growth (White 1970; Stewman and Konda 1983; Wholey 1985; Rosenbaum 1989).

Less often do scholars of employee opportunity structures examine the impact of the organization's success and fitness—with respect to its environment—on the career trajectories of its members. Some studies have examined how labor supply, labor demand (Bridges and Villemez 1991), and institutional pressures (Baron, Davis-Black, and Bielby 1986; Edelman 1990) affect the creation and evolution of internal labor markets. Unfortunately, these studies do not explore whether the existence of formal opportunity structures are influenced by an employer's performance. Moreover, these studies do not directly examine career trajectories, rather they seek to explain the existence of particular bureaucratic governance structures of opportunity and control. While we tend to infer promotion patterns based on organizational structures, we are unable to understand

the variance within particular formal structures due to organizational life chances.

Thus, while the scholarship on internal labor markets and promotion chances has been a substantial contribution to organizational sociology, we have not fully developed an understanding of how career trajectories are influenced by the fate of the employer—where career trajectories are embedded. I argue that fruitful insights can be obtained by understanding how employee opportunity structures are influenced by an employer's relationship to its ecological niche. To date, there have been few attempts to develop a research agenda capable of linking firm survival and career mobility.

Research is moving in this direction, however. Brittain and Wholey (1991) examine the effect of industry volatility and uncertainty on quits and layoffs. However, they do not consider firms as instruments through which environmental pressures influence career trajectories. Haveman and Cohen (1994) show that population dynamics (e.g., foundings, mergers, and dissolutions) create and destroy jobs, thus generating career mobility. Drawing insight from the vacancy chain perspective, their study traces a clear link between population dynamics and job changes, marking a new path of research that examines the consequences of firm life chances on individual mobility. In another study that simultaneously considers organizational and career processes, Sørensen (1999) addresses how the structure of competition affects patterns of career mobility. He finds that firms that recruit from the same sources as their competitors have lower growth rates, due to the competition in the more dense regions of the labor market. While these studies have advanced the understanding of the relationship between firms and individual mobility, there exist many unanswered questions. Without further developing an understanding of the relationship between a population of firms and the careers of individuals, the conclusions made by organizational theorists and career researchers will be sorely incomplete.

One key to further understanding the relationship between the fate of firms and individual careers is exploring the relationship between a firm's life chances and the promotion chances of individuals that work within them. This article seeks to demonstrate that contradictory outcomes exist and shape the opportunity structure of individual careers. That is, there is a negative relation between firm life chances and the promotion chances of its employees. Moreover, it uses bargaining power as a conceptual framework for understanding why this relation exists. In essence, firm life chances are associated with the firm's bargaining strength in the employment relationship.[4] Employers with strong life chances (i.e.,

[4] While this study draws from an ecological approach and thus emphasizes firm life

strength in the "product" market) are also those employers with greater bargaining advantage over their employees (i.e., strength in the labor market). I test the role of bargaining strength with a unique dataset on 50 years of law firms in Silicon Valley and a subset of attorneys that worked within them.

## BACKGROUND AND THEORY

### Organizational Growth and Employee Promotion Chances

The intuition that there is a positive relationship between employer and employee success is supported by studies that examine the impact of organizational growth on employee promotions (Stewman and Konda 1983; Rosenbaum 1984; Wholey 1985). While a conclusion drawn by other sociologists as well as economists (Chiang 1986; Holzer 1991), much of the research linking growth and promotion chances has been developed by scholars in the vacancy chain tradition (White 1970). This research is accompanied by articles in the business popular press that claim long-term employment and employee advancement occur in successful firms (e.g., Hatvany and Pucik 1981).

White's (1970) seminal work introduced vacancy chains into discussions of mobility by noting how the retirement of Methodist clergy initiated a chain of vacancies filled sequentially by an occupant in a lower rank. Using insights from White (1970) and Keyfitz (1973), Stewman and Konda (1983; Stewman 1986) developed and refined a model of multiple grade ratios to predict promotion patterns. In addition to factors such as cohort size and exit rate, Stewman and Konda (1983) found that the rate of promotions increases with organizational growth. The logic is straightforward: organizational growth involves the creation of new vacancies at the top and new subunits throughout the organization, which leads to them being filled by new hires and lower-ranked employees. Thus, whereas a retirement was the catalyst for increased attainment by lower-ranked employees in White (1970), organizational growth was also identified as a mechanism for attainment.

The relationship between firm growth and the probability of promotion is not confined to vacancy chain research however. Rosenbaum (1984) argues, with empirical evidence, that firm growth allows more people to be winners in a tournament selection. Pfeffer (1983) uses an analysis of a U.S. railway industry case study from 1885 to 1940 (Morris 1973) to draw a similar conclusion. He shows that a lack of growth is one of the

chances, I expect my arguments to hold for other indicators of firm strength. For institutions that rarely fail, such as universities, one would require an indicator of firm strength that is more appropriate for the context.

factors responsible for a firm's inability to hold or attract young talent. The increasing net loss of talent resulted in further performance problems and organizational decline, leading to the failure of some of the organizations in the railroad industry.

The extension of each of these arguments is that there is a positive relation between the life chances of firms and the promotion chances of its employees. However, I argue that alongside the positive contribution of firm growth to employee promotion chances, a negative relation, also associated with firm life chances, exists. This relationship is captured with the following insight: favorable life chances are associated with bargaining power on the part of the firm. Bargaining power privileges the firm to limit the resources it shares with its employees without detrimental consequences. This view is consistent with Sørensen and Kalleberg (1981) and Sørensen (1983) in their argument that employers turn away from internal promotions and toward the external labor market to the extent that the employer has greater power than the employee. Promotions are one of the rewards and resources that employers concede when their advantage is weakened.[5]

## Bargaining Power and the Employment Relationship

Generally, bargaining power is the capacity of a party to produce an agreement on its own terms (Chamberlain and Kuhn 1965). My use of bargaining power is similar to the use of informal bargaining power presented by Cyert and March (1998, p. 187): "bargaining between two groups in which conflict of interest is implicit." In other words, the concept does not require each party to explicitly bargain. Economists that have incorporated sociological perspectives have used similar definitions of bargaining and bargaining power (Schelling 1956; Williamson 1983). Important for this article is the notion that bargaining varies as the firm's life chances improve or decline. I am interested in the firm-level variation of promotion rates as a function of a firm's life chances. Employers that have weaker life chances have less bargaining leverage, which leads to higher promotion chances among the employees. The rate of promotion, therefore, is a barometer for the balance of bargaining power and resources between the employer and the employee.

While this article focuses on the perspective of the firm, a similar re-

[5] Promotions that are purely symbolic fall outside of my conceptualization. Rather, I assume that promotions involve some cost to the employer. I consider, as does Pfeffer (1981), that employers have two fundamental resources: (1) budgets and other monetary resources and (2) positions in the organizational hierarchy. I focus on the allocation of positions, with the assumption that monetary and nonpecuniary rewards are largely determined by position.

lationship between firm strength and promotion can be derived from the perspective of the potential employee. Two assumptions are necessary. First, firm strength is correlated with profits the firm shares with those promoted. In other words, stronger firms have greater rewards to share with their members than do weaker firms. Second, potential employees are able to select employers with the goal of maximizing their expected value of income. The potential employee is able to distinguish a set of employers on the probability of promotion and the rewards given to those promoted. The expected value of income is a function of rewards given to those promoted, as well as the probability of promotion.

Given these two assumptions, weaker firms must offer higher probabilities of promotion in order to attract potential employees. The relationship between firm strength and promotion chances is a result of potential employees rationally choosing employers based on a calculation of expected future income. The stronger the firm's competitive position, the greater its rewards to those promoted and the greater its ability to minimize the probability of promotion promised to potential employees. Competitive strength gives the employer the ability to offer lower promotion without punishment from the labor market.

Similarly, one may reasonably posit that firms with strong life chances offer highly valued jobs that reward their employees with highly observable and positive information about their individual talent. Employees take jobs at firms with strong life chances because it will imply that they are high-quality employees. Future income is expected to be higher when an employee is seeking a job in firms with greater firm strength since employment increases the income of future jobs. In this case, firms with highly valued jobs are able to offer lower chances of promotion in exchange for inferring the talent of its employees. Bargaining power, in this case, is derived from the signaling ability of firms with strong life chances.

This phenomenon is one that I term *the promotion paradox*. Firms with strong life chances (e.g., survival, productivity, profitability, etc.) have greater bargaining power than do firms with weak life chances. Similar to Hannan's (1998) use of firms occupying robust and fragile positions, strong life chances allow a firm to be less susceptible to environmental variation and shocks (such as labor turnover). While occupying strong competitive positions allows a firm to attract and retain employees seeking to obtain a share of the firm's resources, the firm is able to deny the same resources to many employees without severe penalty. When coupled with the fact that weak life chances reflect a firm that has a high likelihood of failure, firms at risk of failure become the contexts for employee promotions.

This proposition has both counterintuitive and paradoxical elements.

