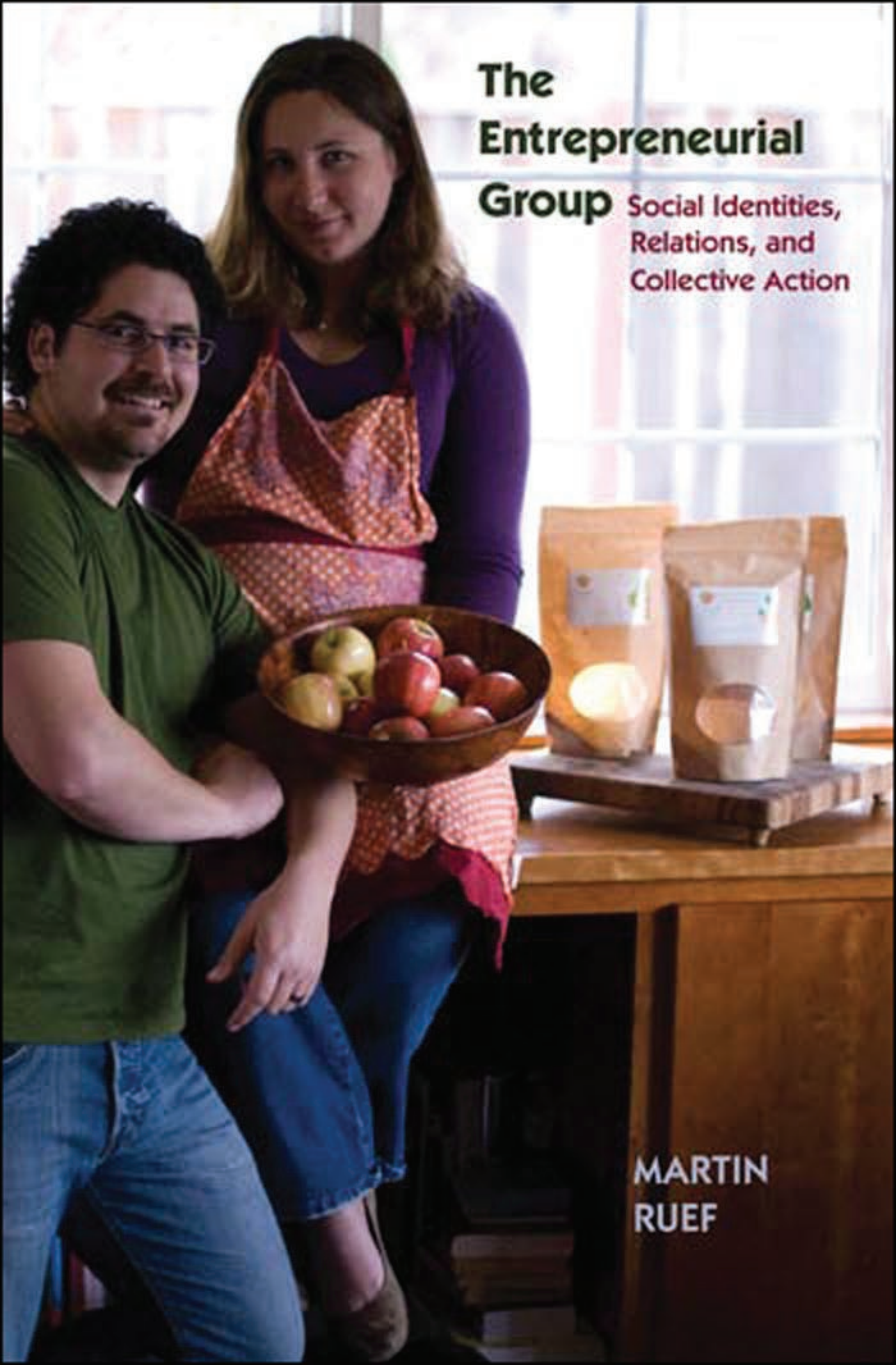
The Entrepreneurial Group
Social Identities, Relations, and Collective Action
MARTIN RUEF

The Entrepreneurial Group

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Preface

> Americans group together to . . . found seminaries, build inns, construct churches . . . They establish hospitals, prisons, schools by the same method . . . Where you see in France the government and in England a noble lord at the head of a great new initiative, in the United States you can count on finding an association.
>
> —Alexis De Tocqueville, *Democracy in America* (2003: 596)

Though penned over a century-and-a-half ago, Tocqueville's book presents an enduring puzzle for the nature of entrepreneurial activity in the United States. On the one hand, American society is often characterized as a prototypical case of an individualistic culture. Media and academic accounts portray entrepreneurs as autonomous and self-sufficient agents who are often oriented toward their own material prosperity. Tocqueville himself endorsed an image of American entrepreneurs that was individualistic in a political sense, entailing a "shift from public and communal concerns to private and personal interests," and in a social sense, viewing them "as individuals in a Lockean state of nature."[1] In Seymour Martin Lipset's (1963) influential thesis, these individualistic values can be traced back to the origins of the Republic and provide the basis for the exceptionalism of American society.

At the same time, Americans also display a rich heritage of associational activity. During his extensive travels in the United States during the 1830s, Tocqueville found "Americans of all ages, conditions, and all dispositions constantly unit[ing] together" (ibid.: 596) to form organizations for commercial, political, religious, and other pursuits. In Tocqueville's eyes, it was the aristocratic societies of old Europe that were more likely to witness instances of heroic entrepreneurship on the part of solitary individuals. Countries such as England and France had a "number of very powerful and wealthy citizens each of whom has the ability to perform great enterprises single-handed"; consequently, "men feel no need to act in groups" in these societies (ibid.: 597).

For modern students of entrepreneurship, Tocqueville's claim about the relative level of associationalism in the United States and Europe may seem dubious.[2] But the central theoretical tension he identifies—that between individualism and associationalism—remains. Tocqueville's own

resolution to the tension is arguably a centerpiece of liberal utilitarian theory, the "doctrine of self-interest properly understood" (Tocqueville 609–610). The doctrine posits that "every man can pursue his own self-interest [if] they turn themselves inside out," thereby deriving private benefit from the virtues of sociability. Given this doctrine, a widespread pattern of mutually beneficial association will result as a *consequence* of material self-interest and a rejection of state involvement (or noblesse oblige) in civil life. At its core, Tocqueville's logic assumes that Americans are oriented, first and foremost, toward their own prosperity, that their self-interested associations are governed by voluntary contract rather than by compulsory bonds, and that this characteristic form of "individualism" represents a rejection of entrepreneurial activity that is supported under the auspices of the state or communitarian ideals.

Until recently, many of these assumptions were deeply rooted in popular and academic perceptions of entrepreneurs in the United States. Yet, over the course of the last decade, careful empirical studies have increasingly come to challenge their factual validity. For instance, consider, the "passion for material prosperity" that animated Tocqueville's America. Studies of entrepreneurs, particularly in economics, have been built consistently around a model of profit-seeking individuals (e.g., Kihlstrom and Laffont 1979; Heaton and Lucas 2000; Cagetti and De Nardi 2006). In surveys of contemporary entrepreneurs, however, the drive for profits is often a secondary concern. Even for individuals starting businesses, a more typical motivation is that they do not like working for others or that they seek more fulfilling careers (see Shane 2008: 42–43).[3]

The Tocquevillian emphasis on voluntary association among otherwise autonomous equals is another point of empirical debate. Tocqueville marveled how "by chance men share an interest in a certain matter; maybe the management of a commercial enterprise or the conclusion of an industrial operation; they meet and join together, gradually familiarizing themselves thus with the idea of association" (2003: 604). It was this process of free and voluntary affiliation, he surmised, that led him "to observe the countless industrial enterprises run by partnerships in the United States" (608). In contemporary economics, it has become common to envision the business firm similarly, as a "nexus of contracts," an amalgamation of voluntary contractual relationships among individuals (Jensen and Meckling 1976). More recently, this conception has been criticized by legal scholars, who suggest that the notion of a firm held together by contracts is largely metaphorical and remains unsatisfying when it is interpreted as a set of free and reciprocal arrangements among individuals (Eisenberg 1999). The empirical evidence suggests that this is true even when the concept is applied to the relatively non-hierarchical context of startup firms.[4] Rather than autonomous equals, the startup

context is most likely to be populated by entrepreneurs who have strong preexisting relationships with one another (such as those of marriage and kinship), posing challenges for both the equality and voluntary nature of their participation (Aldrich and Cliff 2003).

Tocqueville assumed that a key impetus to association was the relative powerlessness and poverty of enterprising individuals. In the United States, "all citizens are independent and weak; they can achieve almost nothing by themselves," he wrote. Consequently, businesspeople and social entrepreneurs alike would "sink into a state of impotence, if they [did] not learn to help each other voluntarily" (2003: 597). The tradition of liberal utilitarianism has maintained this assumption, calling attention to the status deficits and liquidity constraints that impede the activities of unaffiliated entrepreneurs.[5] Yet again, recent studies have suggested that these barriers to entrepreneurial entry may be mythological. Analyses of new business ventures reveal little propensity among entrepreneurs to seek affiliations with high-status partners (Ruef et al. 2003) and a relatively low financial threshold for initiating startup activity (Shane 2008: chapter 5). The evidence for "liquidity constraints" has been particularly contested, since nationally representative data do not identify a correlation between financial assets and rates of entrepreneurial entry, except at the extreme upper tail of the wealth distribution (Hurst and Lusardi 2004; Kim et al. 2006).

A final component of Tocqueville's argument is his contrast between the entrepreneurial ideology of European and American society. Among his nineteenth-century French contemporaries, he discerns the "claim that as citizens become weaker and more incompetent, government has to be more able and active," supporting commercial and civil associations that would otherwise be doomed to failure (2003: 598). But, according to Tocqueville (ibid.), such state intervention would have little efficacy in the United States: "a government could take the place of some of the largest American associations . . . but what political power could ever substitute for the countless small enterprises which American citizens carry out daily with the help of associations?" To some extent, Tocqueville's opposition of communitarian and liberal ideals of entrepreneurial activity remains relevant today. Modern surveys of entrepreneurs reveal a distinct contrast between those respondents who locate support for entrepreneurship in local and state governments, community groups, and banks and those who situate such support in a culture of autonomy, risk-taking, and personal responsibility.[6] However, Tocqueville's inference that the communitarian ideology is absent among American entrepreneurs seems more questionable. In the 2005–2006 *Panel Study of Entrepreneurial Dynamics*, half of all entrepreneurs reported that support from local and state government was as, or *more*, important to business startups in their community

than a culture of self-sufficiency and personal initiative. Slightly more (57%) cited the importance of community groups as a catalyst to entrepreneurial activity, one whose influence was on par or greater than that of an ethos of liberalism.

In the final analysis, Tocqueville's *Democracy in America* was hardly a celebration of classical liberal theory. The book offered numerous normative critiques against the roots of the American polity and economy in an ideology of utilitarian individualism. But in the realm of entrepreneurial activity, the stylized facts generated by recent studies also speak against the *descriptive* accuracy of this portrayal of commercial partnerships in the United States. Why then has the image of Tocqueville's entrepreneur survived for so long? In this book, I will offer a number of possible reasons, ranging from a lack of data on "average" business startups to conceptual biases maintained by academics and the mass media. At the heart of these reasons is an empirical failure to understand the mechanisms of entrepreneurial affiliation. *The Entrepreneurial Group* seeks to explain the constraints and opportunities that bring together owners, employees, helpers, and investors in new business organizations that come to populate our society.

Acknowledgments

I experienced my first contact with entrepreneurial groups over twenty years ago. During the late 1980s, my father left his job as the vice president of the American division of a German textile machinery company in order to embark on an entrepreneurial career. The business startup he had in mind was a purveyor of equipment and services to clean industrial equipment, but it also served to sustain his research on the processing of textile materials. He assembled his business partners from a close-knit circle of family and friends. A golfing buddy and fellow Austrian became his principal partner in the firm. My mother was the treasurer for the residentially based business. I became involved as a (more or less) passive investor. On the surface, the composition of this entrepreneurial team must have seemed curious to outside observers, constituted as it was by a mix of co-ethnicity, kinship ties, and geographic convenience. I wondered how many other businesses in the United States started this way.

In 1993, I moved to Stanford, California to begin my graduate studies in sociology. These were heady times in Silicon Valley, as the World Wide Web had just been opened to the public. New startups were founded daily, often initiated by young college graduates who sensed that a technological revolution was under way. Grounded in the fast-paced and ephemeral information age, the Valley's ventures appeared to adopt a business model that was diametrically opposed to the industrial-era business that I knew from home. But were they really so different? Following in the earlier footsteps of Jobs and Wozniak (Apple), the tech entrepreneurs were highly collaborative, giving rise to the iconic dyads of Brin and Page (Google), Filo and Yang (Yahoo!), Omidyar and Skoll (eBay). Within each partnership, members tended to be highly homogeneous in age, gender, and professional background. Partners often knew each other through preexisting network ties before they embarked on the path of initiating a new business enterprise. Many startups began in the houses, dorm rooms, and garages of entrepreneurs. I was soon reminded of the cluttered garage that we had at home.

In 1998, I became a postdoctoral fellow in the Center for Entrepreneurial Studies at Stanford's Graduate School of Business (GSB). The opportunity to conduct a survey of entrepreneurial alumni presented itself and I took it on with eager anticipation. A considerable portion of the instrument was devoted to mapping the composition of entrepreneurial groups that initiated new businesses, as well as the network of individuals who assisted them in the process. Based on discussions with Howard

Aldrich, I discovered that an interdisciplinary group of scholars was launching a similar survey of entrepreneurs across the United States.

Ten years (and many surveys) later, my intellectual and practical debts run deep. In many respects, the ideas for this book were first hatched when my father Helmut became a serial entrepreneur. His sociability, creativity, and drive to create an organizational legacy represent a real-world embodiment of the mechanisms underlying entrepreneurial groups. Howard Aldrich has nurtured my interest in entrepreneurship from my days as a junior faculty member at UNC-Chapel Hill. His inspiration and counsel have been invaluable in bringing this project to fruition, as have his detailed comments on draft versions of this manuscript. Paul Reynolds and Rich Curtin have worked tirelessly to develop a data infrastructure for the study of startup activity in the United States and abroad. This book would not have been possible without their dedicated effort to launch and replicate a panel survey of "average" entrepreneurs. Bill Barnett and Chuck Holloway provided an early impetus to the project, through their involvement with the Center for Entrepreneurial Studies. My experiences there launched a scholarly career devoted to the sociology of entrepreneurship. Dick Scott got me interested in the process of organizational emergence and change. I remain deeply appreciative that my apprenticeship in the field began with him.

Several research collaborators have helped me prepare materials for the book. Bart Bonikowski carried out the analyses describing the characteristics and network dynamics of owner teams in chapters 3 and 4. His initiative and diligence have been exemplary. During my time as a faculty member at Stanford, Hongwei Xu worked with me on an insightful paper addressing the topic of organizational boundaries among startup businesses. It was first published as a chapter in the 2007 volume of *Research in the Sociology of Organizations* and appears here (with new data and some rewriting) as chapter 5. Another Stanford graduate, Nick Switanek, provided early research assistance on the issue of group sampling. This methodological theme has since been folded into this book's treatment of inverse-size weighting and appendix B. Finally, Nancy Carter offered advice on data structure—as well as statistical command files—when I was first becoming acquainted with the *Panel Study of Entrepreneurial Dynamics*.

Many colleagues at Princeton and the Center for Advanced Study in the Behavioral Sciences (CASBS) have provided generous support and diversion during the process of writing this book. At Princeton, I am especially thankful for the high standard of scholarship and collegiality established by the faculty in the economic sociology cluster, including Paul DiMaggio, Alex Portes, and Viviana Zelizer. At CASBS, I have been lucky to reap the benefits of a similar "critical mass" of scholars with an

interest in organizational and economic issues, including Steve Barley, Marion Fourcade, Kieran Healy, Karin Knorr-Cetina, Woody Powell, Kate Stovel, and Xueguang Zhou. Despite Lynne Gayle's valiant efforts, my volleyball game did not improve at the Center, though my time there did offer a unique opportunity to interact with scholars in diverse disciplines, to read literature that I would otherwise have had no exposure to, and to gather new ideas.

Over the years, this project has benefited greatly from feedback in colloquia and panels around the world. The individuals providing useful advice are probably too numerous to mention, but I will attempt to do so anyway: Holly Arrow, Tom Ástebro, Nina Bandelj, James Baron, Ron Breiger, Diane Burton, Glenn Carroll, Russell Coff, Margo Crouppen, Jerker Denrell, Nancy DiTomaso, Silvia Dorado, Claude Fischer, Neil Fligstein, Robert Freeland, Jenny Godley, Mark Granovetter, Michael Hannan, Heather Haveman, Chip Heath, Michael Hout, Sandra Kalev, Phil Kim, Mike Lounsbury, Elizabeth Mannix, Andy Markovits, Bill McEvily, Dale Miller, Mark Mizruchi, Richard Moreland, Francois Nielsen, Charles O'Reilly, Sonja Opper, Jill Perry-Smith, Misiek Piskorski, Huggy Rao, Peter Roberts, Jesper Sorensen, Olav Sorenson, Sarah Soule, David Stark, Howard Stevenson, Art Stinchcombe, David Strang, Robin Stryker, Toby Stuart, Richard Swedberg, Ann Swidler, Karl Wennberg, Robb Willer, and Valery Yakubovich. I apologize to those whom I may have missed and remain thankful for your constructive suggestions.

This book would also not have been possible without the folks at Princeton University Press. Peter Dougherty and Tim Sullivan have built an incredible line of work in economic sociology and I am very pleased that this book will be part of it. The tradition continues with Eric Schwartz, who has shepherded my manuscript through its final stages.