First, it argues against the intuition derived from vacancy chain and organizational growth studies, in addition to reports in the popular literature. Whereas these contributions suggest that firms with strong life chances are also the best context for employee promotions, I modify the argument. Independent of firm growth rates, firms with weak life chances (i.e., having a high risk of failure) are the best contexts for employee promotions. Second, the proposition is paradoxical. If promotion occurs more often in firms that have a high likelihood of failure, there is a risk of seeking tenure in a firm that is likely to fail. Firm failure, as Haveman and Cohen (1994) demonstrate, is tantamount to the destruction of one's job. I argue that it is exactly this tension that often describes the employment relationship.

To be clear, I am not arguing that the prevalence of vacancies is irrelevant to promotions. It is tautologically true that a job must exist if an individual is to fill it. Rather, I would argue that vacancy-based perspectives tend to remain agnostic about conditions that lead to the creation of vacancies. Bargaining power is one important determinant of when vacancies are actually created.

## The Determinants of Firm Strength and the Promotion of Employees

Arguing that the likelihood of firm failure increases the likelihood of promotion carries the implication that the particular determinants of firm failure contribute to the promotion opportunities of employees. In order to verify this implication, I examine five determinants: competition, size, scope, status, and age.[6] To be consistent with my main proposition, the conditions under which each of these factors enhance the life chances of the firm should be the same conditions under which they depress the promotion chances of employees.

The critical test, however, is to determine whether employees in firms with weak life chances have a greater likelihood of being promoted. I expect that each of the aforementioned factors (density, size, scope, status, and age) will affect the life chances of law firms similarly to organizational forms examined in the past. In other words, low density, large size, broad scope, high status, and older age, result in stronger life chances. Demonstrating that the determinants of firm life chances are negatively related

[6] Given the context of law firms, one may generate other determinants of law firm strength, such as the identity of each firm's clients. Unfortunately, data on law firm clientele for firms from 1946 to 1996 is not consistently available. I assume that much of the unobserved heterogeneity due to client identity is highly correlated with observable variables such as firm size and scope.

to employee promotion chances will provide supporting evidence, as well as aid in understanding the components of firm life chances.

A firm's life chances are a function of each determinant. When placed in a promotion model as a function of the determinants of firm failure, the firm's likelihood of failure should affect promotion opportunities. The weaker a firm's life chances, the lower its bargaining power in the employment relation and, consequently, the greater the likelihood of employee promotion. Demonstrating that there is a direct negative influence of firm life chances provides evidence that promotion opportunities are inversely related to the strength of the employer's life chances. Accordingly, I present my central thesis:

*Main Proposition*: *The weaker a firm's life chances, the lower the firm's bargaining strength, the higher the likelihood of employee promotion.*

In addition, I will examine the relationship between each determinant and the likelihood of associate promotion to partner, controlling for their contribution to the firm's life chances. While not the focus of my central thesis, it is possible that firm size, age, status, scope, and density influence the bargaining strength of employers beyond their contribution to the firm's likelihood of failure.

## DATA AND METHOD

### Context

I test my proposition using longitudinal data on Silicon Valley law firms and cohorts of attorneys that work within the firms. Law firms are an appropriate context for testing my proposition for three related but distinct reasons. First, promotion to partner is clearly a substantial increase in both the associate's pecuniary and nonpecuniary rewards. By using law firms, one avoids employment contexts in which pay and promotions are decoupled. In essence, the relationship between firm strength and advancement is less "noisy" than other work arrangements. Second, law firms allow a clear distinction between the firm and its employees. The firm is the set of partners, whereas the employees are the associates. In many contexts, this distinction is less clear, and in some cases, it is continuous rather than qualitative. Third, law firms emphasize promotion from within. Wholey (1985) notes that candidates for promotion to partner are much more likely to be those hired initially as first-year associates than a lateral hire from another law firm. Therefore, law firms are a sensible case for an initial test of my proposition. I use the period from 1946 to 1996 to observe firm failures and individual promotions. Given that the emergence of Silicon Valley is attributed to events that occurred after World War II (Saxenian 1981), starting the observation period in

1946 allows measurement of organizational and career processes as Silicon Valley emerges and begins to mature.

## Santa Clara County and the Emergence of Silicon Valley: A Synopsis

While the geographic region nicknamed Silicon Valley is now known as a center for high-tech research and entrepreneurial activity, the pre–World War II characterization of the region (Santa Clara County) was that of fertile agricultural soil (Saxenian 1981). World War II was the turning point for the county's shift to a technological economy. The war served as a catalyst for the creation of many organizations, such as Hewlett Packard. Eventually, through the founding of technological firms by Stanford graduates and spin-offs from existing firms, a critical mass of electronics-based firms arose, facilitating the emergence of a semiconductor industry. A steady growth in the success and prominence of these firms eventually led to the term "Silicon Valley," coined around 1971 by an electronics trade publication journalist.

It is within this context that a niche for lawyers and their firms opened and expanded. Silicon Valley has an abundance of technologically oriented corporate clients for law firms. While not every Silicon Valley law firm seeks and serves high-tech corporate clients, a large part of the legal community is directly or indirectly dependent upon the success of the technologically oriented industries. In addition to corporate clients, Silicon Valley has a large supply of well-educated individual clients, with relatively high incomes (Saxenian 1981). These clients require their own legal representation and advice.

## Attorney Promotion to Partner

In general, law firms have two prominent positions: associates and partners. Associates are the employees of the firm entering directly out of law school or after a one-year judicial clerkship. They generally work under the partners of the law firm, who leverage the work of associates.[7] Associates are considered for promotion to partnership after a period during which they work under the supervision of the partners, receive training, and exercise increasing responsibility (Smigel 1969; Nelson 1988; Galanter and Palay 1991). Partners are the firm's owners and share in the firm's profits. Partnership is thought of as a deferred bonus that provides an associate the incentive to maintain hard work and commitment to the firm (Galanter and Palay 1991). This internal promotion scheme acts as

[7] Leveraging is the process of deriving a surplus generated from hiring associates at a given salary and billing them out to the firm's clients at multiples of that salary.

an incentive system or motivating device used by employers (Stinchcombe 1974). The transition from associate to partner is accompanied by increased attainment, as well as a new functional role within the firm. Partnership encompasses several new tasks and responsibilities, emphasizing a different set of skills in firm management that transcends the traditional tasks involved with practicing law as an associate (Nelson 1988).

Clients prefer and tend to have strong relations with a firm's partners over its associates, giving the partners a source of bargaining power (Smigel 1969, pp. 156–60). However, Smigel (1969) distinguishes between large and small firms by noting that small firm associates are often encouraged to establish strong ties with clients. In the large firms studied, associate contact is deemphasized (p. 201). This observation is consistent with other accounts given by attorneys distinguishing between small and large law firms (Pyszka and Clark 1997). To the extent that firm size is consistent with firm strength, Smigel's (1969) observation suggests that one way in which a firm's lower bargaining power is manifested is through policies that dictate an associate's access to sources of revenue.

The decision to promote to partner typically involves both objective and subjective measures. Objectively, partners consider an associate's number of billable hours and papers or briefs written. In addition, it is typical for partners to consider both the state of the legal market and the firm's economic situation when making promotion decisions (Gilson and Mnookin 1989; Hildebrandt 1989; Greene 1999). Subjectively, partners consider an associate's untested ability to attract, retain, and enhance the firm's client relations. Since many of these factors are exogenous to associates, it is difficult for associates to predict their promotion chances or verify that the firm is faithfully executing the up-and-out contract (Kahn and Huberman 1988; Gilson and Mnookin 1989; Kordana 1995; Schmidt 1998).

## The Significance of Law Firm Failure

Hillman (1990) and others (Bellows 1987; Hildebrandt 1989; and International Financial Law Review 1994, 1995) portray law firm failures as traumatic events within the legal profession. The termination of a law firm partnership is sufficiently disruptive that it is inconceivable that a set of attorneys would enter into a partnership with the objective of establishing anything short of a successful, lasting law firm. The concept of divorce in Western culture provides a convenient metaphor, since the failure of a law firm has interdependent social, legal, and financial components.

In its simplest form, law firm failure reflects the point at which the

social, legal, and financial understanding of the firm's identity fundamentally changes or ceases to exist. Socially, when law partners withdraw, there is little contact with the remaining partners. Legally, the discontinuance of a law firm partnership is referred to as a dissolution, which holds a specific meaning outlined in the Uniform Partnership Act as "the change in the relation of the partners caused by any partner ceasing to be associated in the carrying on . . . of the business." Accordingly, anytime a partner leaves a law partnership, the original partnership is dissolved. Upon the withdrawal, the partners complete the business of the partnership, liquidate the assets, settle the liabilities, and distribute any residual amounts among themselves (Hillman 1990). Liabilities incurred in completing the business are the responsibility of the original partners. Completion of this process terminates the original partnership.

## Data

The data were collected from annual Martindale-Hubbell directories using the 1945 edition through the 1996 edition, for law firms and attorneys in Silicon Valley, California (Martindale-Hubbell 1945–96). Galanter and Palay (1991) note that while being the most comprehensive legal directories available, the Martindale-Hubbell directories only list those attorneys that have passed the bar examination. As a result, associates that pass the bar after the firm is surveyed must wait another year before being included in the directory. This creates a potential error in the measurement and estimation of an associate's tenure, a control variable in the promotion model. In addition, the *Martindale-Hubbell Law Directory* is like all directories of organizations with an unknown probability of excluding very small and short-lived organizations (< 1 year). To the extent that this occurs, one would expect this bias to make the task of demonstrating a liability of newness (Freeman, Carroll, and Hannan 1983) more difficult.