Data collection for this study has been funded by the Ewing Marion Kauffman Foundation, the National Science Foundation, and the Center for Entrepreneurial Studies at the Stanford GSB. While virtually all of the data analysis in the book is new, several chapters draw on material that has previously been published in journal or chapter form and are used here with permission. Parts of chapters 4 and 9 are based on a descriptive overview of startup owners, published as "Business Owner Demography, Human Capital, and Social Networks" (coauthored with Bart Bonikowski and Howard Aldrich, in P. Reynolds and R. Curtin, eds., *New Firm Creation in the United States: Preliminary Explorations with the PSED II Data Set*, 2009). A much earlier version of chapter 4 was published as "The Structure of Founding Teams: Homophily, Strong Ties, and Isolation among U.S. Entrepreneurs" (with Howard Aldrich and Nancy Carter, *American Sociological Review*, 2003). Chapter 5 draws on "Boundary Formation in Emergent Organizations" (with Hongwei Xu,

Research in the Sociology of Organizations, 2007). Using older data, the material in chapter 6 has appeared in "Inequality among Entrepreneurs" (*Research in the Sociology of Work*, 2009). Also employing a different data set, the ideas in chapter 8 have been described in "Strong Ties, Weak Ties, and Islands: Structural and Cultural Predictors of Organizational Innovation" (*Industrial and Corporate Change*, 2002). The methodology summarized in appendix C was first introduced in "A Structural Event Approach to the Analysis of Group Composition" (*Social Networks*, 2002).

After completing the draft of the first half of the book, I returned to Silicon Valley as a fellow at CASBS. The Valley remains the heart of America's entrepreneurial mind-set and it seemed only appropriate that I should finish my book there. My wife Jennifer and son Edison have been constant companions on this journey and I remain eternally grateful for their love and support. Our time in California has inspired another entrepreneurial venture, as Edison has become a big brother to baby Donovan. Only time will tell whether my two boys will ever go into business together.

PART ONE

Concepts, Theories, and Puzzles

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CHAPTER ONE

Who Is an Entrepreneur?

It was the fall of 1998 and Bob Moog was eager to jump on the Internet bandwagon. As the founder and president of University Games, Moog had been in the game business for well over a decade, producing mystery, trivia, and educational games for adults and children. The St. Louis native first gained media attention when he marketed a board game based on murder mystery parties, a social event conceived in Europe, replete with dramatized mysteries to intrigue guests. On April Fool's Day 1985, Moog founded University Games together with his close friend Cris Lehman, a former accountant. From that point, they went on to sell popular titles such as "Blue's Clues," "20 Questions," "Green Eggs and Ham," and "Where in the World Is Carmen San Diego?"

By the late 1990s, the business had established an international reputation in gaming. Spurred by predictions that cyber traffic would balloon during the 1998 holiday season, Moog sought to join a surge of retailers—including Macy's, Sears, and Kmart—who were rushing to develop an online presence. But how to go about it? University Games (UG) could create an in-house unit devoted exclusively to e-commerce and UG products; or Moog could spin off a new company, which would initially sell toys and games exclusively from the UG family, but would later provide specialty items from other manufacturers. Perhaps sensing that the Internet boom called for a shift in business models, Moog and his colleagues opted for the spin-off.

The new venture, AreYouGame.Com, was headquartered in Burlingame, California, near the northern edge of Silicon Valley. In many respects, this entrepreneurial experience was fundamentally different than the founding of University Games years before. Whereas Moog's earlier startup effort had relied on a shoestring budget of $20,000 in seed funding and an office sublet from the father of his former girlfriend, the new venture had the backing of a corporation with $50 million in annual revenues. Still, the social blueprint of the new business was similar to that of many dot-com startups. Jim Stern, the firm's new general manager, emphasized that "we eat together, play games together, and service our customers together." Years later, the company would continue to tout the "crackerjack team" that founded it and argue that this was the "secret formula" in the success of the enterprise.

Despite such pronouncements, the family atmosphere at AreYouGame.Com faced challenges at an early stage. In 1999, Bob Moog was courted by Toys 'R' Us, which sought to do more of its business online. Moog was publicly named CEO of the online Toys 'R' Us unit in May, but the arrangement suddenly fell through two months later. A statement from the giant toy retailer simply noted that Moog was "unable to extricate himself from his responsibilities as founder and CEO" of University Games. Moog's inability to "extricate himself" ultimately proved propitious. Toys 'R' Us ended 1999 in disarray and its e-commerce unit was soon pummeled by the bursting Internet bubble. When Moog announced, two years later, that he thought AreYouGame.Com deserved the label "last one standing" in the volatile e-commerce toy market, he could also have been referring to his own longevity in the capacity of a dot-com entrepreneur.[1]

• • •

Around the time that Moog was developing his Internet startup, John and Emily Koslowski were pursuing their own entrepreneurial venture halfway across the country. John, age forty-four, was an experienced technician with a background as a military officer, and Emily, age fifty, worked in an office. Following John's military service, the Koslowskis had settled down in St. Clair County, Illinois, just outside of St. Louis. John had been thinking about starting his own business since he was in his early thirties and, as he approached his fortieth birthday, he decided that it was time for a change. In August 1993, he and Emily began to plan a startup that would put his technical skills to use in refrigerator repair and servicing.

The business was set up as a service franchise that John and Emily would operate out of their home. John would be responsible for the day-to-day operation of the business, while Emily would handle occasional clerical functions. One barrier to getting the franchise off the ground was financial: John believed that the business would need a large cash infusion to be self-sustaining and he had soon invested some $50,000, culled from savings, credit card debt, and a loan from a personal finance firm. Despite a contribution from Emily, the funds did not seem sufficient to cover the costs of supplies and hiring an employee to help John. The Koslowskis decided to approach Emily's elderly mother, who offered to give them another $12,000 in financial assistance.

A second barrier for the startup was John's own lack of entrepreneurial experience. John had plenty of opportunities to "manage" in the military, but this exercise of authority did not necessarily translate well in the pri-

vate sector. Shortly after he started working full time on the service franchise, in March 1994, John began to take classes and workshops on starting a business. Over the next few years, he would complete a dozen courses to bolster his entrepreneurial skills and clock about 2,000 hours in the classroom.

By the fall of 1998, the Koslowskis had much to be proud of. Their business was listed in the phone book and they had hired an employee, albeit on a part-time basis. John believed that his own business training, which was now extensive, was the most important contribution that he brought to the enterprise. Still, all was not well in the refrigerator repair business. Although the startup had first posted revenue in October 1994, monthly revenue typically did not exceed expenses some four years later. Surprisingly, John himself did not put money problems at the top of his list of worries about the business. Instead, he wondered about the strain of the partnership on his marriage and how he could better balance business and family life. John was also aware that he was missing other opportunities as a result of the entrepreneurial endeavor.

In September 1999, the Koslowskis pulled the plug on the service franchise. John spent some time looking for work and remained ambivalent about his time as an entrepreneur. Asked whether he would give it another go, he answered that it would need to be under the right conditions.[2]

• • •

Paralleling much of the academic literature on the topic, the Koslowskis' refrigerator repair franchise and Bob Moog's game e-commerce site offer very different images of entrepreneurship. Is entrepreneurial activity a matter of innovation? Of organizational creation? Of branching out on one's own? Or of risk-bearing and uncertainty? Entrepreneurship scholars have tackled these images in the abstract, offering taxonomies of entrepreneurs and discussions that seek to adjudicate definitional disputes (for recent reviews, see Aldrich and Ruef 2006: chapter 4; Ruef and Lounsbury 2007). It takes the experiences of real entrepreneurs, however, to put flesh on the bones of these distinctions.

The economist Joseph Schumpeter famously declared that "the function of entrepreneurs is to reform or revolutionize the pattern of production" (1942: 132) and that we ought to pay special attention to new combinations of existing methods and technologies (Schumpeter 1934). Moog's effort to reorganize the board game industry through an online mechanism of marketing and distribution conforms reasonably well to Schumpeter's conception. In effect, Moog combined an established product (board games) with an emerging technology (the Internet). By contrast,

the Koslowskis' refrigerator repair business was comparatively humdrum, especially when pursued within a franchise model. Schumpeter's description of "innovative" entrepreneurship would seem to exclude such mundane instances of organizational replication.

A similar conclusion holds if we apply a second definition, which conceptualizes entrepreneurship as a *successful* act of organizational founding (see Carroll and Khessina 2005). Here the locus of attention shifts from individual entrepreneurs to the emergence of viable enterprises. But when can we claim that the founding process of an organization is complete? By 1998, the Koslowskis had an entry in the phone book, full-time commitment to the startup (at least, on John's part), some external funding, and numerous completed service calls to customers. Yet their franchise lacked other features—including positive cash flow, a physical presence outside of the home, and full-time employees—often used to demarcate operating businesses from other arrangements (e.g., self-employment). Given the processual nature of organizational startups, this definition of entrepreneurship contributes to considerable variation in the businesses enumerated by different markers of founding (Aldrich et al. 1989; Ruef 2005).

Still other perspectives on entrepreneurship lead to the conclusion that the Koslowskis' venture may have been *more* entrepreneurial than Moog's e-commerce spin-off. The German sociologist Max Weber, in particular, is credited with a definition that opposes the role of the entrepreneur with that of the managerial bureaucrat (Hartmann 1959; Swedberg 2005: 87–88). In his influential discussion of bureaucracy, Weber noted that the "[entrepreneur] is the only type who has been able to maintain at least relative immunity from subjection to the control of rational bureaucratic knowledge" (Weber 1968: 225). Because Moog's new endeavor was so intimately tied to University Games, this definition raises the question as to whether he was truly "immune" from the bureaucratic demands of his other business. Indeed, the statement by managers at Toys 'R' Us following their unsuccessful recruitment effort would seem to claim the opposite: Moog "was unable to extricate himself from his responsibilities as founder and CEO" of University Games.[3]

A complementary image of an entrepreneur follows the eighteenth-century economists Richard Cantillon and Jean-Baptiste Say, who emphasized the literal interpretation of the term as someone who "undertakes" the risks of a business or enterprise (see Xu and Ruef 2004 and Brockhaus 1980 for empirical critiques). Here again, the Koslowskis' venture arguably appears more entrepreneurial than that of Bob Moog. While their refrigerator service franchise required that much of their personal savings and credit be placed at risk, Moog's Internet spin-off

could rely on the deep pockets and reputation of an established firm. By sponsoring a new venture (rather than creating an in-house unit), Moog and his team also insulated University Games from the risks of a novel e-commerce site.

The apparent incompatibility of different definitions of entrepreneurship has led many scholars to seek an alternative approach. Some have suggested that the term "entrepreneur" be dropped altogether, given its ambiguity in both everyday language and in the academic literature.[4] Others, most notably William Gartner and his colleagues (1988), have proposed that asking "Who is an entrepreneur?" is simply the wrong question. Instead of focusing on individual entrepreneurs, their personality traits, and accomplishments, they have argued that entrepreneurship be seen as a series of activities culminating in the process of organizational creation. This conception substitutes an emphasis on properties of *emerging* organizations for properties of viable organizations and their founders (Katz and Gartner 1988).

Building on the "emerging organization" perspective, this book offers yet a third alternative. It begins with the intuition that startup efforts such as those initiated by Moog or the Koslowskis share important features because they involve *collective action* that is oriented toward the founding of a new organization. In contrast to a state of self-employment, these individuals have an active interest in recruiting others to work with them, as co-founders, employees, investors, advisors, or unpaid helpers. This social process allows John Koslowski's partnership with his wife and Bob Moog's "crackerjack team" at AnyOneGame.com to be studied using a common lens. Entrepreneurs, in this conception, are defined by their intention to form a *social group*.[5]

An emphasis on entrepreneurial groups does not lead to an elision of the question as to "who is an entrepreneur?" but reconceptualizes it in fundamental respects. Rather than split individuals into discrete categories of entrepreneurs and non-entrepreneurs, the perspective considers entrepreneurship to range on a continuum that connects individuals to entrepreneurial groups based on their material and time investments, social networks, identities, and goals. Considering the Koslowskis' refrigerator repair franchise as one example, the perspective asks *to what extent* might Emily Koslowski be considered an entrepreneur? Or Emily's elderly mother, who has served as an "angel" investor for the business? Or the Koslowskis' part-time employee, whose commitment to the venture may range from disinterested to opportunistic to altruistic? The porous boundaries of entrepreneurial groups argue against simple answers to these questions and, instead, call attention to the social and economic processes that embed individuals in entrepreneurial activity.

Why Study Entrepreneurial Groups?

At first glance, a definition of entrepreneurship that emphasizes social groups may appear to be at odds with empirical evidence. In 2005, the Internal Revenue Service received income returns from more than 21 million nonfarm sole proprietorships and another 8.5 million partnerships and corporations (U.S. Department of Commerce 2009). Classified based on legal status, then, one might argue that over 70 percent of the businesses in the United States involved a single entrepreneur. Using employment statistics as another criterion, it is well established that the majority of business enterprises are extremely small (Granovetter 1984). While the Small Business Administration (SBA) identified more than 640,000 new employer firms created between 2004 and 2005, estimates for nonemployer firms account for approximately three times that total, even when restricted to enterprises with receipts of $1,000 or more (U.S. SBA 2009). Whether based on owners or employees, the number of individuals involved in "entrepreneurial groups" must therefore seem quite modest relative to a residual category of self-employed workers, or solo entrepreneurs.

Classical treatments of entrepreneurship echo this emphasis on solo entrepreneurs. In his *Theory of Economic Development*, Schumpeter offered a vision of heroic individual entrepreneurs, possessed of "supernormal qualities of intellect and will," who pushed the frontiers of capitalism (Raines and Leathers 2000: 377; Harper 2008). Considering the locus of innovation in advanced capitalism, he later juxtaposed large-scale corporations to this individualist ideal-type (Schumpeter 1942), without considering entrepreneurial groups as an intermediate social form.[6] In *Economy and Society*, Weber's analysis was likewise implicitly concerned with solo entrepreneurs, noting that "it is the peculiarity of the modern entrepreneur that he (*sic*) conducts himself as the 'first official' of his enterprise" (1968: 957). James Coleman (1986) cites Weber's earlier landmark study, the *Protestant Ethic and the Spirit of Capitalism*, as a useful application of methodological individualism, tracing the impact of worldly asceticism on the values of individuals and then suggesting how these individual entrepreneurs might engender change in the (capitalist) economic system as a whole. By contrasting a macro-level analysis that emphasizes entire cultures and economies with a micro-level analysis that focuses exclusively on individuals, Coleman's interpretation ignores group processes that may mediate the relationship between these levels.[7]

Although conceptual and empirical treatments continue to sustain an image of the solo entrepreneur, it is a central thesis of this book that this image is at best misleading and at worst, mythological. While a number of factors may have contributed to an individualist view of entrepreneurs,

four appear particularly relevant: (a) official statistics (such as those collected by the IRS, Census, and SBA) are poorly equipped to measure the social scope of organizational startup activity; (b) past empirical and conceptual treatments have overwhelmingly focused on the social scope that entrepreneurs were able to achieve, not what they intended to achieve, when they initiated their startup; (c) the narratives advanced by the mass media and entrepreneurs themselves place a spotlight on heroic individuals rather than dutiful or recalcitrant members of entrepreneurial groups; and (d) academic conceptions have also tacitly adopted the popular portrayal of entrepreneurs as rugged individualists, without subjecting this view to critical reflection.

The first issue entails a problem of data. Administrative statistics, such as those generated in the aggregate for IRS returns, offer crude proxies for the number of individuals involved in any given business venture. The vast numbers of sole proprietorships that have been enumerated in the United States are based on Schedule C returns, which identify any substantial payment received by an individual as an independent agent. Many of these proprietorships are not intended to be durable business organizations, instead involving receipts from consulting fees, contract work, and the like. By contrast, surveys of entrepreneurs specifically ask whether individuals are trying to start businesses.

A related problem concerns the unit of analysis employed in administrative data. Statistics for IRS returns, for instance, are commonly enumerated at the level of establishments. However, estimates of the extent of group involvement on the part of individual entrepreneurs require that such data be weighted by the number of owners in each startup business. As a result, survey methods lead to different estimates of the distribution of business owners than do tax returns. Whereas the IRS data suggest that fewer than 30 percent of businesses in the United States involve more than one owner, 2005–2006 data from the *Panel Study of Entrepreneurial Dynamics* (PSED II) estimate that nearly 50 percent of entrepreneurs share ownership with others in their businesses. Moreover, that estimate increases to over 54 percent when attention is restricted to businesses that have filed tax returns.[8]

Administrative data also miss a more subtle feature of the social scope of new enterprises: the variety of non-owners and non-employees who become involved in these business startups. Even at the earliest stage of startup development (i.e., before there was a stream of positive cash flow), over a third of U.S. entrepreneurs in 2006 relied on regular contributions—including material investment, guidance, and other support—from non-owner helpers. By comparison, only 8 percent had hired full- or part-time employees. Combining the statistics on co-owners, helpers, and employees, we find that merely 16 percent of U.S. entrepreneurs can be identified as

the true solos that are privileged by classical accounts of entrepreneurial activity.[9]

A second factor contributing to the common emphasis on solo entrepreneurs is the tendency to emphasize results rather than intentions. Many entrepreneurs end up going it alone, but the reasons for this outcome can be complex. Some entrepreneurs are relatively isolated and suffer from limited social networks. Others face exclusion due to their gender, ethnicity, age, or national origin. Yet another faction of entrepreneurs finds that they cannot locate suitable partners for their enterprise, owing to constraints of geography or industry expertise. In all of these cases, the resulting outcome may be solo entrepreneurship, but it is important not to equate this outcome with the intentions or preferences of the entrepreneur.

An emphasis on entrepreneurial groups is sensitive to the opportunities, constraints, and intentions that may ultimately produce either solo ventures or entrepreneurial teams. Stated another way, the "group" is not just considered as an observed outcome that obtains for a subset of startup efforts, but as a possibility that is entertained by many entrepreneurs. While a very small proportion of entrepreneurs are able to hire employees at the earliest stages of startup development, PSED data suggest that roughly five times that number (42%) believe that they *will be* adding employees or managers in the near future. Considering long-term expectations, a substantial 76 percent of entrepreneurs in 2006 responded that they would be hiring employees or managers over a five-year time horizon. With hindsight, we know that many of these expectations are likely to be frustrated. This does not minimize the fact, however, that relatively few startup founders expect to carry on entrepreneurial activity by themselves.

The theoretical importance of intentionality in group formation can be analyzed further by plotting the long-term expectations which entrepreneurs express concerning their desire to add more participants to a startup effort. A basic typology of groups distinguishes between *open groups*, that is, collectivities in which existing members display a strong and durable propensity to recruit further members (including managers and employees), *constrained groups*, in which the propensity to recruit further members declines rapidly with group size (especially as the group is perceived to be "full"), and *closed groups*, in which the group is restricted to a constant set of members. As shown in figure 1.1, entrepreneurial partnerships are generally formed as open groups. The empirical pattern of intentions suggests some variation with group size, as a critical mass of participants in a group (roughly, 6–8) generates the strongest expectations regarding the addition of new members. Still, the probability that entrepreneurs wish to add other managers or employees generally hovers in the range between 0.7 and 0.85. There is little evidence that entrepre-

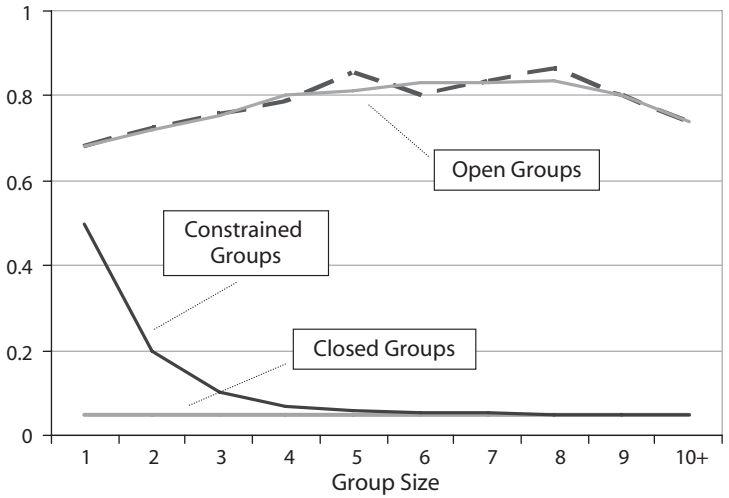

Figure 1.1. Proportion of Entrepreneurs Who Intend to Add More Participants by Group Size. *Note*: Figures for "open groups" are empirical estimates drawn from the PSED II. Raw data are represented by dashed line; smoothed data by solid line. Figures for "constrained" and "closed groups" are hypothetical.

neurs close ranks with increases in group size (as suggested by the hypothetical pattern for constrained groups) or that they close ranks apart from group size (hypothetical pattern for closed groups). Considering the size of entrepreneurial groups in combination with intentions, only 5 percent of entrepreneurs in the United States work alone *and* have no expectations of adding other startup participants.[10]

A third reason for the mythology of solo entrepreneurship concerns the accounts developed by the mass media and entrepreneurs themselves. The acquisition of resources and legitimacy in new enterprises hinges to a considerable extent on the narratives that entrepreneurs are able to project (Lounsbury and Glynn 2001). Entrepreneurial storytelling that focuses on a single individual simplifies the attribution of precedence (who was the first to originate an idea), leadership (who guides a startup on a daily basis), identity (whose personality is reflected in the culture of a startup), and succession (whose departure may endanger the startup's operations or culture). Like Ayn Rand's iconic character, John Galt, in *Atlas Shrugged* (2005), these narratives tend to dwell on modern-day cowboys who transform the economic landscape against all odds. In America, Europe, and Japan, the motif of solo entrepreneurship also echoes a long-standing value placed on self-reliance and self-direction in middle-class culture (Pearlin and Kohn 1966; Kohn et al. 1990).

This trope is evident in the two narratives that began this chapter, each of which focused on a single male protagonist. A deeper examination of these cases reveals that the social context of entrepreneurship is far richer than it might at first appear. For instance, Bob Moog is often named as an inventor in media accounts, a well-deserved credit that extends back to his work on a murder mystery game, which led to the founding of University Games. But Moog originally developed the game with the assistance of Patricia Stewart and Edna Maples, two child psychologists in Denver, who had been writing and selling mystery games through a "basement operation" (Miller 1985). Inspiration for the game can also be traced to Mystery Weekends, a business co-founded by former travel agents Gladys Germann and Kathi Platt, where Moog and his business partner Cris Lehman attended an early adventure get-away (Halstead 1985). And so forth. Rather than engage in infinite regress, narratives about entrepreneurs typically truncate such complex patterns of social influence and focus instead on the biographies of individuals.

There is some evidence, finally, that contemporary academic accounts have also adopted the popular, individualist image of entrepreneurship, even if only tacitly. Sociological studies of career values distinguish between "entrepreneurial" and "bureaucratic" job orientations, where the former is associated with a preference for autonomy, self-sufficiency, and risk, while the latter is based on a preference for job security and stable relationships with employers and co-workers (Miller and Swanson 1958; Hout 1984; Halaby 2003). Clearly, the issue as to *whether* entrepreneurs and non-entrepreneurs hold such value orientations is a useful empirical question. But researchers have more often been inclined to *attribute* these values to entrepreneurs, without recourse to empirical investigation. If academic accounts automatically place entrepreneurs in a conceptual category of rugged individualists, by virtue of definition alone, they tend to reflect or reinforce popular stereotypes.

In economic sociology, perhaps the most influential statement offered against an individualist conception of economic actors was Mark Granovetter's (1985) manifesto on the "Problem of Embeddedness." At the time, Granovetter suggested that neoclassical economists typically employed an undersocialized perspective on economic actors, viewing their behavior as both utilitarian and acontextual (i.e., unaffected by social relations). This critique remains relevant for contemporary economic treatments of entrepreneurs, which overwhelmingly describe entrepreneurial entry and persistence as an individual decision that is influenced largely by capital liquidity constraints (e.g., Evans and Jovanovic 1989; Holtz-Eakin et al. 1994; Blanchflower and Oswald 1998). Granovetter likewise criticized many sociological views of economic actors as oversocialized, with behavior dictated by internalized norms and the opinions

of others. This perspective also retains a considerable amount of intellectual currency in entrepreneurship research, as documented in studies of parental socialization and occupational inheritance (see studies above and review in Aldrich and Kim 2007a).

Ironically, oversocialized views of entrepreneurs may lead to the same individualistic conception as undersocialized views (Granovetter 1985: 485). In particular, if entrepreneurial values are largely transmitted in childhood and adolescence, there seems to be little incentive for social scientists to study the ongoing social relationships in which entrepreneurs become embedded. Even if some entrepreneurs happen to attach themselves to others in entrepreneurial groups, these social relations are peripheral compared to the norms that entrepreneurs have internalized and, thus, irrelevant to various startup dynamics: for example, who is brought into the startup, how rewards and roles are assigned, how much effort is put forth, or how much autonomy and creativity are displayed within the group. By contrast, the theory espoused in this book is that ongoing social relations are critical to an understanding of entrepreneurial activity and yield new insights compared to the under- or oversocialized conceptions that have often dominated economics and sociology.[11]

Plan for the Book

All four foundations of the "solo entrepreneurship" perspective represent considerable obstacles to an emphasis on entrepreneurial groups and will receive extensive treatment in this book. To confront the myth of the solo entrepreneur, I rely largely on empirical evidence from the contemporary United States, a choice guided by the high-quality data on entrepreneurship that first became available in the late 1990s. This choice offers benefits in terms of sample representativeness, comprehensiveness of measures, and policy relevance (see appendix A). In the concluding chapter, I address whether and how my findings may generalize to other countries and historical settings, when viewed in comparative perspective.

Following evolutionary approaches to organizational analysis (e.g., Aldrich and Ruef 2006), the book employs a process-based conception of how entrepreneurial groups emerge and operate. This conception shares some broad similarities with other process-based models, which tend to highlight events in the creation of nascent organizations (such as legal establishment, operational startup, resource acquisition, and the like) (Katz and Gartner 1988; Ruef 2005), but its distinctiveness arises from a specific focus on group processes (see figure 1.2). Like all models, the process-based conception offers a simplified representation of reality for analytical purposes. Consequently, no assumption is made that stages in

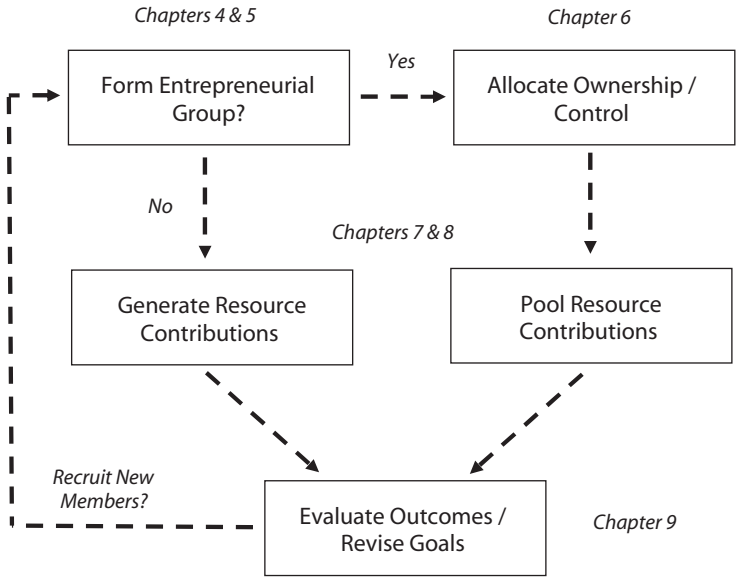

Figure 1.2. A Process-Based Conception of Entrepreneurial Groups

the process of group evolution necessarily follow one another in temporal order.

In the next two chapters, I introduce a theoretical framework for understanding the structure and dynamics of entrepreneurial groups. Termed "relational demography," the framework draws on a pair of social science frameworks—a demographic perspective, which addresses how the composition of social groups is influenced by the structure of categorical identities in the population as a whole, and a network perspective, which addresses how economic activity is affected by interpersonal ties. Chapter 2 contrasts the assumptions of relational demography with other perspectives on entrepreneurial groups in business management and the social sciences. In chapter 3, I consider some basic empirical properties of entrepreneurship and suggest how relational demography can help shed light on them. Two puzzles are analyzed in some depth, including the highly skewed size distribution of startup enterprises and the curvilinear pattern of age dependence in rates of entrepreneurial entry.

Chapters 4 and 5 address the initial stage of entrepreneurial group formation, in which entrepreneurs face a decision as to whether they should recruit others to join their nascent venture and how to involve those participants. Chapter 4 considers this process from the standpoint of the population of entrepreneurs as a whole. It analyzes how demographic, network, and ecological mechanisms affect group composition.

In chapter 5, attention shifts to the networks of specific entrepreneurs and where they draw the boundaries of their nascent ventures. What factors distinguish business founders from their employees? What factors distinguish them from external partners, advisors, and stakeholders?

For those entrepreneurs who do form a group, the next question that must often be answered is how to align incentives and social roles. In chapter 6, I consider how founding team members weigh their potential contributions against benefits. What norms dictate the terms of "fair exchange" in the allocation of ownership shares and control of the startup firm? When is the allocation of ownership shares among co-founders unequal? To what extent do entrepreneurial control and ownership shares represent substitutable commodities?

The day-to-day life of a startup is also dominated by more mundane concerns. To ensure the survival of these nascent organizations, entrepreneurs must generate contributions based on their available resources. Chapter 7 analyzes the concrete contributions that group members make, in terms of time, skills, and ongoing material investments. It considers how these contributions vary between solo and group enterprises, as well as when over- or under-commitment may challenge the terms of fair exchange in the group context. In chapter 8, I address a more elusive contribution, the production of creative ideas in entrepreneurial organizations. Using both subjective and behavioral indicators, the chapter describes what group structures are most likely to lead to organizational innovation.

In the final empirical chapter of the book, I turn to the measures of success, both pecuniary and nonpecuniary, that entrepreneurs apply to evaluate their ventures. To what extent are these metrics correlated with the relational demography of an entrepreneurial group? How do the personal goals of entrepreneurs and the structure of their interactions combine to produce change within a group? These issues connect organizational outcomes back to the first stage of the process model, the (re)structuring of the entrepreneurial group.

Conclusion

An entrepreneurial group can be described as the set of actors—either individual or organizational—who actively support the creation of a new organization. Given this conception, "entrepreneurs" are defined on a continuum in terms of their commitment to such groups, possibly including owner-managers, investors, employees, unpaid family members, and other helpers. Entrepreneurship is seldom a solitary activity. Among individuals trying to start their own business in the United States, some 84

percent report the involvement of other startup participants. Entrepreneurial groups also enjoy a global presence, as exhibited by such widespread organizational forms as micro-credit borrowing groups, rotating credit associations, and business groups in emerging markets. Still, much of our popular discourse touts an image of the entrepreneur as a rugged and heroic individual. And much of the academic work on the topic is better suited to analyzing individuals or firms than entrepreneurial groups.

Compared to individual entrepreneurs, the analysis of entrepreneurial groups introduces new empirical challenges. The observation of any entrepreneurial group is always conditioned on a set of counterfactuals—what other groups *could* have been formed, given the intentions of the entrepreneurs and the structural opportunities and constraints that they face? Serious consideration of these counterfactuals is required to avoid the selection biases that often plague organizational scholarship, in which entrepreneurs or organizations are selected based only on successful outcomes (Aldrich and Ruef 2006: chapter 2). Because group formation itself can be counted as an early success for many business ventures, the analysis of entrepreneurial groups supplements, rather than replaces, the analysis of solo entrepreneurs. These issues are fleshed out in the next chapter, where I discuss different perspectives on entrepreneurial groups, the group dynamics that they choose to emphasize, and the types of entrepreneurial ventures that they study and use to inform their conclusions.

CHAPTER TWO

Images of Entrepreneurial Groups

Comparing the entrepreneurial efforts of Bob Moog with those of John and Emily Koslowski in the previous chapter, I suggested how their activities highlight very different definitions of entrepreneurship. Some of these definitions focus on innovation or the establishment of a viable organization; others emphasize risk-taking or a departure from bureaucratic constraints. Our images of entrepreneurs, however, are not molded by definitions alone. In addition to offering distinctive answers to the question of "who is an entrepreneur?" these images are based on different assumptions regarding the selection criteria that lead us to study some entrepreneurs rather than others, as well as the metrics that inform our evaluation of success among new organizations. In turn, such underlying assumptions tend to be coupled with divergent perspectives for explaining the social processes that constitute and reconstitute entrepreneurial groups.

Bob Moog's ventures, AreYouGame.Com and University Games, represent the kind of entrepreneurial cases that are often examined from a business management perspective (for Moog in particular, see Spitzer and Arippol 2006 and articles in *Stanford Business* 2000, 2004). In this perspective, high-growth and high-capitalization businesses are viewed as the most appropriate focus for entrepreneurship scholars, as distinguished from "traditional" or lifestyle startups (Aldrich and Ruef 2006: chapter 4). The selection of such cases is motivated by a number of considerations. High-growth businesses, by their very nature, often offer systematic documentation of revenue, profit, and related financials, simplifying subsequent quantitative analysis. As case studies, they are appealing to undergraduate or MBA students, who seek lessons from financially successful business enterprises. The profit and growth orientations of these entrepreneurial ventures also conveniently distinguish them from small businesses more generally (Carland et al. 1984). Even when case selection does not proceed explicitly on the basis of startup outcomes, business school faculty and case writers may engage in incidental selection, contacting visible entrepreneurs through well-established alumni or professional networks.[1]

The Koslowskis' refrigerator repair franchise is an entrepreneurial venture of a different breed. John and Emily epitomize the "Middle America" that is often sought by social scientists seeking to locate and inter-

view average mom-and-pop entrepreneurs. The Koslowskis' education (both have some college, but no four-year degree) and household income ($48,000) place them near the median on these dimensions for nascent entrepreneurs in 1998. The low growth trajectory of their business startup is also typical—most firms grow little, if at all, over their lifetimes. In contrast to the business management perspective, a social science perspective emphasizes that "the vast majority of organizations are small and short-lived, coming and going on a much shorter timescale than the humans who run and create them" (Aldrich and Ruef 2006: 7). Some of these entrepreneurial efforts are sustained *despite* a lack of profitability, rather than because of growth in employees or revenue, especially when owners are more intrinsically motivated or have a history of family entrepreneurship (Gimeno et al. 1997). Social scientists study such cases of mundane entrepreneurship with an eye toward making inferences to a representative population of entrepreneurs and informing business or public policy.

In this chapter, I draw out the assumptions of the business management and social science perspectives on entrepreneurship, with particular emphasis on entrepreneurial groups. I begin by comparing the theoretical and empirical descriptions of groups that arise from each perspective, before tackling debates that are internal to the social science view. The utility of one framework—termed "relational demography"—is then compared with a variety of alternatives from business management, economics, and sociology.

The Business Management Perspective

Beginning in the late 1980s and early 1990s, scholars in business management and policy began to question the image of the heroic individual found in classical treatments of entrepreneurship. Writing in the *Harvard Business Review*, Robert Reich (who would become President Clinton's Secretary of Labor six years later) argued that "if we are to compete effectively in today's world, we must begin to celebrate collective entrepreneurship" rather than "the traditional myth of the entrepreneurial hero" (1987: 78). Reich linked the traditional American conception of entrepreneurship to the Horatio Alger narrative of the postbellum era, in which creative, hard-working, and self-sufficient individuals work their way from rags to riches. This conception, he cautioned, was largely obsolete in the modern global economy, where isolated entrepreneurs and their "worker drones" could not hope to compete against foreign firms that adopted a team-based approach to business and rapidly incorporated the "Big Ideas" pioneered by American entrepreneurs (ibid.: 79).

While Reich's discussion was rhetorical—and, at times, jingoistic—it echoed a shift in conceptual treatments of entrepreneurs within business management more generally. Some management thinkers had touted the importance of "team entrepreneurship" as much as a decade earlier (e.g., Timmons 1975, 1979). But a new generation of scholars was the first to call for a systematic program of research that would document the prevalence of entrepreneurial groups, describe their properties, and assess their impact on business performance (Kamm et al. 1990; Gartner et al. 1994). In a review of developments in entrepreneur research and theory, Gartner and colleagues (1994: 6) noted that "the 'entrepreneur' in entrepreneurship is more likely to be plural, rather than singular." They offered an expansive definition of the entrepreneurial group, including owner-managers, investors, organizational decision makers, family members, advisors, critical suppliers, and buyers as possible candidates in the "entrepreneur" role.

Empirical research in business management followed suit, with both quantitative and qualitative designs that examined the links between entrepreneurial groups and a variety of outcomes in new firms (see table 2.1). Two prototypical research programs were Kathleen Eisenhardt and Kaye Schoonhoven's analysis of entrepreneurial teams in semiconductor manufacturing startups (Eisenhardt and Schoonhoven 1990, 1996) and Michael Ensley's examination of team effects among the *Inc. 500*, a directory of the fastest growing firms in the U.S. (Ensley 1999; Ensley et al. 1999; Ensley et al. 2000).