Silicon Valley is a relatively self-contained market for legal services in Northern California (Suchman 1993; Escher and Morze 1998), making its choice as a context appropriate.[8] In this study, Silicon Valley comprises the following ten cities: Redwood City, Menlo Park, Palo Alto, Los Altos, Mountain View, Sunnyvale, Santa Clara, Cupertino, Campbell, and San Jose. In 1996, Silicon Valley hosted 209 law partnerships employing 2,375 active attorneys. The directories list attorney and law firm characteristics

[8] Suchman's (1993) extensive interviews with attorneys in Northern California, in addition to Escher and Morze's (1998) report on law firm penetration into Silicon Valley both argue that, with respect to client base, Silicon Valley is a bounded region of competition with great barriers of entry, even for firms as close as San Francisco.

and, when followed across time, provide information on the life chances of law firms and the mobility of the attorneys that work within them. This collection generated data on 512 law partnerships across the 50 years, which comprises every firm listed with more than one active attorney (i.e., solo practitioners are excluded).[9]

In addition to coding firm-level data, the Martindale-Hubbell directories were used to collect data on 12 cohorts of attorneys in Silicon Valley firms at four-year intervals, beginning in 1946 and ending in 1990. Only those attorneys hired directly out of law school or after a one-year clerkship are included. Within a cohort, the attorney's demographic characteristics and background, employer, and position in the firm are coded annually until they exit the labor market, or become right-censored at 1996. This generated a total of 443 attorneys. Supplementary data on law firm practice areas and employee demographics was collected from the National Association for Law Placement Directory of Legal Employers (1991–96) and the Legal Directory of the Santa Clara County Bar Association (1967–96).

## Operationalizations and Measures

### *Dependent Variables*

*Firm failure*.—The first year that a firm appears in the *Martindale-Hubbell Law Directory* is considered the year of founding. The year that a firm is no longer listed or only has one attorney is considered the year of failure. A dichotomous variable for failure is coded "1" for the respective year.[10]

*Promotion*.—While there are minor gradations between associate and partner (e.g., junior associate, senior associate, etc.) the meaningful promotion is that of associate to partner. The *Martindale-Hubbell Law Directory* distinguishes the partners and associates in a firm in each year of the directory. The first year that an associate is listed as a partner is the

[9] In 1996, 4% of the attorneys in Silicon Valley were solo practitioners (88 of 2,376).

[10] While law firm mergers are popular along the east coast of the United States (especially in New York), I observed relatively few in Silicon Valley. This is most likely due to the fact that mergers typically occur in more mature markets (such as New York's legal service market), but not markets experiencing rapid growth in their adolescence, as the case with the Silicon Valley legal market. In total, I observed only nine mergers in the 50-year observation period. For each merger, one firm was coded as a failure, while the other was considered as being in continued existence. I used two decision rules to determine firm failure: (1) the firm whose name partners are listed first is considered to be the surviving firm. (2) the firm whose retains its address is considered to be the surviving firm. In each of the nine mergers, both of the conditions were met.

year of promotion. A dichotomous variable for promotion is coded "1" in the year that the associate is promoted.

*Independent Variables*

*Firm characteristics*.—Each firm's age is simply recorded as the number of years since the firm first appeared in the *Martindale-Hubbell Law Directory* biographical section. Firm size is operationalized in two ways: (1) the total number of full-time partners and (2) the total number of full-time associates. This distinction is important given the law firm context. The number of partners captures ownership size, whereas the number of associates captures the number of employees. Given this distinction, it is clear that employee size more easily captures the concept of organizational size, as considered in organizational sociology (Scott 1992). In contrast, there is little to guide our understanding of ownership size in the promotion context. Therefore, it will be important to examine each operationalization of size independently. Given that the distribution of firm sizes is log-normal (skewed to reflect a few relatively large firms), the log of each size variable is coded.[11]

It is convention within the study of law firms to consider the ratio of associates to partners. Profits primarily come from the firm's ability to leverage the skills of the partners with the efforts of the associates. As a measure of firm leverage, the ratio of associates to partners serves as a proxy for firm performance and a mechanism that drives promotion rates (Galanter and Palay 1991). Firms with greater leverage are considered to be stronger firms, with lower promotion rates.

A well-specified model that includes the ratio of associates to partners as an interaction effect requires the inclusion of the inverse of the number of partners instead of the number of partners (Bradshaw and Radbill 1987).[12] There is no theoretical justification for including the inverse of the number of partners in a model of employee promotion. Rather, using partnership and associate size as separate components, instead of the ratio of associates to partners, provides a theoretically consistent model with easily interpretable results. This is especially the case since, in this data,

[11] I ran each model with size logged and unlogged. The models with logged size had a statistically better fit ($\chi^2$), but were otherwise unchanged.

[12] In other words, to include the ratio (A/P), a properly specified model should also include A and 1/P.

the ratio is highly correlated to the number of associates.[13] Examining the effect of the number of associates, while controlling for the number of partners, is preferred to inserting the associate to partner ratio as an interaction effect.

Firm scope is operationalized as a continuous variable from 0 to 1. It captures the number of law practice areas that a law firm reports in the *Martindale-Hubbell Law Directory* in a particular year, divided by the total number of practice areas that are reported across all firms in that year. For example, if a firm in a certain year practices law in eight areas, but a maximum of 16 areas of law are possible, the firm's scope is half of the total market. Since the number of practice areas grows from eight possible areas in 1946 to 79 possible areas in 1996, this measurement allows a relative measurement of firm scope. Given that the Silicon Valley legal community is in its early stages and has yet to reach maturity, it is difficult to directly test Carroll's (1985) predictions. However, if Carroll (1985) is correct, midrange firms should be facing higher failure rates as they become the victims of generalists' competitive pressures. Accordingly, I will test for this indicator by including a quadratic term for firm scope.

*Population density*.—Population density is calculated as the log of the total number of law firms in Silicon Valley for a given year. For the promotion to partner models, I also calculated the log of the number of law firms in Silicon Valley that hired at least one associate. Since not every firm hires associates in a given year, the hiring density may provide a better indicator of competition for labor.

*Firm status*.—Firm status is operationalized as the proportion of the firm's attorneys that have degrees from six elite law schools (Yale, Harvard, Columbia, New York, Stanford, and Chicago) within the law firm. The greater the number, the greater the firm's social status. These law schools were selected by examining the legal affiliations of individuals in national and regional institutions (political and economic) since World War II. An assortment of methods was used to acquire this information: recording the affiliations of individuals in Who's Who entries, *National Law Journal* lists of prominent attorneys, local politicians and judges, and so on.

[13] In my data, the correlation between the associate measure and the ratio of associates to partners is 0.74, while the correlation between the partner measure and the ratio was –0.06. In addition, I ran models with both size components and the ratio of associates and partners included as an interaction effect. The ratio measure was not significant and did not improve model fit.

## Control Variables

There are several alternative explanations or potential sources of unobserved heterogeneity that can be addressed with the use of control variables. Prominent among these variables is whether the firm is one of many offices, whether the subset of the area of law that a firm practices is specific to individual clients or corporate clients, the rate of partner growth and turnover, the particular era or time period in question, and the individual characteristics of the employee.

*Branch or single office*.—A dummy variable is coded "1" if the focal firm is one of many offices. It is likely that multiple (branch) office firms affect, and are affected by, the competitive landscape differently than single office firms.

*Individual versus corporate clients*.—Heinz and Laumann (1982) in their study of the Chicago bar found that one of the most distinguishing dimensions along which lawyer competition and interaction takes place is whether the types of law that a firm practices address the needs of individual clients as well as corporate clients. Firms that have individuals as customers compose a social system that is distinguishable from those firms that focus solely on corporate customers. To capture this effect, a variable is coded "1" if the firm practices any areas of law that pertain to individual clients (e.g., family law, probate and estate, etc.). Otherwise, the variable is coded "0."

A representative listing of each firm's clients would also be informative to this study. Unfortunately, a complete listing of clients for each firm in Silicon Valley from 1946 to 1996 does not exist. Moreover, the subset of firms that provides a representative list of their clients does not do so reliably. Fortunately, much of the variance of firm clientele tends to be captured by the firm's size (larger firms have larger corporate clients) and the individual client dummy variable used here (Smigel 1969; Heinz and Laumann 1982).

*Growth and partner turnover*.—Proportional growth of the number of partners is coded to capture the rate with which the firm is creating and filling new vacancies for partnership. To capture promotions due to partners leaving the firm and creating vacancies to be filled, a variable is coded to capture the proportion of partners to leave in the past year. This variable also controls for the effect of firm failure due to partners abandoning the firm. Each of these variables addresses two aspects of the vacancy chain argument: vacancies are created by growth, and vacancies are created by the departure of senior members.

*Period effects*.—Four dummy variables are coded to capture activity before 1970, between 1970 and 1986, between 1987 and 1991, and between 1992 and 1996. Before 1970, there was little change in the social and

economic landscape of Silicon Valley. However, beginning around 1970, Silicon Valley experienced a period of rapid growth, lasting until the stock market drop and subsequent recession (1987–91). Finally, the years 1992 to 1996 are coded to capture the beginning of the postrecession era. These dummy variables serve to capture some of the unobserved heterogeneity that may be due to the time period that the firm or attorney may exist in.

*Individual characteristics*.—Organizational demography and career mobility researchers have identified individual-level factors that influence promotion chances. Here, I include the attorney's age, plus six dummy variables. Each attorney's date of birth is given in the *Martindale-Hubbell Law Directory*. Age has competing effects. New employees who are younger than the average new hire are often assumed to be more qualified (Rosenbaum 1984). On the other hand, age also reflects work force experience, which would enhance one's promotion chances. Age is obtained from each attorney's reported date of birth.

A dummy variable is included to capture whether the attorney is a woman. If the new hire attended an elite law school (Yale, Harvard, Stanford, Columbia, New York, and Chicago), a dummy variable was coded "1." Finally, there are three indicators of associate quality: (1) graduated with magna/summa cum laude, (2) was a member of an honors society, and (3) served as a law clerk for a judge.

## Statistical Methods

Before testing my central thesis, I model the effect of the firm-level covariates on the likelihood of law firm failure. In this way, we can better interpret their respective effects on an employee's likelihood of promotion. The model of firm failure will serve as a basis for understanding the model of associate promotion to partner. Accordingly, the first model estimates the likelihood of firm failure, as influenced by population density, firm size, firm age, firm scope, firm status, and a set of control variables. I follow the model for firm failure with a second set of models addressing associate promotion rates due to competition, firm size, firm age, firm scope, and firm status, with a host of individual and firm-level control variables. The last set of models tests the direct effect of firm life chances on the likelihood of promotion to partner.

Both firm failure and employee promotion are modeled using a hazard rate model, which is analogous to the conditional probability of an event at time $t$ given that the event has not yet occurred. The rate can vary as a function of the time that a firm has existed or an associate has been employed. In either case, use of the instantaneous hazard rate allows for

estimation of the changes of the event occurring while controlling for age dependence (Tuma and Hannan 1984).

I model the hazard rate of firm failure and promotion with piecewise constant exponential models. This approach allows the inclusion of firm age (in the failure rate model) and attorney tenure (in the promotion rate model), while avoiding misspecification that accompanies other functional forms. A piecewise constant exponential model splits the time axis into time periods. In the model for firm failure, the time axis is split according to firm age, whereas in the model for promotions, the axis is split according to employee tenure. It assumes that transition rates are constant in each of these intervals. However, base rates vary freely across time periods. The assumption is that the period-specific baseline rate can vary across time periods, but the covariates have the same (proportional) effects (Rohwer 1993).

The resulting model gives an age dependent constant (a "*y*-intercept") for each time piece of the model. There are different strategies for choosing the appropriate time periods. To estimate this model, it is important to choose time segments that are long enough to contain a meaningful number of events (i.e., firm failures). For example, a firm age segment from 20 to 22 years old could not be estimated if no firms fail within this age window. Some theoretical predictions may require that the time periods take on particular values. In my model, I assume no a priori knowledge of age dependence. The null is an exponential hazard rate model without time periods (where it is assumed that rates are time invariant). From this baseline, I only include those time periods that led to an improvement in the chi-square fit of the failure rate model ($P < 0.05$). As a result, the *y*-intercepts included in the model are statistically significant with respect to a chi-squared model improvement test.

## RESULTS

### Descriptive Statistics

To facilitate the interpretation of the models, the appendix lists descriptive statistics (minimums, maximums, means, and standard deviations) for firm and person-year variables in both the firm failure and promotion models. Figure 1 is a graph of the population density of Silicon Valley law firms across the 50-year observation period. While only six firms exist in 1946 (I was able to code the proper founding dates for these firms), 209 firms exist in 1996. Most of the growth takes places from the late 1960s to 1986, rising with a relatively constant slope (a net gain of approximately eight firms per year). This rise continues until 1987, the year of a historic stock market drop and ensuing recession. At that point, there

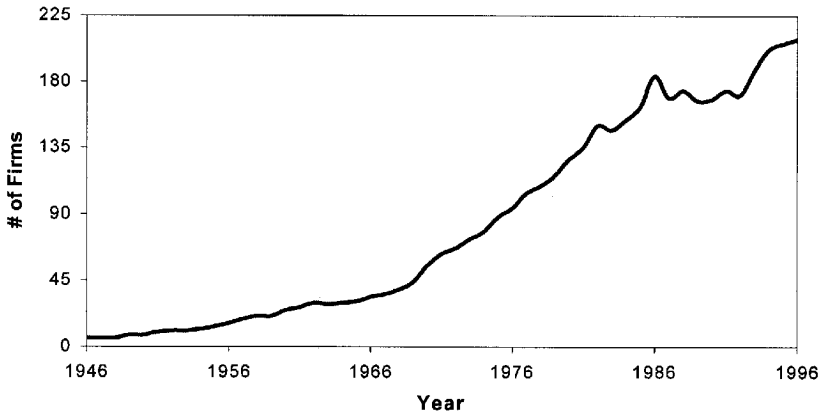


FIG. 1.—Population density of Silicon Valley law firms, 1946–96

is a drop in the number of law firms, which recovers after 1991, continuing on the same slope until the end of the observation period in 1996. Figure 2 shows the number of law firm foundings and failures over the same time period. Again, most of the activity begins after 1966 and increases until 1986. In 1987, it appears that the drop in population is due to a large reduction in the number of foundings combined with a slight increase in the number of failures. The number of foundings recovers by 1992, however, and continues to increase.

Figure 3 is a bar graph showing a count of the number of new hires sampled in each cohort (the striped bar). The second (dark colored) bar is a count of the subset of new hires that were eventually promoted. Most of the new hires sampled represent cohorts from 1966 forward. A relatively large fraction of those hired in 1970 were eventually promoted to partner. The slopes of the new hires and the subset eventually promoted both increase, albeit at drastically different rates. The number of new hires increases at a much higher rate than the subset of those eventually promoted. The fact that the 1990 cohort is right censored implies that the subset of new hires promoted is incomplete. This figure does not include any new hires promoted after 1996.

Figure 4 is a graph reporting the number of years to promotion for the 87 associates that were promoted to partner. While it is clear that most of the promotions occur in the fifth to the eighth year, 25.3% of the associates were promoted in less than 5 years. It appears that there are two peaks. The first peak reveals that some attorneys are promoted as early as their second and third years of tenure. The second peak occurs

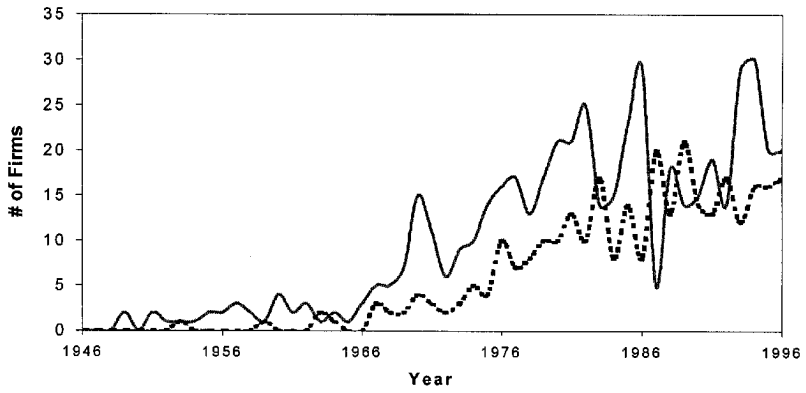


FIG. 2.—Foundings and failures of Silicon Valley law firms, 1946–96. Solid line represents foundings; broken line represents failures.

during the sixth and seventh year—consistent with legal press reports and past studies (Nelson 1988; Galanter and Palay 1991).[14]

## Associate Promotion Rates as a Function of the Firm Failure Rate

Table 1 presents the results of the firm failure model estimated using transition data analysis (Rohwer 1993). The likelihood of firm failure increases with increasing population density ($P < 0.01$) and decreasing age ($P < 0.05$).[15] Both measures of law firm size reflect that larger firms have lower failure rates. Supporting Carroll and Swaminathan's (2000; Carroll 1985) findings, the effect of firm scope is curvilinear ($P < 0.05$). Law firms that practice law in 15% of the possible areas have the highest likelihood of failure. The estimation of firm status is statistically significant

[14] In an effort to understand whether early promotions occurred across cohorts, and varied with the size or age of the firm, I examined the raw data. It appears that the early promotions are more likely to occur in the earlier cohorts. However, early promotions are distributed across cohorts, with some occurring in the 1990 cohort. There does not appear to be a statistically strong relationship with respect to firm size or age. Spurr (1987), using data from 14 large New York law firms from 1969 to 1973, found that promotions ranged from 3 years to over 10 years, with fewer early promotions than appear in my data. He found that law firms that handled bigger claims waited longer to promote.