Drawing on a long-standing interest in the impact of founding conditions on organizations, Eisenhardt and Schoonhoven (1990) considered the impact of founding team size, heterogeneity, and previous collaborative experience on organizational growth (see also Stinchcombe 1965; Cooper and Bruno 1977). They suggested that growth should increase as a function of past work experience within an entrepreneurial group, reflecting previous time invested in collaboration and the development of interpersonal trust. Growth was also predicted to rise with team size and heterogeneity in industry experience, reflecting the ability of large and diverse entrepreneurial teams to avoid "groupthink" and elicit distinct contributions from members to solve the problems faced by startup enterprises. These predictions were largely borne out in an analysis of sales growth among ninety-two semiconductor manufacturing firms founded in the United States between 1978 and 1985. In particular, the founding teams that combined all three features—collaborative experience, large size, and diversity in experience—enjoyed significantly faster growth than comparable organizations with "weak" teams.

Ensley's study (1999) emphasized the effect of team skill heterogeneity and conflict on organizational performance. In contrast to Eisenhardt and

Table 2.1.
Empirical Articles and Monographs on Entrepreneurial Groups in Business Management (1990–2007)

Authors	*Year*	*Outcome(s)*	*Sample*
Boeker and Wiltbank	2005	Group turnover	Semiconductor firms in Silicon Valley
Chen	2007	Firm innovation	Taiwanese high-tech startups
Eisenhardt and Schoonhoven	1990	Firm growth	U.S. semiconductor firm startups
Eisenhardt and Schoonhoven	1996	Strategic alliance formation	U.S. semiconductor firm startups
Ensley	1999	Firm growth and performance	U.S. Inc. 500
Ensley, Carland, Carland, and Banks	1999	(Various)	U.S. Inc. 500
Ensley, Carland, and Carland	2000	Group leadership	U.S. Inc 500
Forbes, Borchert, Zellmer-Bruhn, and Sapienza	2006	Group expansion	Academic spinouts in Midwest
Henneke and Lüthje	2007	Firm innovation	Canadian high-tech startups
Kor	2003	Firm growth	U.S. medical / dental instrument firms with IPO
Lechler	2001	Firm performance	German high-tech start-ups
Matlay and Westhead	2005	Group composition	SMEs in European tourism industry
Neergaard	2005	Group network activities	Danish high-tech start-ups
Shepherd	1999	VC assessment of firm survival	Australian venture capital firms
Ucbasaran, Lockett, Wright, and Westhead	2003	Group expansion and turnover	Business startups in Great Britain
Vanaelst et al.	2006	Group composition	Belgian academic spinouts

Note: All articles were identified via JSTOR and ABI / INFORM abstract searches, using the search terms "team*" and either "entrepreneur*" or "founding."

Schoonhoven, he conceptualized team heterogeneity as having an *indirect* effect on performance and growth, mediated by cognitive and affective conflict within the group. On the one hand, team members with diverse skills were expected to evidence more debates and disagreements around ideas (*cognitive conflict*), a process that could ultimately lead to the formulation of better business strategies for new enterprises. At the same time, Ensley also hypothesized that skill diversity would be associated with frustrations directed at individual persons within the team (*affective conflict*), a process that could adversely impact consensus around common strategic goals. Despite the apparent opposition between the benefits of cognitive conflict and costs of affective conflict (Amason 1996), previous research suggested that this paradox could be resolved in startups, where the lack of entrenched political coalitions and the need for rapid decision-making would lead to a sublimation of personal conflicts (Eisenhardt and Bourgeois 1988). Examining self-reported conflict among entrepreneurial teams in the *Inc. 500*, Ensley found that neither cognitive nor affective conflict was positively associated with skill heterogeneity in these startup enterprises. However, affective conflict within the teams did pose a problem for proactiveness, analysis, and future-directedness in group decision-making, dimensions that proved important for some performance outcomes in the sample.

These studies reveal two aspects of research design that are common to many empirical analyses of entrepreneurial groups in the literature on business management. First, they sample businesses that are experiencing high growth or high capitalization. This process of sample selection can be explicit, as it is in Ensley's study, where the *Inc. 500* listings enumerate the fastest-growing private companies in the United States (see also Bhide 2000). More often, it is incidental, as in Eisenhardt and Schoonhoven's design, where entrepreneurial firms are chosen from industries with high capitalization requirements and / or high rates of growth.[2] Sampling on capitalization tends to occur because researchers obtain their data from funding sources, such as banks or venture capitalists, who derive most of their experience from a small subset of externally funded entrepreneurial ventures (e.g., Shepherd 1999; Lechler 2001; Hallen 2008). Sampling on growth occurs because researchers have an interest in entrepreneurial groups operating within emergent and high-tech markets, including those located at the intersection of academia and industry (Forbes et al. 2006; Vanaelst et al. 2006). Even when management scholars begin with samples of entrepreneurial businesses that are not intrinsically capital-intensive or located in high-growth sectors, these samples may become more biased along these dimensions over time if businesses with low capitalization and low growth suffer disproportionate attrition.

Second, the outcomes of many management studies of entrepreneurial groups likewise focus on growth or some other indicator of organizational performance. Growth may be measured at the level of the startup enterprise as a whole, considering growth in sales, employees, or interorganizational networks (Eisenhardt and Schoonhoven 1990, 1996; Ensley 1999; Kor 2003). Or it may be assessed at the level of the entrepreneurial group, considering the circumstances under which new members are added to the "management team" (Ucbasaran et al. 2003; Forbes et al. 2006). In other cases, metrics of performance, such as profitability or innovation, are analyzed, with the latter being especially popular in analyses of high-tech startups. The emphasis on growth and performance effects can be traced back to orienting statements in the fields of entrepreneurial and strategic management, which suggested that the ultimate goal of analyzing entrepreneurs (both individuals and groups) was their financial impact on the ventures that they founded (Sandberg 1986; Kamm et al. 1990).

Critique of the Management Perspective

Although these research design choices may seem sensible, given the instrumental goals of management scholars and practitioners, they impose serious limitations on the validity of inferences regarding entrepreneurial groups. The most obvious limitation concerns the generalizability of descriptive and causal results in management studies. In the United States, of the roughly 12 million entrepreneurs involved in seven million startup efforts in 2006, only a small percentage fell in the high-growth and high-capital category examined by management scholars. About 1.4 million ventures (around 20% of the total) eventually hired at least one employee and fewer, around 210 thousand (less than 2%), grew beyond their initial startup size (Aldrich 2007). Funding from external investors was even more rare. In 2006, slightly over 50 thousand ventures received funding from wealthy individuals, also known as "angel" investors; and a mere 3,591 startups secured venture capital funding (ibid.). As a rule, growth and capitalization are questionable criteria for representative sample selection of entrepreneurial groups, whether on an explicit or incidental basis.[3]

One possible response to such critique is that scholars of business management are not necessarily concerned with representativeness. Instead, they seek to analyze the kinds of business startups that their students—particularly, MBAs—create or encounter in their professional lives. Table 2.2 lists the types of startups that were created by MBA alumni from a top U.S. business school between 1990 and 1997 and compares them with nationally representative samples of startups in 1998–2000 and 2005–2006.[4] Several differences are highlighted by this comparison. First, there is an unusually high concentration of business school entrepreneurs in

Table 2.2.
Most Common Startup Types among Nascent Entrepreneurs in Three U.S. Samples

Rank Order	*MBA Graduates from Top Business School (1990–1997)*	*General Population (1998–2000)*	*General Population (2005–2006)*
1	Consulting (14.4%)	Construction (6.6%)	Construction (10.8%)
2	Venture capital (7.4)	Restaurants (3.9)	Direct and internet selling (9.1)
3	Investment advice (7.3)	Business services (3.5)	Restaurants (4.9)
4	Computer services (6.1)	Computer services (3.4)	Real estate (4.3)
5	Construction & real estate (5.5)	Direct and internet selling (2.6)	Consulting (3.4)
6	Computer & software wholesalers (5.3)	Musical groups, artists, and Promoters (2.5)	Landscaping (3.2)
7	Investment banking / brokerage (4.8)	Auto repair (2.5)	Musical groups, artists, and promoters (2.5)
8	Real estate finance (3.7)	Information retrieval (2.0)	Computer Services (2.4)
9	Marketing (2.7)	Real estate (2.0)	Auto repair (2.3)
10	Restaurants and hotels (2.6)	Consulting (1.7)	Clothing stores (2.1)
—	Other (40.2)	Other (69.3)	Other (55.0)
Sample Size	620	828	1214
Source	GSB alumni sample	PSED I	PSED II

Note: Startup types in the PSED data sets are identified by 4-digit SIC codes; where possible, startup types in the GSB Alumni sample have been mapped to 6-digit NAICS codes. Tabulation excludes residual categories (e.g., miscellaneous retail stores) for the sake of specificity.

management consulting and in the financial sector (e.g., venture capital [VC], investment banking, etc.). By comparison, only a modest number of average entrepreneurs initiate consulting businesses (1.7% and 3.4% in 1998–2000 and 2005–2006, respectively) and very few have the capitalization required to start an investment firm. Second, some of the leading startup types among typical entrepreneurs include relatively mundane enterprises, such as construction businesses, realties, restaurants, and auto repair shops. These startups tend not to be as fashionable among business school graduates, who display a stronger interest in high-growth industries. Finally, the diversity of startups among business school alumni is less than that of average entrepreneurs, with a handful of industries (management consulting, VC's, and investment advice) accounting for nearly 30 percent of all startup efforts in the GSB Alumni sample. By focusing on

the startups that their students and former students are involved with, business school faculty may therefore be acquainted with only a relatively narrow range of entrepreneurial activity.

By sampling on alumni networks or the interests of their students, business and professional school faculty may be biasing their observations of entrepreneurs in other ways. Consider the intuition that much of the entrepreneurial activity in the United States is concentrated in high-tech regions, such as Silicon Valley, Route 128 near Boston, Silicon Hills around Austin, or Research Triangle Park in North Carolina. This intuition is unsurprising when we consider the prominent research universities located in those technology corridors and the tendency of graduating students to initiate or join business startups in the same regions. Among the alumni of Stanford's Graduate School of Business, for instance, around half of all individuals who start their own businesses locate them in California; and a remarkable 30 percent of these startups are concentrated in a three-county region connecting San Francisco and San Jose.[5] But when we examine nationally representative data, this region does not have an especially high rate of entrepreneurial activity. Calculating the per capita rate of new business formation, statistics from the Census Bureau's Longitudinal Enterprise and Establishment Microdata place San Francisco in the 121st position out of 394 metropolitan areas; San Jose ranks even lower at the 165th position (Acs and Armington 2006; Shane 2008: 23).

Representativeness aside, there is a deeper problem inherent in sampling on growth and capitalization when we use such data to analyze the relationship between characteristics of entrepreneurial groups and organizational performance. Let us assume, for argument's sake, that there is a strong positive association between some characteristic of entrepreneurial teams (e.g., number of members) and business growth or performance over time. A linear estimate of this relationship is shown as the solid line in figure 2.1 (both left and right panels), while the (hypothetical) observations of teams are displayed as scatterplots. Now assume that there is explicit selection on the sample, so that startup businesses with low growth or performance are not observed. In figure 2.1a, observations in the shaded portion of the scatterplot are missing from our sample. The consequence of this exclusion is that the original linear estimate no longer fits the data. A new estimate of the relationship (shown as a dotted line) still identifies a positive association between the group characteristic and business growth or performance, but suggests that *this estimated association is weaker than the true effect of the entrepreneurial group*.

When business scholars explicitly sample on high (or low) values of the outcome that they seek to explain, then any positive or negative effect of an entrepreneurial group on that outcome will be attenuated in their es-

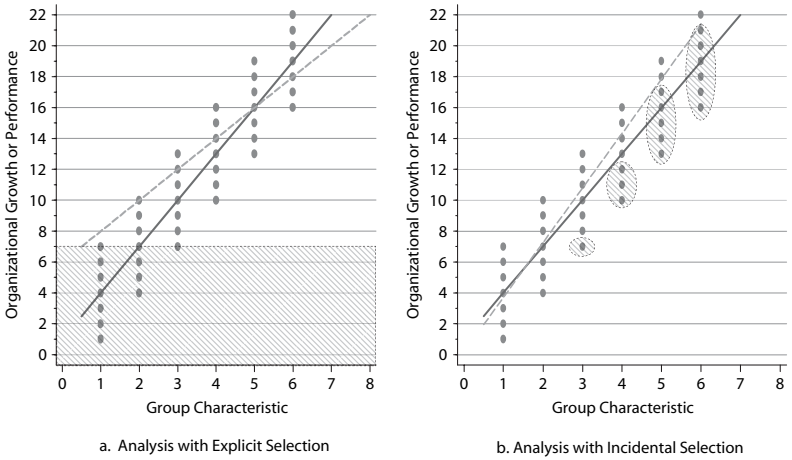

Figure 2.1. The Impact of Explicit and Incidental Sample Selection on Inferences Regarding Entrepreneurial Outcomes (adapted from Berk 1983: 389).

timates. Analyses with incidental selection are far more common, but yield less predictable consequences. Let us now say that we choose our sample of business startups on the basis of their presence in high-tech industries, a criterion that is not directly reflected in either our explanatory group characteristic or our growth/performance outcome. Assume further that those high-tech startups which are also high-growth enterprises rely disproportionately on "strong" entrepreneurial teams, perhaps owing to the technical demands of these businesses. This leads to the omission of observations where "strong" entrepreneurial groups do not yield the best performance or growth outcomes (as shown in the shaded portions of figure 2.1b). In contrast to the scenario with explicit selection, the estimated relationship between the entrepreneurial group characteristic and organizational growth or performance now features a steeper slope (and is thus more pronounced) than the true effect observed in the full sample.

Sampling bias in the selection of business startups can have far-reaching effects on the inferences we draw with respect to the impact of entrepreneurial groups. This raises the question as to whether there are *any* advantages to the analytical strategy of business researchers, as opposed to a strategy that relies on the random sampling of entrepreneurs. When selection does not occur on the basis of outcomes, two advantages seem noteworthy in this respect. First, an emphasis on a particular segment of entrepreneurs can afford researchers a natural control for characteristics that vary widely among entrepreneurs as a whole and that may be difficult to measure. For instance, entry into entrepreneurship is affected to a considerable extent by an individual's human capital

(Ástebro and Bernhardt 2005; Kim et al. 2006), yet it is hard to say what aspects of education or cultural knowledge are relevant to the vocational process of starting and managing a business. In studies where education does not appear as an important outcome or explanatory variable, management scholars may therefore find it useful to sample from business school alumni directories, where sampled individuals share a similar background on this dimension. (Of course, the invocation of this sampling strategy still requires careful attention to the possibility of incidental selection bias.)

A second possible advantage accruing to the sampling strategy of the business management perspective is that it encourages a focus on specific industries and, thus, allows analysts to control for or model the social context that affects particular entrepreneurial groups. Roughly three-quarters of the articles summarized in table 2.1 fall into the category of single-industry studies. The benefits of industry-specific sampling are apparent when founding activities for different ventures must be observed over a long historical period, taking into account the distinct competitive and institutional environments that impact organizational founding over time (Carroll and Hannan 2000). On the other hand, when interest centers on a contemporary context and the internal dynamics of entrepreneurial groups—for example, group composition, expansion, and turnover—then the costs of an industry-specific sampling strategy (in terms of threats to validity) may outweigh its benefits.

The Social Science Perspective

Dating back to the scholarly work of Max Weber (2003) on medieval commercial partnerships in Italy and Spain, the social science literature on entrepreneurial groups has a long pedigree.[6] Despite—or, perhaps, because of—this extended period of gestation, contemporary social scientists display little of the thematic or methodological cohesion found in the business management perspective on entrepreneurial groups. Contributions can be found in a variety of fields—including sociology, economics, psychology, communication studies, and anthropology—with only limited contact across disciplines.[7] The methodological approaches that social scientists employ are equally diverse, ranging from game-theoretic models of how entrepreneurs select team members (Bolle 1994) to network representations of entrepreneurial academics who cluster to spawn commercial enterprises from their laboratories (Colyvas and Powell 2007). Still, if we focus on the Weberian origins of research on entrepreneurial groups, a handful of topics stand out as areas of sustained social scientific interest (see table 2.3).

Table 2.3.
Selected Articles and Monographs on Entrepreneurial Groups in the Social Sciences

Topic	*Recent Literature*	*Canonical Background*
Group formation	Bolle (1994); Ruef, Aldrich, and Carter (2003)	Weber (2003 [1889]); Homans (1950)
Allocation of control/ ownership	Bai, Tao, and Wu (2004); Greif (2006)	Coase (1937); Williamson (1985)
Identity and networks	Portes, Haller, and Guarnizo (2002); Rauch (2001); Saxenian (2006)	Bonacich (1973); Simmel (1950)

One topic concerns the issue of entrepreneurial group formation. Why would an entrepreneur cede partial control of his or her venture to others, rather than going it alone? How do the structural and demographic features of entrepreneurial groups develop? These questions were already implicit in Weber's *History of Commercial Partnerships*, which traced the legal foundations of entrepreneurial groups. Beginning with a discussion of Roman property law, Weber argued that the legal differentiation of partnerships (*societas*) from individual entrepreneurs participating in them (*socius*) was largely nominal in this legal form: "the partnership, as merely a complex of obligatory relations among the *socii*, is of no concern to third parties; in its legal consequences, a transaction a *socius* makes on the account of the partnership is no different from any transaction made on a personal account" (2003: 54). The differentiation between individual and group strengthened, however, with the growing needs of maritime and overland trade during the Middle Ages. Two new organizational forms—the *societas maris* and *societas terrae*—relied increasingly on a cash fund that was separate from the assets of entrepreneurs participating in the venture (ibid.: chapter 2). A further development was the emergence of the joint household in Germanic law. This organizational form introduced the concept of solidary liability, whereby the debt of a family or community member "encumbers the joint assets" of that community (ibid.: 98). The concept was quickly generalized in the Middle Ages to commercial partnerships, as joint households were defined not only in terms of kinship ties, but also in terms of cohabitation and "communities of labor" (e.g., craft guilds).

In contemporary social science, two divergent approaches have been used to tackle entrepreneurial group formation. Behavioral economists, such as Friedel Bolle (1994, 1995), conceptualize group formation as a decision-making process, in which an entrepreneur selects other team

members with an eye toward maximizing their individual profit. This leads to a bargaining game, in which a lead entrepreneur must consider the trade-off between a joint profit that increases with team size and an ownership share that tends to decrease when other team members are brought on board.[8] Surprisingly, experimental results suggest that these games often lead to rejections of potential team members, even when the profit margin of a solo venture is set to zero. For a game involving up to three group members, Bolle (1994: figure 4) found that the risk of a rejection ranged from 12 percent, when the joint profit of a two-person partnership was zero (and profit could therefore only be achieved in three-person groups), to 46 percent, when the joint profit of a two-person partnership was equal to that of the larger group. The experiments also indicate that the profits achieved by the lead entrepreneurs were generally lower than those predicted by game theory, a result that is consistent with the idea that fairness and cooperation play a role in influencing team selection. Subsequent experiments suggest, though, that these results may be sensitive to the one-shot nature of the team selection game and symmetry of potential group members (Sherstyuk 1999).

While behavioral economics minimizes the role of preexisting social networks and identities in the formation of entrepreneurial groups, these features assume center stage in an alternative, sociological approach. With Howard Aldrich and Nancy Carter, I conducted a study of structural and demographic variation found in founding teams across the United States (Ruef et al. 2003). In contrast to many of the management studies reviewed in the last section, we analyzed entrepreneurs across industries and irrespective of their entrepreneurial success. Our findings suggested that team formation was driven to a large extent by the tendency of entrepreneurs to group based on similar demographic characteristics (e.g., gender or ethnicity) and constraints imposed by strong network ties (such as those of marriage or kinship). Female and blue-collar entrepreneurs were disproportionately likely to be located outside of entrepreneurial groups, with this isolation being a likely consequence of their relatively small numbers in the entrepreneurial population.

The mechanisms used to examine entrepreneurial group formation in behavioral economics and in sociology are thus fundamentally different, focusing on either self-interested behavior (or deviations from it) in the former case and homophilous or network-driven affiliation in the latter. Arguably, these differences are magnified for other topics pertaining to entrepreneurial groups, insofar as these topics are assumed to be the exclusive province of either economists or non-economists. Consider the allocation of control and ownership in entrepreneurial groups as a second example (table 2.3). Weber's (2003) dissertation offered an early study of the institutional determinants of control and ownership rights

using a broad social science perspective. Yet recent efforts to explain this allocation process within entrepreneurial ventures tend to focus exclusively on economic motivations among participants.[9] In a model of the allocation of rights in venture capital contracts, for instance, Thomas Hellmann (1998) proposes that the willingness of an entrepreneur to give up control rights to an outside investor (e.g., permitting the replacement of the entrepreneur by a professional manager) is primarily a function of the entrepreneur's wealth constraints, equity stake, and managerial competence. Notably, this conclusion is advanced despite "the possibility that suppliers of capital provide more to firms than just money . . . they help shape strategies, provide technical and commercial advice, and attract key personnel" (ibid.: 57). Similarly, in a study of joint ventures between Chinese and foreign partners, Chong-En Bai and his colleagues (2004) offer a theoretical model that emphasizes the private economic benefits and verifiable payoff to both partners as influencing the character of control-right and revenue-sharing arrangements. Their empirical results suggest, more subtly, that the most statistically significant determinant of joint control in a venture involves co-ethnic ties, as foreign partners who share a common cultural background with entrepreneurs in a Chinese firm (particularly, partners from Hong Kong, Macau, Singapore, or Taiwan) are less likely to rely on formal joint control to enforce trust in their contractual relationships.[10]

One of the most influential efforts to develop earlier economic ideas on the allocation of ownership and control in order to understand entrepreneurial partnerships can be found in Avner Greif's (2006) book on medieval trade. As Greif points out, a historical problem in long-distance mercantile exchange was the reliance of entrepreneurs on overseas agents, a contractual partnership fraught with uncertainty and potential for theft or malfeasance. A response that arose serendipitously among the (Jewish) Maghribi traders in the eleventh century was the creation of a reputational mechanism that reflected past mercantile conduct. As Greif writes, "the Maghribi traders did not establish a separate religious-ethnic community . . . nor did they represent a 'natural' group, which binds together individuals in all (or at least most) important aspects of their lives" (1989: 862). But these traders did operate on a repeated basis through business associates and, in that process, constituted an informal entrepreneurial group—which Greif terms a "coalition." Maghribi traders agreed to only employ other coalition members as agents and to pay them a premium for their mercantile services. In addition, "all coalition merchants agree[d] never to employ an agent who cheated while operating for a coalition member" (Greif 1989: 868). Greif's Maghribi coalition thus offered an organizational solution to the problem of rampant transaction costs in the open market.

While the field of economics has devoted much attention to the allocation of entrepreneurial control and ownership, a topical emphasis on identity and networks is more common in other treatments of entrepreneurial groups (but see Rauch 2001 for an exception). Again, this research interest can be traced back to Weber, as well as his contemporary, Georg Simmel, who noted the propensity of individuals assuming a marginalized identity in a society to band together for economic survival. One prominent social science example can be found in E. Franklin Frazier's (1957) *Black Bourgeoisie*, which locates the roots of African-American entrepreneurship in the cohesive black community of the segregated postbellum era. Internationally, a variety of minority ethnic groups—such as the Chinese of Southeast Asia, Indians in East Africa, Jews in Europe, or Armenians in Turkey—have responded to discrimination by forming solidary communities and by engaging in independent commerce and trade (Bonacich 1973; Portes and Sensenbrenner 1993). In contrast to economic treatments, sociologists view the financial orientation of entrepreneurial ethnic groups as an outcome, rather than an explanation, of their activities. For instance, the ratio of liquid assets to fixed capital is expected to be especially high among "middleman" entrepreneurs, owing to their sojourner status and, in some contexts, uncertain property rights (Bonacich 1973: 585).

Recent work on ethnic identity and social networks has also considered the cross-national character of many ethnic entrepreneurial groups. As Alejandro Portes and his colleagues note, "instead of focusing on traditional concerns about [the] origins of immigrants and their adaptation to receiving societies, this emerging perspective concentrates on the continuing relations between immigrants and their places of origin" (2002: 279). Using data on respondents who had migrated to the United States from Colombia, the Dominican Republic, or El Salvador, Portes and his co-authors found that the social networks of Latino immigrant entrepreneurs contained a large number of nonlocal ties, with the ratio of nonlocal to local ties averaging 0.77 to 1. The prevalence of a transnational orientation among immigrant entrepreneurs has likewise received extensive qualitative attention, including Annalee Saxenian's (2006) recent monograph on Indian, Chinese, and Israeli entrepreneurs in Silicon Valley, which documents the ability of these social networks to overcome international trade barriers and connect regional economies.

Critique of the Social Science Perspective

The disciplinary bifurcation of the social science perspective leaves it open to accusations of incoherence or empirical misspecification. While scholars in the interdisciplinary field of business management generally con-

sider a mixture of social psychological, structural, and economic mechanisms driving group composition and its effects on the performance of startup enterprises, social scientists tend to adopt a more myopic view. Economists explaining the distribution of ownership and control rights in new business ventures ignore the relevant effects of kinship, ethnicity, or gender. Sociologists analyzing the recruitment of individuals into entrepreneurial groups overlook the transaction costs that may place some exchange partners within a group and others outside of its boundaries.[11] The threat of such omissions to the internal validity of social scientific studies is especially high when economic and non-economic variables are correlated—for example, when the gender or ethnicity of a startup participant is associated with their investment resources or strategy.

The social science perspective fares better than the business management literature on several aspects of method. Laboratory studies of team selection processes rely on randomized assignment of partners and exogenous manipulation of entrepreneurial outcomes (Bolle 1994), ensuring a strong basis for the internal validity of their inferences. Survey-based studies in the social sciences have been careful to sample entrepreneurs on a representative basis and avoid selection on entrepreneurial outcomes (Portes et al. 2002; Ruef et al. 2003). When social scientific interest hinges on a fairly specific form of entrepreneurial partnership, such as joint ventures, data collection tends to occur across a range of industries (e.g., Bai et al. 2004), avoiding the single-industry biases that are evident in many management approaches.

Even these methodological advantages are not unequivocal, however. Because the empirical evidence in social scientific studies of entrepreneurial groups comes from a variety of research designs—surveys, laboratory experiments, non-participant observation, and historical archives—combining their implications is a non-trivial exercise. It is not clear at the outset, for example, how the high rate of rejection in team selection experiments should inform survey-based analyses of entrepreneurial group formation. Owing to the concocted nature of social interaction in laboratory studies, experimenters have few opportunities to build the history of interpersonal relationships that would otherwise be present in naturally occurring groups and which most survey researchers feel compelled to gauge.

Arguably, the representative sampling approach in some social science studies is also inimical to the analysis of organizational performance or growth, since much of the variance in these outcomes depends on industry context and can only be controlled for in very large cross-industry samples of business startups (e.g., Robb 2002). In contrast to the management perspective, social scientific analyses of entrepreneurial groups

are better suited to analyzing proximate outcomes, such as group size, composition, equity and control allocation, and social cohesion, which are not as heavily influenced by industry context.

Relational Demography

Relational demography is a perspective on entrepreneurial groups that draws insights from sociology, economics, and business management. It highlights the compositional features of the groups who are involved in starting new organizations, resembling perspectives on established organizations, wherein "relational demography" refers to "comparative demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions" (Tsui and O'Reilly 1989: 403; see also Pfeffer 1983 and Riordan 2000). In business management, scholars have typically considered relatively visible social attributes ascribed to members—such as age, gender, and race—viewed within the context of formal role interactions—such as superior-subordinate relations (Tsui and O'Reilly 1989; Farh et al. 1998; Perry et al. 1999). Applied to an entrepreneurial context, relational demography also considers less visible aspects of member identities—such as personal preferences, goals, and strategies—and informal dimensions of member relationships—such as non-business network ties.[12] These features are especially important for entrepreneurial groups, owing to the emergent character of formal relationships and intimate knowledge that group members often have of one another in this setting.

With respect to outcomes, relational demography begins with the premise that any attempt to impose a unitary standard of "growth" or "performance" on entrepreneurial activity is misguided. Entrepreneurs have diverse goals when starting new organizations and different thresholds at which they are willing to sustain such enterprises (Gimeno et al. 1997). Moreover, while individuals may form or join entrepreneurial groups with particular goals in mind, these goals are often transformed or subordinated as groups and their constituent relationships evolve. Like other formal organizations, startups may become "infused with value" over time (Selznick 1957), leading members to favor the survival of entrepreneurial groups, even when they no longer serve the instrumental goals that motivated their origins. In lieu of performance, relational demography encourages the examination of group processes, including the formation of the entrepreneurial group, formalization of interpersonal relationships, allocation of ownership and control, investment of entrepreneurial effort, elicitation of innovation, and group survival.

Relational demography builds on the disciplinary perspectives of economics and sociology, but supplements them in important respects. Since the 1970s, it has become fashionable in economics to characterize business enterprises as a "nexus of contracts," with the organization itself serving as "the centralized contractual agent in a team productive process" (Alchian and Demsetz 1972: 772; Jensen and Meckling 1976). For business startups, this implies an empirical emphasis on the kinds of contractual agreements formed between members of an entrepreneurial group, their allocation of ownership, and their distribution of formal role responsibilities and rights. In this regard, the contemporary economic theory of the firm is concerned about "relationships," though largely those of a relatively visible and formalized nature (upper left-hand quadrant of table 2.4). Conversely, the persistence of the business firm is challenged by the (presumed) opportunism of its individual participants, their openness to outside alternatives, and their strategies for taking advantage of the incomplete nature of relational contracts. Owing to the difficulty in measuring these features of entrepreneurial identity, they tend to be imposed by theoretical fiat within the modern economic view of the firm (lower right-hand quadrant of table 2.4).[13]

Sociological observers of organizations also address the interplay of relationships and identities, but emphasize very different features than those found in the economic perspective. Following influential post–World War II case studies, such as those of Blau (1955) and Dalton (1959), and subsequent theoretical statements (e.g., Granovetter 1985), the sociological imagination has been captured by informal social networks that undergird, ignore, or confront formal role and contractual relationships.[14] For business startups, this emphasis calls attention to the preexisting romantic, kinship, collegial, and other network ties that encourage the recruitment and retention of participants within these endeavors (upper right-hand quadrant of table 2.4). Sociologists and psychologists have also devoted much attention to intra-organizational demography, characterized in terms of highly visible achieved characteristics (such as length of service or education) and highly visible ascribed characteristics (such as gender or ethnicity) (lower left-hand quadrant of table 2.4). In contrast to the subtle acts of opportunism and malfeasance advanced in the economic theory of the firm, the principal threat to organizational cohesion and retention in sociological accounts appears to be these overt markers of member identity (Stewman 1988).

Although relational demography addresses a wide range of features in entrepreneurial groups, it is not intended to be a holistic perspective, giving equal weight to the group dynamics discussed in business management, economics, and sociology. Instead, it considers a relatively small

Table 2.4.
Features and Mechanisms of Entrepreneurial Groups Emphasized in Relational Demography

	High Visibility	*Lower Visibility*
Relationships	Contractual agreements and formal role relations *Mechanism 1*: Ecological Constraint	Informal networks and interpersonal trust *Mechanism 2*: Strong Tie Constraint
Identities	Ascribed and achieved status characteristics *Mechanism 3*: Homophilous Affiliation	Subjective preferences, goals, and strategies *Mechanism 4*: Identity Fulfillment

number of social mechanisms, which arise from the relations and identities within an entrepreneurial group and explain much of the empirical variance in group processes.

Mechanisms in Relational Demography

The rudimentary typology in table 2.4 suggests that the mechanisms governing group formation and evolution can be studied (1) with a primary focus on relationships or identities among entrepreneurs, and (2) in reference to relatively visible features of group structure or more subtle (and, in some cases, even covert) features. These divisions are largely heuristic, since many of the most interesting explanations for group processes can be found at the intersections. As a first pass, however, it will be useful to consider four basic mechanisms that populate the cells of the typology.

Ecological constraint refers to the limitations that physical geography imposes on the ability of entrepreneurs to collaborate with one another, as well as on the nature of their collaboration. It suggests that a fundamental relationship guiding entrepreneurial activity concerns the ability of entrepreneurs to establish physical co-presence and frequent face-to-face interaction. Despite mass media and scholarly fascination with "virtual" groups, which rely mostly on new computing and telecommunications technologies (e.g., Matlay and Westhead 2005), psychological evidence points to the fragile nature of trust when co-workers are geographically dispersed (Kandola 2006). For entrepreneurs, co-presence may be required to achieve coordination when formal roles have yet to be developed, to adjust expectations when written contracts cover few con-

tingencies, and to ensure interpersonal trust when entrepreneurial activity is fraught with uncertainty.

Given the preoccupation of the economic theory of the firm with "monitoring," "opportunism," and the like (Williamson 1981, 1985), one might expect that this literature would be especially attuned to the impact of ecological constraint. This expectation ends in disappointment, as entrepreneurs dealing with transaction costs or principal-agent problems appear to inhabit a largely aspatial world. Attention to the physical geography of entrepreneurship is far more common in organizational sociology, where scholars have noted that entrepreneurs rely on spatial proximity to other entrepreneurs in order to acquire tacit knowledge, develop social relations, or recruit co-founders (Sorenson and Audia 2000; Stuart and Sorenson 2003). At an aggregate level, this helps explain why the founding rates for new businesses are often especially high in locales that already exhibit a spatial concentration of businesses conforming to the same type. Relational demography argues that ecological constraint may play an equally important part in the internal structure of entrepreneurial groups, affecting how individuals are recruited as participants, how contractual agreements among participants are defined, and how formal roles are allocated.

The mechanism of *strong tie constraint* addresses how the formation and dynamics of entrepreneurial groups are limited by preexisting social networks, particularly those that involve kinship, marital, or romantic relationships. It follows a well-established sociological literature that has called attention to the *embeddedness* of economic actors within social networks (Granovetter 1985), but departs from this tradition in one notable respect. While much of the literature has argued for the "strength" of weak network ties in searches for job opportunities (Granovetter 1995; see Mouw 2003 for one critique) or in the strategic manipulation of structural holes (Burt 1992), the perspective offered here is that the constraint imposed by strong network ties often trumps the impact of weak ties in a small group context. This holds true for entrepreneurial groups, in particular, because members have an enduring desire for trust, despite the instrumental advantages that may accrue from weak tie networks, in terms of structural autonomy or the acquisition of novel information.

A third mechanism, *homophilous affiliation*, refers to a tendency of group members to collaborate based on shared sociodemographic characteristics. Although homophily can occur on the basis of similarity in values, beliefs, tastes, or other psychological dispositions (Lazarsfeld and Merton 1954), visible social identities offer the simplest source of attachment to groups. Several processes help to explain the prevalence of homophily in organizational settings. First, individuals often assume that

others who have a common social identity tend to think as they do, even if this perception results from a misattribution of shared understanding (McPherson et al. 2001). Second, the visible similarity of individuals also tends to dispose them toward a greater level of interpersonal attraction and trust, an idea referred to in some studies as the similarity-attraction principle (e.g., Boone et al. 2004). Third, the homophilous recruitment of colleagues can serve as a political mechanism to ensure loyalty and to perpetuate personal power. Within established organizations, all three processes have been observed, contributing to what Kanter (1977: 47)—studying male managers—famously referred to as "homosexual reproduction." Within entrepreneurial groups, the fine-grained qualitative or quantitative evidence required to adjudicate among these processes remains largely absent. In the aggregate, however, gender and ethnicity appear to be potent drivers of homophilous affiliation in founding teams (Aldrich and Ruef 2006: 72–73).