[15] I also tested for density dependence (Hannan and Carroll 1992) but found no effect. A priori, there is no reason to expect that Silicon Valley law firms from 1946 to 1996 would be subject to legitimation effects. By 1946, law firms were in existence and part of the cognitive awareness in northern California, and thus legitimated since at least the late-1800s (*Hubbell Legal Directory* 1889).

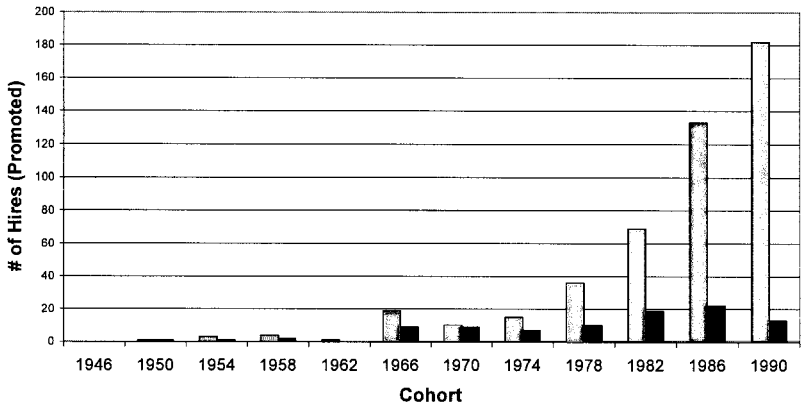


FIG. 3.—Associates hired and promoted by cohort, Silicon Valley law firms, 1946–96. Solid bars represent promotions; shaded bars represent new hires.

($P < 0.01$), demonstrating the lower likelihood of failure attributed to high status (Podolny 1993; Park 1997).

Therefore, low competition, older age, larger size, and higher status all lower the likelihood of failure. The effect of scope is curvilinear but clearly shows that generalists have stronger life chances. In many ways, the ecological competition of law firms resembles the contexts of breweries, newspapers, hotels, and other contexts that ecologists have studied. Next, I test the relationship between these indicators of firm strength and the likelihood of associate promotions.

The models for predicting the likelihood of promotion are presented in table 2. If my thesis is correct, the greater the probability of law firm failure, the greater the likelihood of associate promotion to partner. I test this thesis by examining the effect of the probability of failure independently of the population and firm-level covariates, and with these covariates in the model as well. Including the individual-level covariates in the full model (models 4 and 6) allows the observation of the direct effects of each variable on the promotion rate, as well as their indirect contribution to the likelihood of failure. Furthermore, it insures that the probability of failure cannot be explained away by including the population and firm-level variables. I test the proposed relationship between firm life chances and associate promotion chances directly by estimating the effect of the predicted probability of firm failure on the likelihood of promotion.

In model 1 of table 2, the *y*-intercepts for tenure verify that promotion chances improve with tenure. Consistent with past research on the promotion chances by sex, women are less likely to be promoted ($P < 0.05$). Older new hires ($P < 0.10$), members of honor societies ($P < 0.05$), and

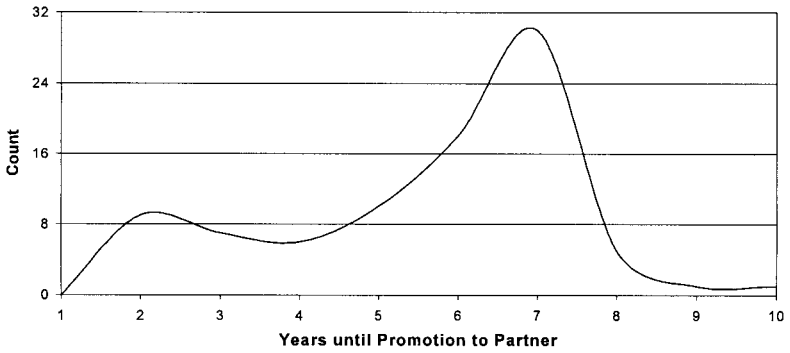


FIG. 4.—Graph of the number of years until promotion to partner (1946–96, $N = 87$ promotions.

elite law school graduates ($P < 0.05$) have higher rates of promotion. These models also include controls for the cohort that the attorney was sampled from. The cohort controls indicate that attorneys hired in 1970 have the highest likelihood of promotion with respect to the reference category (1946–66). This cohort coincides with the emergence of Silicon Valley.

Except for population density, model 1 shows that each of the covariates are in the expected direction and statistically significant. While not statistically significant, population density decreases the likelihood of promotion. Model 2, which substitutes the logged density of firms that hired in the most previous cohort, provides a more labor market specific measure of competition. Showing evidence of oligopolistic power, model 2 reveals that for those cohorts in which less than eight firms hired all of the associates, there is a negative relation between hiring density and promotion chances. When hiring density is greater than eight (the average hiring density is 46.57), there is a positive relation between hiring density and promotion chances.[16]

Firm age is represented as a set of dummy variables that match the age $y$-intercepts of the firm failure model (table 1). The reference category is firms 31 years and older. Strong support would require that each coefficient be statistically significant, with descending magnitude. In other words, the coefficient for firms 0–2 years old should be the largest and significant, followed by the coefficient for firms 3–5 years, and so on. The model shows a strong effect for firm age. All age dummy variables are

[16] I ran a similar model with just the linear term for hiring density. The term was marginally significant, with little change in model fit.

TABLE 1
MLE OF FIRM FAILURE: SILICON VALLEY LAW FIRMS

| Covariate | (1) |
|---|---|
| Firm age: | |
| < 2 years | −7.77 |
| | (.96) |
| 3–5 years | −8.44 |
| | (.96) |
| 6–9 years | −9.21 |
| | (.98) |
| 10–30 years | −10.34 |
| | (.99) |
| 31 + years | −11.45 |
| | (1.12) |
| ln(density) | 1.33** |
| | (.21) |
| ln(no. of partners): ownership size | −.71** |
| | (.11) |
| ln(no. of associates): employee size | − .58** |
| | (.10 ) |
| Scope (proportion of market) | 4.87* |
| | (2.59) |
| (Scope)$^2$ | − 16.21* |
| | (8.08) |
| Status: proportion of elite attorneys | −.79** |
| | (.32) |
| Branch office: dummy | .21 |
| | (.16) |
| Partner growth | −.43+ |
| | (.28) |
| Partner attrition | .73* |
| | (.35) |
| Individual clients only | .05 |
| | (.15) |
| Period: | |
| 1970–86 | −.97** |
| | (.26) |
| 1987–91 | −1.39** |
| | (.33) |
| 1992–96 | −1.74** |
| Max of log likelihood (*df*) | −1,470.22 (19) |

NOTE.—Data are given for 4,108 firm-years, 512 firms, and 308 failures. *y*-intercepts are $\chi^2$ tested.
+ $P < .10$, one-tailed tests.
* $P < .05$.
** $P < .01$.

TABLE 2
MLE OF PROMOTION RATES: SILICON VALLEY ATTORNEYS

| COVARIATE | MODEL | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6[a] | 7[a] |
| Tenure: | | | | | | | |
| 0–3 years | −4.60 | −5.19 | −4.89 | −5.09 | −5.19 | −5.14 | −5.17 |
| | (2.84) | (1.56) | (.94) | (.95) | (1.57) | (.94) | (1.56) |
| 4 years | −3.89 | −4.50 | −4.27 | −4.33 | −4.34 | −4.39 | −4.31 |
| | (2.94) | (1.61) | (1.01) | (1.00) | (1.61) | (1.00) | (1.61) |
| 5 years | −2.85 | − 3.44 | −3.35 | −3.37 | −3.43 | −3.44 | −3.45 |
| | (2.96) | (1.58) | (.98) | (.98) | (1.58) | (.97) | (1.57) |
| 6 years | −1.74 | −2.39 | −2.20 | −2.21 | −2.46 | −2.30 | −2.51 |
| | (3.01) | (1.59) | (.97) | (.97) | (1.60) | (.96) | (1.60) |
| > 6 years | −.61 | −1.34 | −1.13 | −1.07 | −1.16 | −1.11 | −1.18 |
| | (2.98) | (1.59) | (.99) | (.99) | (1.59) | (.98) | (1.59) |
| Attorney age | .04$^{+}$ | .06$^{*}$ | .05$^{*}$ | .05$^{*}$ | .06$^{*}$ | .05$^{*}$ | .06$^{*}$ |
| | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) |
| Sex (female = l) | −.79$^{*}$ | −.87$^{**}$ | −.98$^{**}$ | −1.00$^{**}$ | −.85$^{**}$ | −.97$^{**}$ | −.82$^{**}$ |
| | (.34) | (.34) | (.34) | (.34) | (.34) | (.34) | (.34) |
| Attended elite law school | .65$^{*}$ | .48$^{+}$ | .35 | .38$^{+}$ | .59$^{+}$ | .47$^{+}$ | .69$^{*}$ |
| | (.35) | (.36) | (.29) | (.29) | (.37) | (.29) | (.37) |
| Honor society | .55$^{*}$ | .43$^{+}$ | .44$^{+}$ | .40$^{+}$ | .36 | .40$^{+}$ | .32 |
| | (.29) | (.30) | (.29) | (.29) | (.30) | (.29) | (.30) |
| Magna/summa cum laude | .45 | .40 | .32 | .48 | .48 | .53 | .55 |
| | (.43) | (.44) | (.43) | (.43) | (.44) | (.43) | (.44) |
| Clerk/extern | .34 | .34 | .12 | .21 | .30 | .27 | .38 |
| | (.74) | (.75) | (.73) | (.73) | (.75) | (.73) | (.75) |