The final mechanism in the table, *identity fulfillment*, refers to the subjective goals of the entrepreneurs who constitute entrepreneurial groups. It contrasts the intrinsic value that members associate with entrepreneurial activity and the extrinsic value associated with possible consequences of that activity, particularly the material rewards that have often been emphasized in research on entrepreneurial business strategy. Given the centrality of identity within the perspective, it argues that the preference ordering of entrepreneurs, on average, places a higher premium on identity fulfillment than on material rewards and other extrinsic goals. Moreover, this goal ordering is ultimately beneficial to the survival of business startups, since an emphasis on extrinsic material goals leads to limited persistence in entrepreneurial activity, which is often risky and unprofitable. On the other hand, the propensity of entrepreneurs to fulfill the intrinsic expectations encapsulated in their identities or roles yields a more sustained commitment to startup efforts.[15]

Conclusion

Business management and social scientific perspectives offer dramatically different images of entrepreneurial groups. Scholars in the business field tend to focus on group performance in high-growth and high-capitalization enterprises. This sampling approach may appeal to an audience of practitioners and business school students, but limits the external and internal validity of empirical conclusions. The business management approach is also often premised on the assumption that entrepreneurial groups are (or can be) well-functioning entities that, when properly designed, will contribute to the success of new business ventures. Social scientists place

greater emphasis on features of group processes—such as team and network formation or ownership and control allocation—apart from entrepreneurial success. Social scientific analyses of entrepreneurial groups deploy methods that promote the internal and external validity of their conclusions. However, this research also often suffers from polarization along disciplinary lines. Because studies focus largely on *either* economic *or* psychological *or* sociological variables, they encourage more narrow explanations of entrepreneurial group dynamics than management research, a lack of interdisciplinary dialogue, and a possibility of omitted variable bias.

Relational demography is an approach to studying entrepreneurial groups that combines selective features from sociology, economics, and business management. Its principal interest lies in the social relations and identities that comprise these groups, including both formalized or overt characteristics (contracts, role relations, visible sociodemographic traits) and informal or covert aspects of groups (interpersonal networks, self-perceptions, and goals of members). Although relational demography addresses a variety of outcomes in entrepreneurial groups, it is not intended to be all-encompassing. Instead, it focuses on four mechanisms that seem to explain much of the variation in group processes within organizational startups. These mechanisms include: (a) ecological constraint; (b) strong tie constraint; (c) homophilous affiliation; and (d) identity fulfillment. In succeeding chapters, I offer a theoretical and empirical assessment of these mechanisms in a variety of group processes. But first, to illustrate some of the insights that can be generated by relational demography, I consider how this perspective can be used to explain two well-established empirical generalizations in the field of entrepreneurship research.

CHAPTER THREE

Empirical Puzzles

The entrepreneurial group is a relatively novel unit of analysis. Studies of emergent organizations have traditionally relied either on samples of individuals who are trying to start new organizations or samples of startup ventures themselves.[1] The previous chapters have suggested two arguments about the analytical advantages of an emphasis on entrepreneurial groups. First, because the majority of individuals do not engage in entrepreneurship as a solitary activity (or do not intend to do so in the long run), analysts seeking accurate descriptive inferences should attend to the multiple participants that are involved in the startup process (chapter 1). Second, given the diversity in disciplinary perspectives on group-level activity, this unit of analysis encourages empirical examination of interpersonal dynamics that must otherwise be taken as assumptions (chapter 2). While both of these arguments provide impetus to the study of entrepreneurial groups, a more fundamental reason to focus on this unit is explanatory. In particular, I will argue that a focus on entrepreneurial groups helps to shed new light on long-standing causal puzzles in organizational studies, even when those puzzles appear—on the surface—to be couched exclusively at the level of individuals or organizations as a whole.

The first empirical puzzle presented in this chapter is typically seen as a property of organizations or organizational populations: why is the size distribution of business firms highly skewed? Is it a result of organizational growth processes, of variation in capital constraints, or of competition between business enterprises? The second puzzle is usually viewed as an individual phenomenon: why do rates of entrepreneurial activity tend to peak around the middle of the life course? Is this a consequence of age-dependent variation in knowledge, resources, social capital, or risk tolerance? While this chapter does not offer definitive solutions to these puzzles, it suggests how an emphasis on entrepreneurial groups can offer new insights that appear more plausible than existing explanations.

Puzzle #1: The Size Distribution of Business Firms

A basic descriptive feature of startup enterprises is their characteristic size distribution, which resembles the positively skewed size distributions found among business firms (and other organizations) more generally

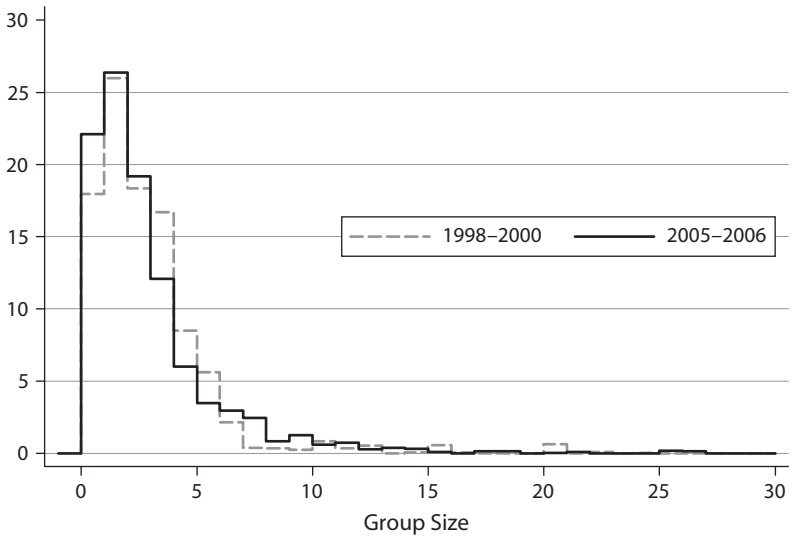

Figure 3.1. Percentage of Business Startups in the United States by Size. *Sources*: PSED I for 1998–2000 data (N = 830) and PSED II for 2005–2006 data (N = 1,179). All data are inverse weighted by group size for sample representativeness (see appendix B). For firms with more than 30 managers and employees, figure excludes four outliers for PSED I and three for PSED II.

(Aldrich and Ruef 2006: chapter 1). Figure 3.1 shows this pattern for a representative U.S. sample of nascent startups in 1998–2000 and 2005–2006. Group size is calculated as the number of individuals who either share ownership in a business or are identified by an owner as making regular and/or critical contributions to it. In both periods, the percentage of ventures in each size category is remarkably similar. Some business startups (18–22%) are efforts undertaken by true "solo" entrepreneurs, without the benefit of assistance from co-founders, investors, employees, or other helpers. The size distribution peaks with two members in the entrepreneurial group (a dyad), comprising around 26 percent of all nascent startups in both years. Thereafter, the percentage of startups in each successive size category declines steadily, to slightly under 20 percent for groups with three members, 12–17 percent for groups with four members, and so forth. Cumulatively, the number of business ventures involving more than twenty partners at an early stage of development is less than 1 percent in both years.

From the perspective of organizational theory, what is surprising about this empirical generalization is that it is so pronounced at the *earliest* stages of business development. Considering the large number of small organizations and small number of large enterprises in a variety of

for-profit industries, as well as the voluntary sector, many scholars have argued that the skewed distribution tends to be an evolutionary consequence of growth or competition processes (see Sutton 1997, for a review). In one early and influential account, Herbert Simon and Charles Bonini (1958) argued that business growth is proportionate to existing scale, a mechanism that—in conjunction with a simple stochastic model of growth—invariably leads to a skewed size distribution. Notably, this result holds in their model even though they assume that all new startups in an industry are initiated *at the same minimally efficient scale*.[2] Organizational sociologists have offered similar evolutionary arguments, but tend not to assume that businesses and other organizations grow independently of one another. Instead, they posit common competitive mechanisms that may contribute to skewed size distributions over time or, under some competitive conditions, departures from them (e.g., Hannan and Ranger-Moore 1990).[3]

Financial Constraints as an Explanation

Until recently, the skewed distribution of startup organizations has seen limited attention in industrial economics and organizational sociology. In a 2003 article in the *American Economic Review*, Luís Cabral and José Mata identified an important empirical tendency accompanying the movement of business firms across cohorts. Using a comprehensive survey of Portuguese manufacturing firms, they found that the positive skew of businesses was *greatest* at the time of founding and became more symmetrical over time (see, in particular, Cabral and Mata 2003: figure 3). The same empirical pattern has since been identified in other countries, such as Ireland, with some qualifications concerning the structure of ownership for the firms being sampled (Barrios et al. 2005).

The trend toward reduced skewness appears to run counter to the predictions of the Simon-Bonini model of stochastic growth, which predicted increasing inequality in scale as firms became older. Given the evolutionary emphasis of existing explanations of size inequality, Cabral and Mata's finding leaves economists and sociologists at something of a loss in explaining one of the most stable features of the organizational landscape, a finding dating back as far as the French economist Robert Gibrat's (1931) treatise on *Inégalités Économiques*. If the skewed size distribution of firms could not be attributed to an evolutionary process—whether driven by virtue of cumulative luck, returns-to-scale or status, competitive positioning, or managerial skill—what accounts for the most pronounced form of this pattern at the earliest stages of organizational development?

Cabral and Mata hypothesize that the initial size distribution of startups reflects the financial constraints of entrepreneurs, whereas such wealth

constraints tend to be absent (or at least less restrictive) for mature businesses. As a consequence, the extreme skew in the size of business startups should parallel the extreme skew in the wealth distribution, subject to the caveat that some startup firms "are small because they want to be small on efficiency grounds" (2003: 1080). The evidence offered for the link between wealth and startup size, however, is quite indirect. Since Cabral and Mata lack data on entrepreneurs' wealth, they can only proxy it using measures of age and education. By their own account, education level is a better proxy of human rather than financial capital. And, as discussed below, the age of entrepreneurs may correlate with a variety of changes across the life course, including ones that bear on technical skills, managerial skills, risk-taking, social networks, *and* financial capital.

Employing a direct indicator of entrepreneurial wealth, we can see that there is relatively modest evidence for the "wealth constraint" theory of startup firm sizes (see table 3.1, Models 1 and 2). In these models, net worth is measured at the point of startup inception, before a business has achieved at least three months of positive cash flow.[4] Although an entrepreneur's net worth has a positive and statistically significant effect on the number of co-owners, startup employees, and other participants they are able to recruit, the magnitude of this effect is very small. An entrepreneur with a net worth of $1 million, for instance, is predicted to have a group of partners that is merely 1.3 percent larger than an entrepreneur with a net worth of zero.[5] Consistent with a broader body of work questioning the role of liquidity constraints in entrepreneurial entry (in particular, see Kim et al. 2006), there is little evidence that the financial endowments of entrepreneurs allow them to develop startup organizations with a more expansive social scope.

Controlling for wealth, there is a large amount of variation in the number of partners with the age of entrepreneurs. Young entrepreneurs bring in far more partners than middle-aged ones—leading to startup assistance networks that are estimated to be 21 percent larger for founders aged thirty or younger. Those entrepreneurs who are age sixty-five and older also tend to bring in more partners, though the small number of observations in this age bracket prevents this estimate from reaching statistical significance. In contrast to the results reported by Cabral and Mata (2003: table 2), there is no evidence of a secular increase in startup size with founder age.[6]

Social Networks as an Explanation

A considerable amount of the variance in the size of startup assistance networks may thus be attributed to different inclinations (and, possibly, need) for sociability across the life course, rather than the wealth constraints of

Table 3.1.
Effect of Financial Endowments among Entrepreneurs on their Number of Business Partners and Employees

Variable[a]	*Model 1*	*Model 2*	*Model 3*
Net worth ($millions)	0.014*	0.013*	0.012
	(0.007)	(0.007)	(0.006)
Age (logged)	−0.253**		
	(0.076)		
Young (< = 30 years)		0.212***	0.188***
		(0.055)	(0.055)
Old (> = 65 years)		0.034	0.052
		(0.164)	(0.163)
Years of education	0.013	0.012	0.014
	(0.012)	(0.011)	(0.011)
Household size (adults)			0.071**
			(0.027)
Worked for entrepreneur parents (1 = Yes)			0.148**
			(0.056)
Log Likelihood	−2580.56	−2579.18	−2574.74

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of entrepreneurs is 1,127 following listwise deletion and the removal of one case where the specific number of other startup participants and employees could not be determined.

[a] Analysis includes controls for industry. Estimates are based on a generalized linear model with a gamma distribution. Significance levels are: * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

entrepreneurs. More generally, social network theory offers a number of mechanisms that can account for the skewed size distribution, based on the premise that the recruitment of startup participants tends to be network-based, rather than proceeding through an impersonal market. Consider the possibility that social popularity is an unevenly distributed attribute across nascent entrepreneurs. A few entrepreneurs are readily able to recruit co-founders, employees, and other helpers among family and friends, while most are either repeatedly rebuffed by their contacts or lack the opportunity structure to access those contacts in the first place. Viewed statically, then, the distribution of startup firm size may simply reflect the skewed distribution of network ties, a well-established empirical regularity in studies of social structure (Watts 2004).

Viewed dynamically, this mechanism need not assume that social popularity is a stable characteristic owing to an entrepreneur's personality or ideas. Even if an initial attachment by an entrepreneur is formed on a

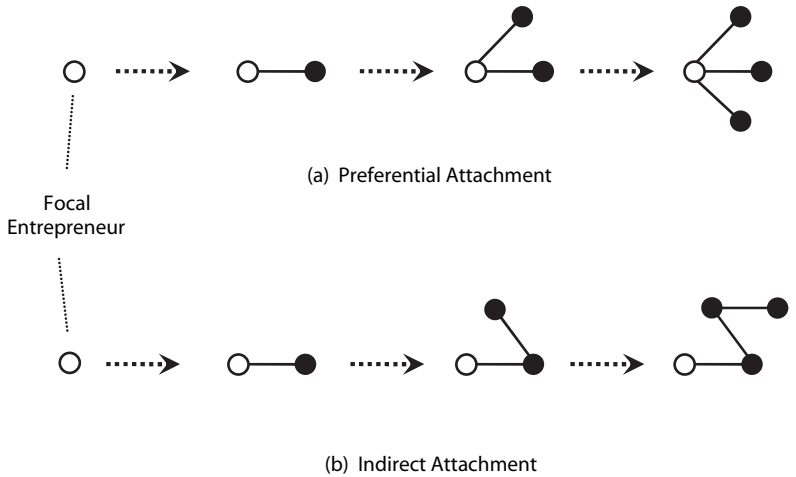

Figure 3.2. Two Hypothetical Network Sequences in Group Formation

random basis, family members, friends, and colleagues may be increasingly inclined to "jump on the bandwagon" when they see that another member of their social circle has already become a startup participant (figure 3.2a). As a probabilistic process, this mechanism of *preferential attachment* leads to a handful of entrepreneurs that are highly linked and a majority that have few, if any, business partners (Barabasi and Albert 1999). Evidence for the principle of preferential attachment among entrepreneurs includes fields where status and reputation strongly influence tie formation, such as venture capital (Kogut et al. 2007), and fields that are subject to bandwagon effects, such as "the race by dot.com firms to capture 'eyeballs'" on the Internet (Aldrich and Kim 2007b: 156).

The mechanism of preferential attachment attributes inequality in popularity directly to a set of focal entrepreneurs. A second network mechanism, which I will term *indirect attachment*, holds that a highly skewed distribution of entrepreneurial group sizes may result even when there are *no* differences in the popularity of entrepreneurs, either on a dynamic or static basis. Assume, for example, that whether an entrepreneur recruits another business partner is essentially a random process. Now, assume further that whether that business partner also recruits another member to join the startup effort is a random process. Because recruitment at each stage increases the likelihood of further recruitment, the outcome of indirect network attachment is essentially identical to that of preferential attachment with respect to entrepreneurial group size (figure 3.2b). But the internal structure of each group, and resulting social status of the focal entrepreneur, is fundamentally different.

The contrast between preferential and indirect network attachment illustrates the difficulty of inferring processes of group formation purely from cross-sectional data. Without a dynamic analysis of network sequences, it is impossible to identify which particular processes may be contributing to the skewed size distribution of startups. Table 3.2 offers a preliminary investigation along these lines, addressing sequences of group formation among owner-managers in U.S. business startups in 2005–2006. The table enumerates the network configuration among founders at distinct "stages" of recruitment, where a stage is defined to be a period of time when any new founder joins the startup and which falls in a different month than any previous stage.[7] The network configurations include solo entrepreneurs ("isolates"), pairs of business partners related by preexisting network ties ("dyads"), groups of three partners who are all related by preexisting ties ("transitive triads"), and so forth (see Wasserman and Faust 1994 for an overview of network terminology).

As suggested by the sequences shown in the table, neither the theories of preferential or indirect attachment fare well in accounting for the process of entrepreneurial group formation, for a number of reasons. First, a large proportion of cases involving multiple owner-managers do not involve a sequence of group formation at all. Instead, in roughly 42 percent of these cases, a set of founders come together concurrently (within the same month) to begin working on a business startup and, consequently, skew in the size distribution of these teams cannot be attributed to a dynamic process. Moreover, in the remaining cases, skew often results by the second stage of founder recruitment, which leads to fundamental ambiguity about the salience of preferential versus indirect attachment (see figure 3.2).

Another reason that network theories of preferential and indirect attachment appear inadequate is the high level of closure achieved at all stages of founder recruitment. These dynamic theories generally presume that attachment processes play out over a long period of time because all partners do not know each other well initially. In the case of preferential attachment, a potential partner uses the popularity of an entrepreneur as a signal about that individual's creativity or business skills, in lieu of substantive information about their entrepreneurial abilities. In the case of indirect attachment, an entrepreneur relies on partners to operate in a brokerage role, identifying other potential partners whom the entrepreneur does not already know. But in 272 out of the 277 (98%) cases of entrepreneurial group formation over two stages, all partners are already connected to one another through preexisting network ties. This is indicated in table 3.2 by the preponderance of network configurations that involve dyads, transitive triads, or larger networks that are *fully connected*. For groups that form over three stages of recruitment, twenty-five out of the twenty-seven (93%) cases evidence complete network closure

Table 3.2.
Network Sequences in Entrepreneurial Group Formation[a]

Stage 1	*Stage 2*	*Stage 3*	*Number of Cases*	*Percent*
(Various)	(Not Applicable)		217	41.65
Isolate	→ Dyad		210	40.31
Isolate	→ Triad (transitive)		26	4.99
Isolate	→ Triad (non-transitive)		1	0.19
Isolate	→ Fully connected tetrad		14	2.69
Isolate	→ Fully connected pentad		1	0.19
Dyad	→ Triad (transitive)		11	2.11
Dyad	→ Triad (non-transitive)		3	0.58
Dyad	→ Fully connected tetrad		3	0.58
Triad (transitive)	→ Fully connected tetrad		5	0.96
Triad (transitive)	→ Incomplete pentad[b]		1	0.19
Fully connected tetrad	→ Fully connected pentad		2	0.38
Isolate	→ Dyad	→ Triad (transitive)	12	2.30
Isolate	→ Dyad	→ Triad (non-transitive)	1	0.19
Isolate	→ Dyad	→ Fully connected tetrad	4	0.77
Isolate	→ Triad (transitive)	→ Fully connected tetrad	3	0.58
Isolate	→ Triad (transitive)	→ Fully connected pentad	1	0.19
Isolate	→ Triad (transitive)	→ Incomplete tetrad[b]	1	0.19
Dyad	→ Triad (transitive)	→ Fully connected tetrad	5	0.96
			521	100

Source: PSED II, Wave A. Networks include both strong ties (spouses and kin) and weak ties (co-workers, friends, acquaintances).