TABLE 2 (*Continued*)

| Covariate | Model 1 | 2 | 3 | 4 | 5 | 6[a] | 7[a] |
|---|---|---|---|---|---|---|---|
| Predicted probability of failure (from table 1 coefficients) | . . . | . . . | −.51 | 56.32* | 52.06* | 57.85** | 63.74** |
| | | | (2.76) | (19.36) | (25.87) | (15.77) | (24.42) |
| (Predicted probability of failure)$^2$ | . . . | . . . | . . . | −397.21* | −311.09+ | . . . | . . . |
| | | | | (186.64) | (227.03) | | |
| ln(density) | −.34 | . . . | . . . | . . . | . . . | . . . | . . . |
| | (.70) | | | | | | |
| ln(hiring density) | . . . | −3.36* | . . . | . . . | −3.94* | . . . | −3.90* |
| | | (1.77) | | | (1.83) | | (1.81) |
| ln(hiring density)$^2$ | . . . | 1.10* | . . . | . . . | 1.26* | . . . | 1.25* |
| | | (.56) | | | (.57) | | (.57) |
| Firm age: | | | | | | | |
| 0–2 years | 2.03* | 2.15* | . . . | . . . | 1.18 | . . . | .74 |
| | (.94) | (.94) | | | (1.09) | | (1.19) |
| 3–5 years | 1.56* | 1.74* | . . . | . . . | 1.12 | . . . | .84 |
| | (.82) | (.82) | | | (.91) | | (.95) |
| 6–9 years | 1.25** | 1.33** | . . . | . . . | .91+ | . . . | .81+ |
| | (.54) | (.54) | | | (.59) | . . . | (.60) |
| 10–30 years | 1.18** | 1.36** | . . . | . . . | 1.36** | . . . | 1.31* |
| | (.43) | (.43) | | | (.44) | . . . | (.46) |
| ln(no. of partners): ownership size | .62* | .54* | . . . | . . . | .58* | . . . | .55* |
| | (.29) | (.29) | | | (.29) | . . . | (.29) |
| ln(no. of associates): employee size | −.42* | −.42* | . . . | . . . | −.42* | . . . | −.40* |
| | (.20) | (.20) | | | (.21) | | (.21) |
| Scope (proportion of market) | −3.47* | −1.68 | . . . | . . . | −1.03 | . . . | −.98 |
| | (1.65) | (1.79) | | | (1.79) | . . . | (1.79) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Status: proportion of elite attorneys … | −1.14* | −.81 | . . . | . . . | −.94 | . . . | −.94 |
| | (.79) | (.78) | | | (.78) | . . . | (.79) |
| Branch office | .11 | −.00 | . . . | . . . | .03 | . . . | .12 |
| | (.29) | (.29) | | | (.30) | | (.30) |
| Partner growth | .98** | 1.09** | . . . | . . . | 1.19** | . . . | 1.18** |
| | (.32) | (.32) | | | (.37) | | (.37) |
| Partner attrition | −.05 | −.15 | . . . | . . . | −.43 | . . . | −.47 |
| | (.72) | (.72) | | | (.75) | | (.77) |
| Individual clients: dummy | .95* | .93* | . . . | . . . | .79* | . . . | .79* |
| | (.44) | (.44) | | | (.45) | | (.45) |
| Hired: | | | | | | | |
| 1970 | 1.45* | 2.09** | .78* | .87* | 2.33** | .85* | 2.31** |
| | (.71) | (.73) | (.46) | (.46) | (.74) | (.46) | (.74) |
| 1974 | 1.02 | 1.12* | .99* | .87* | 1.19* | .88* | 1.15** |
| | (.90) | (.62) | (.50) | (.50) | (.63) | (.50) | (.62) |
| 1978 | −.95 | −3.26** | −1.29** | −1.46** | −3.54** | −1.58** | −3.68** |
| | (1.08) | (1.15) | (.47) | (.47) | (1.18) | (.49) | (1.18) |
| 1982 | −.92 | −4.46** | −1.20** | −1.33** | −4.83** | −1.39** | −4.90** |
| | (1.11) | (1.61) | (.39) | (.40) | (1.65) | (.40) | (1.64) |
| 1986 | −1.43 | −7.36** | −1.65** | −1.70** | −8.04** | −1.75** | −8.04** |
| | (1.14) | (2.79) | (.38) | (.39) | (2.88) | (.39) | (2.85) |
| 1990 | −1.46 | −8.02** | −2.07** | −2.23** | −8.85** | −2.34** | −8.97** |
| | (1.24) | (3.06) | (.43) | (.43) | (3.16) | (.45) | (3.13) |
| Max of log likelihood (*df*) | −213.65 | −212.67 | −229.96 | −224.77 | −208.19 | −219.48 | −202.61 |
| | (29) | (30) | (17) | (18) | (32) | (17) | (31) |

NOTE.—Data are given for 1,775 person-years, 443 attorneys, and 87 promotions. *y*-intercepts are $\chi^2$ tested.
[a] Without near-death firms (2% of sample): 1,735 person-years, 85 promotions.
+ $P < .10$, one-tailed tests.
* $P < .05$.
** $P < .01$.

significant ($P < 0.05$), with each dummy variable having a magnitude less than the previous dummy.[17]

The two measures of size give opposite findings. Ownership size, given as the logged number of partners, increases the likelihood of promotion. The more traditional measure of organizational size, employee size, decreases the likelihood of promotion. Both measures are significant at the $P < 0.05$ level. Therefore, there is support for employee size, but not ownership size.

Promotion is less likely in generalist firms, though not statistically significant once competition is appropriately specified. While not shown here, a quadratic representation of generalism was not significant. The fact that promotion is more likely in firms that have individual clients supports Heinz and Laumann's (1982) argument that the higher status and more selective members of the legal profession are the attorneys and firms that practice law for corporate clients (also see Abbott 1988). Finally, high status firms are less likely to promote associates to partners, but similar to scope, this effect is not significant in model 2.

Models 3–7 test the central proposition, that there is a negative relationship between a firm's life chances and the promotion chances of its employees. Model 3 introduces the predicted probability of firm failure for the employer, as a predictor of promotion. Using each of the coefficients from the full firm failure model (table 1), I generate hazard rates of failure of each of the firms in the promotion sample, according to the firm and population characteristics each firm faces. Thus, for each person-year, there exists a hazard rate of failure for the focal attorney's employer. The hazard rate is transformed to the predicted probability of firm failure using the following formulation,

$$\text{Predicted probability of firm failure} = 1 - \exp(\mu^F),$$

where $\mu^F$ is the hazard rate of firm failure. This transformation is used by scholars that have similar approaches (Hannan and Carroll 1992; Carroll and Harrison 1994; and Lee and Harrison 1998). Interestingly, model 3 reveals that there is no statistically significant linear relationship between the likelihood of firm failure and associate promotion to partner. This is surprising given the findings in models 1 and 2 that strongly support my proposition.

An examination of the distribution of the probability reveals an important pattern—greater than 98% of the firms have a probability of failure less than 0.07, while less than 2% have probabilities of failure between 0.07 and 0.99 (see the appendix for the distribution of proba-

[17] The differences in mean are not necessarily statistically significant. My intention is to merely draw attention to the qualitative pattern.

bilities). It is possible that the relationship between the probability of failure and promotion chances is different for firms with a very high probability of failure. Specifically, the "promotion paradox" may not apply to firms that are "near death."

There are two ways of verifying my contention that the hypothesis does not hold for firms that are near death. First, including a quadratic term for the probability of failure should clarify the results and provide a better model fit. Specifically, the linear term should be positive and the quadratic term negative. Second, one would expect that running the models without the 2% of the firms that are the most likely to fail should result in a strong linear effect for the predicted probability of failure. I use both as a means of verification.

Models 4 and 5 examine the associate to partner promotion rate with the quadratic specification. Introducing the quadric term does clarify the relationship between firm life chances and employee promotion chances. In model 4, both the linear and squared terms have strong statistical significance ($P < 0.01$ and $P < 0.05$, respectively). Model 5 reveals that while attenuated, the linear term remains significant ($P < 0.05$) after the inclusion of the population and firm-level variables. The quadratic term is now marginally significant. Interestingly, model 4 also indicates that several of the population and firm-level variables have direct effects on the probability of promotion, independent of their contribution to the likelihood of failure. Strongest among these covariates are the growth rate, ownership size, and employee size. The dummy variables for an individual client focus, while attenuated, remain significant as well. The effect for firm age largely disappears once a firm's likelihood of failure is controlled for. Independent of the likelihood of failure, firms ages 10–30 years are the most likely to promote. This result is interesting since many of the firms 10–30 years old were founded between the years 1966–86. This period, while profitable, was also highly uncertain, with law firms pioneering risky fee arrangements with high-tech start-up clientele (Woolley 1992; Chanen 2000). The hiring density remains unchanged from model 1. This is not surprising since the predicted probability of failure is calculated using the entire population density, and not the subset modeled in model 5.