[a]Excludes twelve sequences involving four stages of group formation and a single sequence involving five stages.

[b]The incomplete pentad and tetrad had the following configurations: 12 13 14 15 23 45 and 12 13 14 34.

during the entire process. And among the handful of cases where group formation proceeds over four or five stages (N = 13), none evidence any departure from network closure. The observed network configurations thus allow little room for the "signaling" or "brokerage" anticipated by strategic perspectives on social networks.

Relational Demography as an Explanation

A solution to the empirical puzzle of skewed size distributions among startup firms can be found in relational demography. Since most of these business partners already know each other well, it stands to reason that two major influences on the size of new startups are (a) the size of each entrepreneur's household (which allows them to bring in proximate and, often, closely related adults to participate in the venture); and (b) their previous experiences in working with entrepreneurial family members. Consistent with the network sequences shown in table 3.2, both factors create an opportunity structure in which entrepreneurs can rapidly deploy existing ties of kinship and marriage to recruit startup participants. And, consistent with the positive skew in the distribution of business startups, these factors display either a highly skewed distribution themselves (adult household size) or an uncommon positive outcome (experience working with entrepreneurial family members).

The final model in table 3.1 provides quantitative estimates as to how these factors impact the size of business startups. The number of startup participants increases significantly with the household size of the entrepreneur (by 7% per adult in the household) and when the entrepreneur has previously worked for parents who were themselves self-employed or small business owners (by a factor of 15%). In addition, the inclusion of these factors renders the estimate for financial wealth statistically insignificant.[8] Rather than being constrained by their material assets in creating larger business startups, many entrepreneurs appear to be constrained or enabled by the strong network ties in their social milieu. In some cases, entrepreneurs will rely on these ties directly as a means to recruit startup participants. In other cases, individuals who come from larger households or families with entrepreneurial parents will have more contacts among potential business partners. Finally, some individuals with a family heritage of entrepreneurship will simply have a better sense of the social scale required to get a startup organized than those without that heritage. Whatever the mechanism, the scope of existing social networks among entrepreneurs appears to have a pronounced effect on the initial scale of their startup enterprises.

Puzzle #2: The Pattern of Age-Dependence in Entrepreneurial Entry

Another robust finding in the literature on entrepreneurship is that the relationship between age and entrepreneurial entry tends to be curvilinear, with respondents around the middle of the age range being more likely to engage in startup activities than younger or older respondents.

In early research on a representative sample of U.S. entrepreneurs, Paul Reynolds (1997) suggested that age is the dominant factor affecting an individual's decision to start a business, where the impact of age corresponds to an inverse-U shape, rather than a linear effect.[9] Subsequent investigations of self-employment have noted a similar pattern cross-nationally, particularly in advanced industrial countries such as Germany, France, Holland, the United Kingdom, Italy, and Australia, as well as in transitional economies such as post-Soviet Russia (Arum and Müller 2004).[10] Within the United States, this age-dependence in entrepreneurial entry also seems to apply to specific sub-populations, such as black entrepreneurs in metropolitan areas (Boyd 1991) as well as Asian and Hispanic immigrants (Sanders and Nee 1996).

Using 2005–2006 data on the United States, figure 3.3 displays the characteristic pattern of age dependence for individual rates of entry into entrepreneurial activity.[11] The percentage of individuals involved in nascent entrepreneurship rises steadily from less than 6 percent during the late teen years to over 10 percent around age fifty, declining rapidly again thereafter to 7 percent at age sixty and less than 3 percent at age seventy. Notably, these statistics are based on household surveys and thus exclude the institutionalized population—for example, individuals in prison, the military, nursing homes—which might otherwise lead to artificially low estimates of entrepreneurial activity at young and old ages.

Human Capital as an Explanation

What mechanisms explain this pattern? In economics, variation in human capital across the life course has been posited as a principal driver of entrepreneurial entry. Calvo and Wellisz (1980) argue that individuals learn managerial skills as a function of age. Assuming that individuals must acquire business acumen in order to become entrepreneurs, this suggests that older labor force participants have a higher probability of entrepreneurial entry than younger participants *in a static technical environment*. As the rate of technical progress increases, however, the advantages of business experience begin to wane. Younger labor force participants enjoy greater familiarity with new technologies and routines, more flexibility, and, perhaps, more energy than their elders, who have grown accustomed to dated ways of doing things.

A simplified version of this argument holds that the ability of potential entrepreneurs can be characterized by two (typically, unmeasured) variables—*technical competence* (t) and *managerial competence* (m).[12] Assume further that, in a dynamic technical environment, t tends to decrease as a function of age and m tends to increase with age. In order to become an entrepreneur, an individual must muster minimally adequate levels of

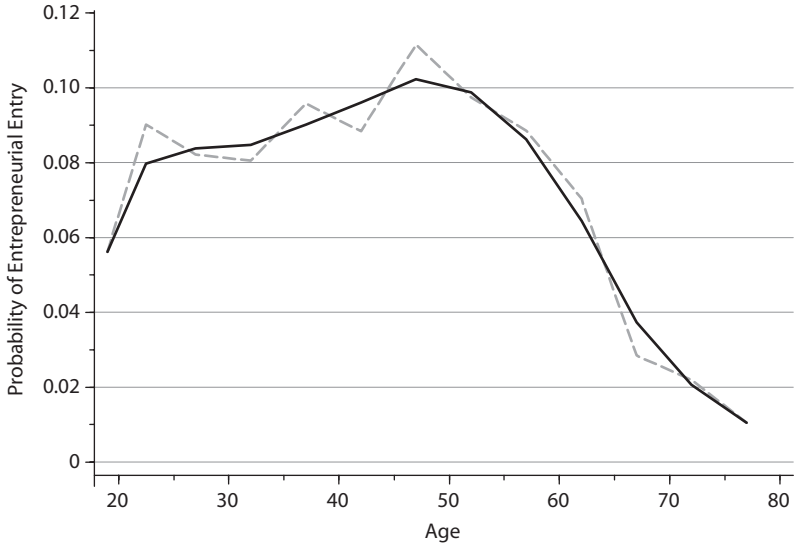

Figure 3.3. Probability of Becoming a Nascent Entrepreneur by Age, 2005–2006 (N = 31,845). *Source*: Panel Study of Entrepreneurial Dynamics (PSED) II, Screener Data. Gray (dashed) line corresponds to raw data; black line represents smoothed data using Hanning algorithm.

both t and *m*. Given these assumptions, young labor force participants (high *t*, low *m*) often lack the managerial competence to go into business for themselves and older labor force participants (low *t*, high *m*) often lack the technical competence. Entrepreneurial entry is therefore most common for individuals in the middle of the life cycle (moderate *t* and *m*), leading to the curvilinear pattern of age dependence (see figure 3.4).

The human capital argument can be subjected to a number of critiques. For present purposes, the most salient is the individualist nature of the argument, which ignores the possibility that entrepreneurs of various ages can combine their abilities. Calvo and Wellisz, for instance, are explicit on this point, emphasizing that they employ "the assumption that every firm has only one entrepreneur" (1980: 664). But if human "capital" is to be taken seriously as such, then some market for entrepreneurial talent presumably exists wherein this capital can be invested or traded (Baron and Hannan 1994: 1124). In an efficient market for entrepreneurial talent, older labor force participants with ample managerial experience would partner with younger participants who are versed in the latest technologies and products. By compensating for weaknesses in human capital at the edges of the age distribution, these entrepreneurial partnerships would eliminate much reason to attribute the curvilinear pattern to life course changes in human capital. Instead, the pattern would need to

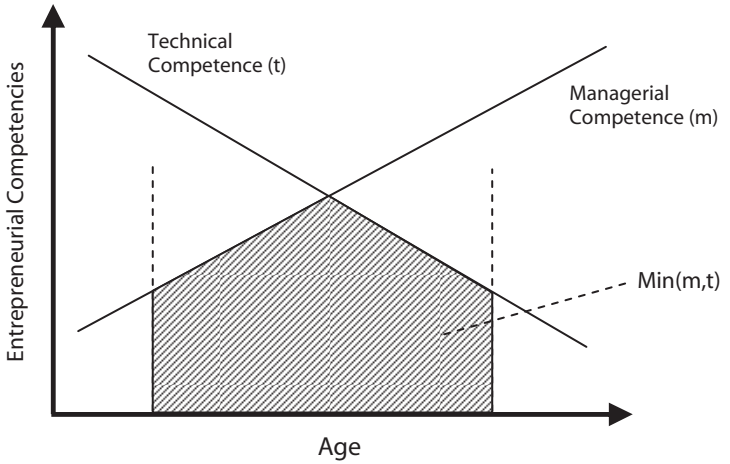

Figure 3.4. Hypothetical Explanation of Age-Dependent Entrepreneurship in Terms of Underlying Human Capital

be attributed to other causes, such as age-varying capital accumulation or risk tolerance, which suffer from more tenuous empirical connections to entrepreneurial entry (see Kim et al. 2006; Xu and Ruef 2004).

Relational Demography as an Explanation

Relational demography offers a solution to the empirical puzzle that maintains a primary focus on human capital. In lieu of an efficient market for entrepreneurial talent, it substitutes the mechanism of *homophilous affiliation*. Specifically, entrepreneurs who are looking for partners in their business ventures are likely to display a preferential bias toward other entrepreneurs of a similar age, even though *this may contribute to redundancy in human capital*. Young entrepreneurs will pair with other young partners who have abundant technical competency and energy, but lack managerial or work experience. Conversely, older entrepreneurs will work with partners in their age range, even when a younger associate would bring valuable technical capabilities to the effort. In the absence of other social relationships, such as kinship ties, that serve to bridge distinct age cohorts, startup assistance networks should therefore be remarkably homogeneous on age. Given this in-group bias, many individuals in the tails of the age distribution may feel that they lack the adequate experience to engage in entrepreneurial activity, despite the possibility of group formation, and will opt instead for conventional wage and salary employment.[13]

Again considering data from the 2005–2006 *Panel Study of Entrepreneurial Dynamics*, statistics on the age of business partners provide

descriptive support for the mechanism of homophilous affiliation (figure 3.5). The youngest entrepreneurs surveyed in this national study are in their late teens and attract co-owners and other business partners who generally range in age from early twenties to early thirties. By contrast, individuals who initiate business startups in their forties usually attract partners between the age of forty and fifty. And the oldest cohort of entrepreneurs, those who are seventy years of age or older, tend to rely on business partners who are themselves older than fifty. Age homophily thus affects entrepreneurial affiliation across the life course, albeit with some evidence of demographic constraints on the availability of age-similar partners at the tails of the distribution.

The application of relational demography to the human capital argument has another implication as well. If entrepreneurs attribute additive properties to human capital, then the entrepreneurial groups that do form in the tails of the age distribution will tend to be larger than those that form at the center of the distribution. To compensate for a lack of work or management experience, young entrepreneurs will try to pool the experiences of a bigger group. Similarly, to compensate for a lack of technical capability or energy, older entrepreneurs will pool the efforts of more of their peers. As shown in figure 3.6, these predictions are borne out in a representative sample of U.S. entrepreneurs. Around the age of twenty, entrepreneurs rely on nearly four business partners on average, including co-founders, key non-owners, and other helpers. By the age of twenty-five, this number drops to a mean of three business partners and, further, to less than two-and-a-half by the early thirties. Entrepreneurial group size remains relatively stable until entrepreneurs are in their sixties, before rising again, reaching a mean of around three-and-a-half business partners by age seventy-five. As discussed previously, multivariate results also suggest that startup firms tend to be disproportionately large at either tail of the age distribution (table 3.1).

The systemic pattern of group size across the life course inspires a second possible account of age-dependent variation in entrepreneurial entry. If individuals are sensitive to the "organizing cost" of entrepreneurship, then the addition of each partner will impose a practical, financial, and, possibly, psychological barrier to starting a new organization. Given their accumulated work experiences, individuals in the middle of the life course may feel that they are able to initiate a new business with only a single partner, a relatively low threshold for collective action. But inexperienced labor force participants may believe that three or four partners (with similar levels of inexperience) are required for the same task, placing a much higher organizing cost on the activity. For young entrepreneurs, this cost may rise further since they rely disproportionately on non-kin business partners (see figure 3.6), who must be recruited and screened without the benefit of intimate familiarity. As the perceived organizing

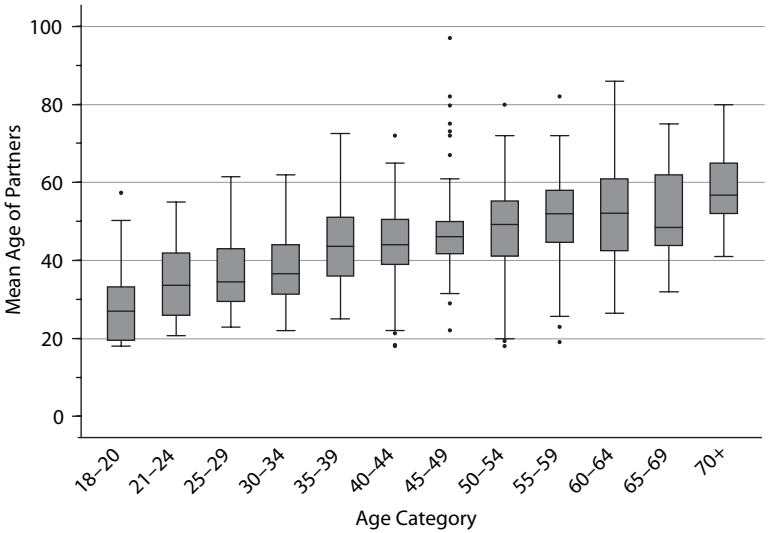

Figure 3.5. Mean Age of Business Partners by Age of Nascent Entrepreneur, 2005–2006 (N = 927). *Source*: Panel Study of Entrepreneurial Dynamics (PSED) II, Wave A Data. Analysis is limited to entrepreneurs with at least one business partner. Boxes represent range of mean partner ages from first through third quartile within each focal entrepreneur's age category.

cost of entrepreneurship rises in the tails of the age distribution, rates of entrepreneurial entry decline.

This explanation of age-dependent variation in rates of entrepreneurship is, of course, intended to be speculative. Many readers will rightly question its calculative assumptions (do entrepreneurs really compute "organizing costs"?) and single-minded emphasis on human capital (rather than other dimensions of the entrepreneurial experience, such as sociability and personal fulfillment). Others will wonder whether intended consequences play a role in the selection of entrepreneurial partners at all, rather than the mere happenstance of having other individuals in the social milieu of a focal individual who is attempting to start a new venture. I will address these alternative mechanisms empirically in the coming chapters.

Conclusion

An emphasis on entrepreneurial groups (and relational demography) can breathe new life into perspectives that hold assumptions that are diametrically opposed to its own. The human capital explanation of entrepreneurial entry begins with an image of entrepreneurs that is both individualist

Figure 3.6. Mean Number of Partners by Age of Nascent Entrepreneur, 2005–2006 (*N*=1,178). *Source*: Panel Study of Entrepreneurial Dynamics (PSED) II, Wave A Data. Gray lines correspond to raw data; black lines represent smoothed data using Hanning algorithm. "Partners" include co-owners, key non-owners, and other helpers.

and rational, positing that entry is a function of the technical and managerial competence of isolated entrepreneurs. This account quickly becomes contradictory, since it limits the investment of human capital to ventures operated by the focal individual alone. If there is a market for human capital, differential rates of entry across the life course should rapidly disappear. By introducing the mechanism of homophilous affiliation, relational demography offers one solution to this empirical puzzle, explaining the persistence of age dependence in entrepreneurship due to in-group bias in the selection of business partners.

At the level of the business firm, another empirical puzzle is the skewed size distribution of startup ventures, which is evident even at the earliest stage of business development. An economic explanation of this phenomenon couches it in terms of the financial constraints of entrepreneurs; a social network explanation considers how it may be produced by strategic tie formation, whether on the basis of signaling or brokerage. Both accounts are empirically inadequate because they ignore a basic fact about business startups—most new ventures are developed initially on the basis of existing social groups, not on the hiring of employees or the search for promising, yet unfamiliar, business partners. Using the con-

cepts of strong tie constraint and homophilous affiliation, relational demography again offers an alternative explanation, envisioning the positive skew in startup sizes as a function of differences in household size, previous familial experiences with entrepreneurship, and age-dependent sociability.

A distinguishing feature of these empirical puzzles has been that they do not appear, on the surface, to originate in group-level processes. Of course, group formation, exchange patterns, collective action, and group evolution may be seen as suitable objects of study on their own. In the next section of the book, I turn to the first of these processes among entrepreneurial groups and offer some descriptive facts regarding their impact on the emergence of business startups in the United States.

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PART TWO

Creating the Entrepreneurial Group

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CHAPTER FOUR

Group Formation

When Luis began considering a wholesale business for women's and children's clothing in Los Angeles, he wondered whether Diego and Bill would join him as partners in the venture. All three had been friends for over a decade and, while they had never worked together, each had a few years of experience in the clothing industry. At twenty-six, Luis Hernandez was the youngest, but he had already "settled down" and was married to Sophia, a twenty-five-year-old whom he had known since he was a teenager. He planned to run the new business on a day-to-day basis and manage the books. At thirty-six, Diego Ramon was also married and would serve as a salesperson for the venture. Bill Shipley, thirty-one, the only non-Latino involved in the enterprise, was also the sole bachelor. He had the most experience in the clothing industry (six years) and would deal with the operational requirements of purchasing clothing from manufacturers.