Models 6 and 7 examine the promotion to partner likelihood after excluding the 2% of firms with the greatest likelihood of failure (the near death firms). The results are consistent with models 4 and 5. Except for near death firms, there is a statistically strong relationship between the predicted probability of firm failure and the likelihood of promotion ($P < 0.01$). Therefore, both strategies to validate the near death explanation support this modification to my original thesis.

Overall, the final model supports the proposition that the greater a

firm's risk of failure the more likely it is to promote. However, my thesis does not hold for firms with the highest probabilities of failure. These near death firms are less likely to promote. Therefore, the evidence for my central hypothesis requires an important caveat. That is, the greater the probability of failure, the greater the likelihood of promotion, except in the extreme cases (2%) for which the likelihood of failure suggests that the firm is near death.

## DISCUSSION

Taken together, the results allow us to address the thesis that is central to this article. There is strong evidence of a negative relation between firm life chances and employee promotion chances. Law firms that are young, small, narrow in scope, or lower in status have a higher likelihood of failure but are also contexts where the likelihood of promotion is highest. Moreover, there is a clear relationship between a firm's likelihood of failure and the promotion chances of individuals that work within the firm. Whether through the decision of firms during the tenure of an associate, or the decision of attorneys in their selection of an employer, firms with weak life chances have less bargaining power. This lack of bargaining power results in better promotion chances for employees.

It is likely that near death firms lack the power to retain any of their employees. At some point, one's employer is so unattractive that employee exit is the most likely outcome. In this case, the likelihood of observing a promotion declines quickly as it becomes clearer that promotion will have little value. Therefore, while my theory accurately predicts the relationship between the likelihood of failure and the likelihood of promotion for 98% of the cases, a caveat is necessary. The promotion paradox is relevant in every case except for those firms that are near death.

My prediction with respect to firm age was supported. Silicon Valley law firms suffer from a liability of newness. Younger firms are the most likely to fail. This finding is consistent with age dependence in auditing firms, another professional service firm. Boone, Brocheler, and Carroll (1998) found that Dutch auditing firms from 1896 to 1970 suffered from a liability of newness. Their finding for age dependence is less clear after 1970, however, when supply and demand regulations were instituted. The lack of strength due to its "newness" places a young employer at a disadvantage, resulting in higher promotion rates. A young firm does not have access to all sources of labor, neither is it as readily equipped to replace lost employees as are more established firms. Furthermore, this firm is more likely to desire input from new hires concerning the culture and direction of the organization than would an older firm. The inclusion

of the likelihood of failure into the promotion model significantly diminishes the effect of firm age, giving stronger reason to consider the "liability of newness" argument with respect to firm bargaining strength.

Interestingly, the effect for firms between 10 and 30 years old remains statistically significant once the probability of failure is included. This suggests that there remain aspects of bargaining power not incorporated into the law firm's probability of failure. Given that many of the firms in this category were founded during the birth and initial rise of Silicon Valley, there are two potential sources of unobserved heterogeneity. First, the initial rise in Silicon Valley was characterized by unique fee structures pioneered by Silicon Valley law firms. These law firms took equity in a young firm in lieu of standard fees. While becoming increasingly more common, the strategy is high risk (relying on the success of the new venture) and was viewed by many more established firms (e.g. New York and Chicago firms) as unethical. This increased risk may have led to firms within the 10–30-year age category to lose bargaining power without having that loss reflected in the firm's likelihood of failure. Second, 10–30 years of age is the time when the law firm's original founders reach retirement age (the average founding age is approximately 42 years old). It is possible that the uncertainty surrounding the departure of a firm's founders reduces the firm's bargaining power. Since the founder's age was not included in generating the probability of law firm failure, I may have overlooked this source of unobserved heterogeneity. Future research should examine those populations in which older firms are more likely to fail, to determine whether the promotion paradox is robust with respect to firm age.

The findings for organizational size provide fruitful insight. Employee size, the more traditional interpretation of organizational size, supports the promotion paradox framework. Large firms are more likely to survive, and because of their stronger position, they are less likely to promote associates to partners. Independent of its contribution to the firm's likelihood of failure, there is a direct effect for the number of associates. This direct effect is in part due to the increased competition between associates that occurs for coveted partnership positions (ceteris paribus). Independent of the effect of size on the firm's likelihood of failure, the greater the number of associates, the greater the competition that each associate faces, thus lowering the likelihood of promotion.

Firms with many owners are less likely to survive and are more likely to be the contexts for promotions. This result, and its resilience once the firm's probability of failure is included, is consistent with other findings in vacancy chain and graded ratio research (Stewman and Konda 1983). One difference between my conceptualization and the graded ratio research, however, is in the underlying mechanism. Stewman and Konda

(1983) would model the ratio of partners to associates as the firm structure that modifies the creation of vacancies through growth and attrition (see p. 649). I examine the number of partners, associates, attrition, and growth independently, emphasizing the number of partners and associates as independent indicators of firm strength and the propensity to promote rather than factors that modify the creation of vacancies. Despite this difference, the observed outcome is similar: the more partners a firm has (controlling for the number of associates), the greater its propensity to promote.

One plausible interpretation of this finding involves the cost of promotion to the original set of partners. Partnership size may reflect the cost to each partner when a new partner is promoted. For example, if a firm with only two partners promotes an associate to partner, the division of profits decreases by 1/6 or 0.167 (1/2 minus 1/3) for the two original partners. However, if a law firm with 20 partners promotes an associate, the division of profits decreases by only 0.002 (1/20 minus 1/21). Therefore, the greater the number of partners, the lower the cost to the average partner for promoting an associate to share in the profits as a partner.

In support of past research, generalists and high-status employers are both more likely to survive and less likely to promote (although neither is statistically significant in the final model). In the context of law firms, a service industry heavily dependent upon human capital, generalism may have a different meaning than in past research contexts, such as newspapers (Carroll 1985). There are two significant differences. The first (a conceptual difference) is that areas of practice within the legal profession have a strong component of supply-side social construction. Rich social processes are involved in determining the value and boundaries of various specialties of law (Heinz and Laumann 1982; Abbott 1988). Second (an empirical difference), from 1946 to 1996, the number of distinguishable areas of law in Silicon Valley increased from eight to approximately 79. Therefore, what it means to be a generalist necessarily changes. While I attempted to capture this increased differentiation by operationalizing generalism relative to the total number of distinguishable areas in a particular year, understanding the proliferation of practice areas requires further exploration. In short, future research should examine the role of generalism in more detail.

The findings on firm status support the notion that high-status firms have meaningful competitive advantages (Podolny 1993; Park 1997). High-status law firms have a lower likelihood of failure. Whereas most in the legal press assume that size and status are interchangeable, I conceptualize and model each factor separately. Indeed, separating these variables yields insight in the study of law firms that have been previously overlooked.

Contrary to expectations, the results indicate that while not significant,

the greater the population density, the lower the likelihood of promotion. I expect that the result in model 1 reflects the fact that population density does not capture labor market competition as well as product market competition. For the promotion to partner model, the hiring density more easily captures the competition in the labor market. The finding for the hiring density suggests that when only a few firms hire associates, these firms possess oligopolistic (or oligopsonistic) power (Blair and Harrison 1993). In other words, the set of employers may collude with respect to their hiring and promotion practices in order to avoid interfirm competition for labor. Once there are greater than eight employers (solving for the inflection point of the linear and quadratic term), collusion is no longer possible, and the competition for associates more closely resembles the neoclassical case of perfect competition. Thus, the majority of associates in my sample have increased promotion chances due to competition between firms for labor.

The negative relation between law firm strength and associate promotion chances remains when controlling for demographics (age, race, and sex), human capital (elite law school, honor society, etc.), being one of many law offices, firm growth, firm attrition, and whether the firm seeks individual clients.[18] The controls for growth and attrition provide an interesting method of testing for direct vacancy chain effects. Firm growth increases the likelihood of promotion, as expected. This finding verifies past research on the relationship between organizational growth and promotion chances, while serving as a reminder of the irony of the promotion paradox. Alongside the advantages due to growth, there is a negative relation between firm strength and the likelihood of promotion. Not only may law firm growth increase job opportunities, but it may be one of the factors that increases the bargaining strength of the firm as well. Consistent with past work, the results show that firm growth is a positive and significant predictor of promotion.

These findings are not inconsistent with vacancy chain effects. On the contrary, they compliment vacancy chain processes. Firm bargaining strength is the result of the relationship between the firm and its environment. This relationship is one mechanism that determines *when* vacancies are opened and closed. Vacancies are created when the employer

[18] It is important to note that the coefficient for individual clients remains significant across all models in table 2. Subsequent analyses determined that this effect was largely due to firms practicing criminal law. Criminal law firms, beyond having a higher degree of failure, have other characteristics that lower their bargaining power. Among the characteristics: (1) associates have direct client contact (Smigel 1969); (2) criminal law firms face isolation from referral networks and thus sources for recruiting and collusion (Heinz and Laumann 1982).

lacks the bargaining strength to deny rewards in the form of promotions to its employees.

Given that the actual decision to partner an associate is largely unobservable from such a macroperspective, constructing precise measurements of the relationship between firm strength and promotion chances poses a serious challenge. Despite this difficulty, the evidence amassed thus far for promotion patterns in 12 cohorts across 50 years of law firms is compelling. Not only is it clear that individual determinants of law firm failure led to the increased promotion chances of associates, but predictors of firm life chances also predict promotion opportunities.

## Scope Conditions and Limitations

There are two main limitations to this research, both related to generalizeability. The uniqueness of law firms in Silicon Valley suggests that the promotion paradox be evaluated within a set of scope conditions that guides future research by organizational sociologists. While examining the Silicon Valley legal profession has clear advantages, it is not clear how far one can extrapolate the findings to organizations that have different organizational structures and employment systems. Furthermore, it may be unreasonable to expect that socioeconomic characteristics of the Silicon Valley labor market exist in other markets.

### *Law Firm Employment*

First, the legal labor market is a unique market. Most law firms, as partnerships, have atypical organizational forms. In partnerships, there is a clear distinction between the firm and the employees. The firm is the set of partners, and the employees are the associates. Promotions to partner are largely made from within, rather than laterally. Associates that become partners are then members of the firm, responsible for making promotion decisions in the next round.

In contrast, the traditional work arrangement is characterized by a more continuous relationship between the firm and its employees. Employees are thought to move up the rungs of a job ladder, where increases in status and pay associated with each additional rung rarely constitute an increase on the order of making partner in a law firm. In fact, some organizations employ symbolic promotions, which are characterized by a change in job title, but little else. Moreover, the entity making the promotion decisions is often another superior that may not use the firm's strength in their decision. Thus, applying the promotion paradox to other organizational forms may be premature. The evidence demonstrates the promotion paradox's relevance to up-or-out partnerships. Future research

must determine whether the promotion paradox exists in other organizational and employment settings.

At the same time, these findings do directly apply to the career patterns of professionals within many organizations: accounting firms, consulting firms, and venture capital firms. An increased understanding of the professional service industry is a substantial advancement to organizational and career theories. Indeed, this research is directly relevant to attainment within knowledge-based organizations where promotions are coupled with rewards and there is a clear distinction between the firm and its employees. To the degree that the United States becomes an information-intensive, service-based economy, the labor context exploited increases in its applicability.

### *Silicon Valley as a Unique Context*

Another unique aspect to my study is its location in Silicon Valley. For both employers and employees, Silicon Valley is a high growth region. The dynamics of competition and market entry, and thus firm strength, may be different in more mature industries. Silicon Valley is also a region characterized by an incredibly low level of unemployment and high compensation. During 1997, the Santa Clara County unemployment rate was 3.1%, the lowest in the United States (4.9%). Furthermore, 1996 income data reveal that the average annual earning in Silicon Valley was $43,510 compared to $28,040 nationally (Hoffman 1997). Employees, especially professionals, fear loss of employment or income due to transfer less often than do employees in other regions of California or the United States. The great number of exits in my study (recall that only 87 of 463 new hires were promoted) draws attention to the uniqueness of the law firm as an employer. Caution must be taken in generalizing results to contexts that do not reflect these patterns. This may influence the shape of the bargaining power dynamics in ways that do not exist in most employment relations.

An interesting aspect of studying Silicon Valley is the opportunity to investigate the employment relationship within one of the most economically influential regions in the entire world. To my knowledge, this is the first in-depth, rigorous analysis of firm competition and career advancement within Silicon Valley to address these issues across a 50-year period. Thus, while Silicon Valley is unique, it is also critically important for both scholars and practitioners to glean insight from studies of a region that has set the technological pulse and direction of the United States and much of the world.

## CONCLUSION

This study is an important contribution to organization theory, as well as research on stratification and career mobility. First, it conceptually and empirically bridges the void between research on organizations as embedded in environments and the career advancement opportunities of the organization's employees. Second, the richness of the data allows one to test alternative hypotheses while exploring new ideas in a way that has not been possible in past research. For example, while some may argue that growth or attrition are the covariates of primary relevance, I find that the promotion paradox exists whether or not these better-known engines of mobility are controlled for. This is important, for it suggests that the influence of the firm's environment is largely independent of the usual indicators of promotion opportunities. Third, this research advances the understanding of professional career mobility (attorneys) in service, human capital intensive, industries (legal services).

One of the most important contributions lies at the theoretical underpinnings of this thesis: that there is a significant relationship between an organization's life chances and its bargaining strength. Without taking this relationship into account, along with its implications for organizations and their employees, we are led to an incomplete interpretation of stratification and career advancement. This research opens more possibilities for the applications of organizational theory to understanding an individual's structure of opportunity (Baron and Bielby 1980). While this article focuses on the contributions of organizational ecology and population dynamics, there is a larger theme of understanding how the fate and life chances of firms influences the rewards and opportunities of individuals that has only begun to be explored.

The findings of this study have particular implications for stratification. Traditionally, the syntheses between organizations and stratification has given us the insight that organizational and environmental attributes drive variation in individual attainment. Much of this work has examined differences in opportunity as a function of the firm's economic sector/industry and whether the firm has formalized employment structures (Baron 1984). Extending this research, this article suggests that an associate's opportunity structure is also a function the law firm's competitive strength. The stratification of Silicon Valley law firm associates is influenced by the distribution of firm competitive strength within the population. More mobile (or less stable) careers are positively associated with populations dominated by law firms with strong life chances. To the extent that a population of employers has weaker life chances, opportunity structures become more stable while the rewards of partnership become more likely to be attained.

The results of this study offer new insights to the study of law firms in particular. My analyses would argue that modeling law firm promotion systems as up-and-out firms (O'Flaherty and Siow 1995), professional labor markets (Wholey 1985), or arenas for tournament-based promotions (Galanter and Palay 1991) are credible but incomplete representations. A more complete understanding of organizational influences on attainment and mobility requires us to better understand the role of the organization's environment in influencing bargaining strength.

## APPENDIX

## Minimums, Maximums, Means, and Standard Deviations

TABLE A1
DESCRIPTIVE STATISTICS FOR 4,108 ORGANIZATION-YEARS (ALL 512 SILICON VALLEY FIRMS), 1946–96

| Variable | Min | Max | Mean | SD |
|---|---|---|---|---|
| Firm failure | 0 | 1 | .08 | . . . |
| Firm age | 1 | 51 | 9.84 | 9.59 |
| ln(density) | 1.79 | 5.34 | 4.78 | .69 |
| ln(partners) | .00 | 4.47 | 1.29 | .75 |
| ln(associates) | .00 | 5.33 | .90 | .96 |
| Scope | .01 | .62 | .15 | .10 |
| Individual clients | 0 | 1 | .81 | . . . |
| Branch | 0 | 1 | .24 | . . . |
| Growth | .00 | 4.33 | .11 | .30 |
| Attrition | .00 | .92 | .06 | .17 |
| Firm status | .00 | 1.00 | .20 | .22 |

Note.— $N = 512$.

TABLE A2
DESCRIPTIVE STATISTICS FOR 1,775 PERSON-YEARS (443 SILICON VALLEY NEW HIRES), 1946–96

| Variable | Min | Max | Mean | SD |
|---|---|---|---|---|
| Tenure (yrs) | 1 | 11 | 2.97 | 1.82 |
| Promotion | 0 | 1 | .05 | . . . |
| Attorney's age | 25 | 55 | 31.57 | 4.63 |
| Female | 0 | 1 | .35 | . . . |
| Elite law school | 0 | 1 | .18 | . . . |
| Magna/summa | 0 | 1 | .09 | . . . |
| Honors society | 0 | 1 | .23 | . . . |
| Clerk/extern | 0 | 1 | .04 | . . . |
| Firm age | 1 | 49 | 15.75 | 9.53 |
| ln(density) | 2.08 | 5.34 | 4.99 | .45 |
| ln(hiring density) | .00 | 4.09 | 3.71 | .64 |
| ln(partners) | .00 | 4.47 | 2.34 | .94 |
| ln(associates) | .00 | 5.33 | 2.47 | 1.20 |
| Scope | .01 | .62 | .23 | .42 |
| Individual clients | 0 | 1 | .84 | . . . |
| Branch office | 0 | 1 | .57 | . . . |
| Growth (%) | .00 | 3.00 | .20 | .27 |
| Attrition (%) | .00 | .56 | .07 | .14 |
| Firm status | .00 | 1.00 | .23 | .19 |
| Probability of failure | .00 | .99 | .01 | .08 |

TABLE A3
PERCENTILE DISTRIBUTION FOR A FIRM'S PROBABILITY OF FAILURE

| Percentile | *P* |
|---|---|
| 5% ..... | <.0001 |
| 25% ..... | <.0001 |
| 50% (median) ... | .0003 |
| 75% ..... | .0021 |
| 95% ..... | .0225 |
| 98% ..... | .0650 |
| 99% ..... | .1300 |

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