Although Luis had first started thinking about a potential business two years before, startup activities did not begin until 2003. Bill signed on in January of that year and an effort was made to assess the other firms competing in the field. As a business strategy, the partners decided to pursue a no-frills, low-price approach. Physical inventory would be maintained in Luis and Sophia's home. There would be no storefront: aside from the customers they knew personally, others would be able to contact them by phone or Internet. All partners would keep their day jobs, eliminating the need to pay out wages from the nascent enterprise. The business would also not hire any employees initially. For financial support, they could rely on Luis's father, Miguel, who offered a small loan of $3,000 to get the wholesale business off the ground.

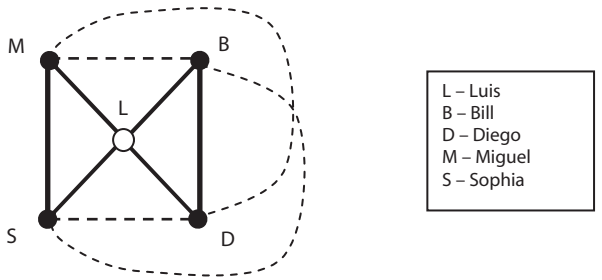
When Diego came on board in February 2004, the partners were ready to begin in earnest. They began to buy clothing that winter and stockpiled it. Each partner invested the money needed to cover these purchases and, in return, expected to receive a one-third share of the profit in the venture. By March 2005, the partners had established a phone line and Internet site for customer contacts. While Luis, Diego, and Bill could only afford to devote a few hours each week to the fledgling enterprise, the creation of their entrepreneurial group seemed complete.[1]

• • •

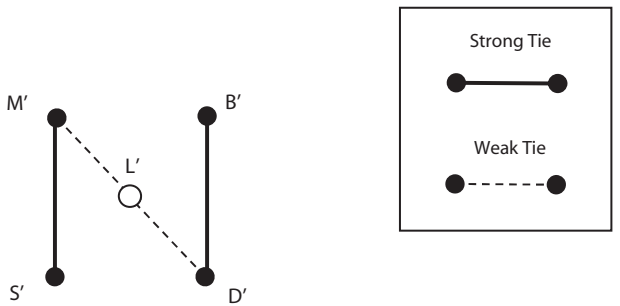
The process of entrepreneurial group formation undertaken by Luis Hernandez will seem familiar to many observers. Drawing on a social network of trusted friends and kin, he pulled together contributors with similar backgrounds, levels of human capital, and sociodemographic characteristics. There are five members of the entrepreneurial group, broadly construed, including three owner-managers (Luis, Diego, Bill) and two contributing non-owners (Miguel, in the role of investor, and Sophia, in the role of supportive spouse, who must yield space in her home and time in order to maintain the enterprise's inventory of clothing). Four out of the five members fall in the relatively narrow age range between twenty-five and thirty-six, and four out of five are Hispanic. All three members of the ownership team are male, have some background in the clothing industry, have a high school (but no college) diploma, and expect to pursue the venture on a part-time basis only.

Despite their ubiquity, the efficacy of such processes of group formation has been questioned by prominent scholars in both business management and the social sciences. One perspective in management, the *resource-based view* of the firm, holds that sustainable advantage in businesses is created by capabilities that are valuable, rare, difficult to imitate, and non-substitutable (Barney 1991; Barney et al. 2001). Among other things, this requires that the resources that entrepreneurs or managers bring to a business venture be distinctive and difficult to transfer. In entrepreneurial startups, these conditions tend to be met when the profile of human capital among owner-managers is diverse and when it is developed further into firm-specific capabilities. Both conditions appear to be absent in the wholesaling startup envisioned by Luis Hernandez. The three founders of the business have a substantial amount of overlap in their industry and personal experience. Their limited time commitment to the startup also leads to questions about the firm-specific nature of their competencies and whether any special knowledge gained in the venture would not simply be transferred to another employer (whether consciously or unconsciously) if the opportunity presented itself.

Social network analysts offer another critique of entrepreneurial groups formed along the lines of Luis Hernandez's startup. All of the interpersonal relationships that Luis deploys in initiating the wholesaling venture involve friends or kin that he has known for a decade or more. In his influential treatment of the "strength of weak ties," Granovetter (1973) cautioned that such networks carry the cost of information redundancy, since close contacts that an individual knows well (e.g., Bill and Diego) will also tend to know each other well. As a consequence, entrepreneurial reliance on these cohesive clusters often fails to produce novel ideas or information about business opportunities (Ruef 2002a). In a refinement of this argument, Burt (1992: chapter 1; 2004) emphasized that it is not



a. Reliance on Strong Ties by Focal Entrepreneur



b. Reliance on Weak Ties by Focal Entrepreneur (Counterfactual)

Figure 4.1. Tie Redundancy in Strong and Weak Entrepreneurial Networks

tie strength per se that serves as the causal agent in this network phenomenon, but the existence of *structural holes* between entrepreneurs. When an entrepreneur, such as Luis, relies on strong ties exclusively, it is rare that any of those ties will lead to nonredundant contacts beyond their immediate network (figure 4.1a). On the other hand, when entrepreneurs rely on weaker ties from their communities or past workplaces, at least some of those ties will tend to be nonredundant. Under these circumstances, a focal entrepreneur may draw on a network that is effectively as large as that constructed via strong ties, but with fewer direct contacts to maintain. They may also serve as a bridge between otherwise disconnected clusters (figure 4.1b), each of which serves as an incubator for distinctive entrepreneurial knowledge.

Assuming that the resource-based and structural hole arguments are correct, then the heuristics deployed by Luis Hernandez in the process of group formation will be ineffective. The structural opportunities presented by existing strong ties lead to "satisficing" recruitment decisions that do not contribute to the identification of new entrepreneurial knowledge or

skills. If demographic characteristics are correlated with distinct dimensions of human capital, then the development of an entrepreneurial group with a high degree of similarity in age, gender, and ethnicity may contribute to a lack of functional diversity (cf. Chowdhury 2005). If the activities of the entrepreneurial group must be structured around the spatial and temporal constraints of existing work commitments, then it is unclear whether their startup venture will develop a shared identity or body of firm-specific competencies.

Despite these ostensible shortcomings, this chapter suggests that the great majority of entrepreneurial groups have more in common with the team assembled by Luis Hernandez than the prescriptive ideal envisioned by strategic approaches to entrepreneurship. Moreover, there are good reasons—both structural and social psychological—why entrepreneurs tend to build entrepreneurial groups on this "non-strategic" basis. To develop this argument, I begin by describing the demographic and relational characteristics of entrepreneurial groups in the United States, focusing initially on those individuals that hold an ownership stake in these businesses and contribute actively to their startup activities. I then consider how mechanisms in relational demography can help to explain both the composition of these teams of owners and the exclusion of some entrepreneurs from them. The concluding section of the chapter adds information on the amount of time that owners have known one another and begins to develop an account as to why these mechanisms, which appear to have little basis in business strategy, play an important part in the formation of entrepreneurial groups.

Roles within the Entrepreneurial Group

In a somewhat simplified form, the members of an entrepreneurial group can be sorted into four roles that characterize their relationship to a startup organization, including owner-managers, investors, employees, and other helpers, consultants, or vendors. These roles, in turn, are differentiated based on two underlying dimensions: (a) the extent to which a participant will be a regular contributor to the startup venture; and (b) whether the participant has a substantial financial stake in the enterprise (whether through equity or other means) (see figure 4.2; Xu and Ruef 2007). Considering the wholesale clothing business initiated by Luis Hernandez and his colleagues, we would place Luis, Bill, and Diego in the lower right-hand corner of the table. They are the members of the entrepreneurial group who share the ultimate financial risk for the startup *and* contribute to it on the most regular basis. Luis's father, Miguel, would be placed in the lower left-hand corner. As a passive investor, he has a financial stake

Significant Financial Stake	Regular Contributor to Organization: No	Regular Contributor to Organization: Yes
No	Consultant, Vendor, or Helper	Employee / Manager
Yes	Investor	Owner-Manager

Figure 4.2. Typology of Members in the Entrepreneurial Group. *Source*: Adapted from Xu and Ruef 2007.

in the well-being of the business, but is not a regular contributor. Finally, Sophia could be placed in the upper left-hand corner. With a job and a child to look after, she only has time to make occasional contributions to the business and her financial stake in the venture is indirect, via Luis.[2]

The roles identified in the table should be seen as ideal-types that apply at a given point in time during the development of a business startup. They need not be static. For instance, an individual initially hired as a consultant may later become an employee or investor. In many startups, some of the roles identified in the typology may simply be absent. For instance, startups may be unable to secure investments from external parties; or they may avoid such financial involvement entirely, given the fickle commitment that institutional investors often display toward the nonpecuniary goals of new ventures (Ruef 2002b). Given this variation in the role structure of entrepreneurial groups, much of the focus in this book involves the distinction between owner-managers and all other members of the entrepreneurial group, considered as a whole.

Table 4.1 provides an empirical breakdown of these roles for a representative sample of U.S. startups at their earliest stage of development in 2005–2006. Of more than three thousand individuals with serious involvement in business startup activity, around half were the owner-managers of these ventures. This suggests that the bulk of involvement in entrepreneurial groups comes from individuals who have both an equity stake in them and a substantial investment of time. These individuals are typically defined as "founders" by even the most conservative standards. Another quarter of the individuals in entrepreneurial groups are helpers, consultants, or vendors with irregular involvement in the business startups. On an occasional basis, they may provide important advice, training, business

Table 4.1.
Distribution of Member Roles across Business Startups in the United States, 2005–2006

Role	*Definition*	*Percent of Members*[a]
Owner-Manager	Equity owner *with* substantial time investment in startup[b]	48.8
Employee / Manager	Employee *or* subcontractor *or* others involved in day-to-day operational decisions	13.8
Investor	Equity owner *or* financial contributor (excluding employees and owner-managers)	12.9
Consultant, Vendor, or Other Helper	Individuals identified as key contributors by an owner-manager but not meeting any of the definitions above	24.6
Sample Size		3,131[c]

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of business startups is 1,214. Member roster is limited to those individuals who make a distinctive or regular contribution to each business.

[a] Excludes 373 individuals who represent a business, financial institution, government agency, or other legal entity and therefore are not acting on their own behalf.

[b] Substantial time investment is defined as either full-time employment or the contribution of the equivalent of at least one work week (35+ hours) over any time duration.

[c] Excludes 140 cases with one or more missing variables required to identify role of member and 173 cases lacking data on whether member is acting independently or on behalf of an institution.

services, introductions, and the like, but they lack a substantial investment of either time or money in these ventures. The remaining membership of the entrepreneurial groups is divided fairly evenly between passive investors and individuals assuming the role of employees.

A glance at the table suggests two reasons why an investigation into entrepreneurial group structure should begin with owner-managers: they are the most numerically prevalent of all group members and are the only ones who make a combined investment in time and financial resources. With respect to the process of group formation, we might also hypothesize that the timing of owner involvement tends to precede that of other venture participants. Indeed, PSED II statistics suggest that the average owner joins a startup effort less than sixteen months after it is initiated, while other participants who are involved at the earliest stage of business development wait more than twenty-six months.[3] In terms of prevalence, precedence, and involvement, business startup owners thus occupy a central role within the entrepreneurial group.

Characteristics of Owners

The demographic characteristics and human capital of business startup owners are summarized in table 4.2, considering data from the first waves of both the PSED I (1998–2000) and PSED II (2005–2006).[4] The overwhelming majority of owners (97–98%) in both surveys are individuals working on their own behalf, as opposed to representatives of businesses, financial institutions, government agencies, or other legal entities. While much of the management literature has called attention to the active role of venture capital firms and other financial intermediaries in entrepreneurial activity, they are not numerically prevalent as owners in general samples of nascent enterprises. In 2005–2006, for instance, PSED II estimates suggest that existing businesses (or their representatives) account for 1.8 percent of all startup owners, banks account for 0.7 percent, and venture capital firms only include 0.3 percent of owners. Moreover, in almost 50 percent of those cases where an organization does serve as an owner, its representatives have no active decision-making or advisory role in the startup where it holds an equity stake.

The profiles of attributes for individual owners reflect some of the diversity of the American population. Relative to the population as a whole, women are underrepresented among startup business owners, and minorities (particularly African Americans) are overrepresented. Business owners are less likely to have been employed in management or professional occupations and are more likely to have a bachelor's or advanced degree than members of the general population. Marriage rates among owners of startup businesses are slightly less than those observed more generally among adults in the United States.[5]

As reflected in the statistical comparison of the PSED I and II samples, the characteristics of business owners have been remarkably stable across time. There is no indication that the demographic composition of startup owners has changed significantly (with respect to gender, age, or ethnicity), nor that there has been any general shift in human capital (considering industry and startup experience).[6] In both the context of the startup boom period of the late 1990s and the less euphoric environment eight years later, the "average" owner of a new business enterprise was a thirty-nine-year-old white male, with roughly 7–8 years of work experience in the same industry as their startup and a history of one previous startup effort.

There is some indication of a shift over time in the occupational background of owners. In the PSED I, owners of nascent enterprises were more likely to have a professional or technical background. Detailed occupational statistics reveal that some of this shift can be accounted for by the greater prevalence of computer scientists and kindred workers (e.g.,

Table 4.2.
Descriptive Statistics for Individual Owners: Panel Study of Entrepreneurial Dynamics, I (1998–2000) and II (2005–2006)

		PSED I		*PSED II*		*Significant*
Variable	*Response*	*Cases*	*Weighted % / mean*	*Cases*	*Weighted % / mean*	*Sample Difference?*
Type	Person	1,446	97.8	2,038	96.7	No
	Institution		2.2		3.3	
Gender	Male	1,419	63.0	1,981	62.6	No
	Female		37.0		37.4	
Age	(Years)	1,381	38.7	1,962	39.3	No
Ethnicity[a]	White	1,367	71.5	1,957	71.4	No
	Black		16.5		18.3	No
	Hispanic		8.1		6.4	No
	Asian		2.1		1.3	No
	Other		1.8		2.6	No
Industry tenure	(Years)	1,413	8.2	1,958	7.2	No
Other startups	(Count)	1,379	1.3	1,946	0.9	No
Occupation	Professional	1,351	27.7	1,965	20.3	$p < .01$
	Administrative		26.6		26.0	No
	Sales / service		19.0		21.0	No
	Production		19.0		20.2	No
	Other[c]		7.6		12.6	$p < .01$
Education[b]	No HS degree	815	2.6	1,962	5.4	$p < .01$
	HS degree		17.5		23.7	$p < .01$
	Some college[d]		41.3		34.7	$p < .01$
	BA / BS		23.9		23.0	No
	Postgraduate		14.7		13.2	No
Marital Status[b]	Married	813	55.6	1,971	53.3	No
	Never married		18.0		23.1	$p < .01$
	Cohabiting		11.6		11.0	No
	Other[e]		14.8		12.6	No

Source: Ruef, Bonikowski, and Aldrich 2009.

[a] Due to changes in operationalization, statistics for ethnicity may not be strictly comparable in the PSED I and II. "Other" category includes Native American, mixed ethnicity (non-Hispanic and non-White), and other (unspecified). "Hispanic" category refers to non-white Hispanics.

[b] Statistics for PSED I limited to respondent only.

[c] Includes students, homemakers, retirees, the self-employed, and the unemployed.

[d] Includes vocational and community college degrees.

[e] Includes separated, divorced, or widowed.

system analysts, programmers, etc.) among startup owners during the period of the dot-com boom. Specifically, around 4 percent of all owners had a professional background in a computing field in 1998–2000; by 2005–2006, that number had dropped to 1.8 percent.[7] Compensating for this decline, homemakers, students, and the unemployed were increasingly likely to become owners of business startups, representing 7.5 percent of all owners in the PSED I but 9.5 percent of the total in the PSED II. These trends suggest a declining technical barrier-to-entry for nascent startups, particularly among businesses that rely heavily on electronic commerce.

To some extent, a declining barrier-to-entry is also apparent in the educational credentials of business owners. In 1998–2000, around 80 percent of all startup owners had some education beyond the level of a high school diploma. By 2005–2006, this number had decreased to 71 percent of startup owners. Consistent with the shift in occupational demography, this trend may reflect the lower technical threshold that some individuals now face in becoming entrepreneurs, especially in the field of Internet-based selling.[8] Alternatively, it may also reflect the increasing labor market disadvantage of job seekers without a post-secondary education, a trend that can contribute to "survivalist" entrepreneurship in tight labor markets (Boyd 2000).

A final change between the 1998–2000 and 2005–2006 samples involves marital status. In the PSED II, startup owners were significantly less likely to ever have been married. While this does not have any immediate bearing on the composition of entrepreneurial groups, it does raise questions as to whether startup businesses have lowered their reliance on spousal or intimate ties and, more generally, whether business owners are more likely to pursue these ventures on their own.

These questions can be addressed more directly by examining the composition of teams of startup owners. Table 4.3 summarizes the size distribution of owner teams, based on two sampling units: one considering the distribution from the perspective of individual entrepreneurs and another considering the distribution based on sampling entrepreneurial groups as a whole (see appendix B for a discussion). Applying either sampling approach, the size distribution of these teams is highly skewed. Roughly half of all individual entrepreneurs operate alone, more than a third are involved in a dyadic partnership, 7 percent are involved in a startup business with three owners, and only a handful (approximately 3%) are involved in a startup with five or more business owners. At the level of the entrepreneurial group, this skew is slightly more pronounced. Two-thirds of startup businesses are owned by a single individual, around a quarter are owned by two, and around 6 percent have three or more owners. Comparing the statistics from the late 1990s and mid-2000s, what is

Table 4.3.
Size Distribution of Owners (%) Based on Different Sampling Approaches

	Sampling on Individuals			*Sampling on Groups*		
Size	*PSED I*	*PSED II*	*Significant Difference?*	*PSED I*	*PSED II*	*Significant Difference?*
One owner	47.1	51.2	No	67.0	68.7	No
Two owners	38.3	35.0	No	27.2	24.7	No
Three owners	7.0	7.1	No	3.3	3.6	No
Four owners	4.2	4.0	No	1.5	1.6	No
Five + owners	3.4	2.7	No	1.0	1.4	No
Cases	1,447	2,170[a]		830	1,214	

Sources: PSED I and II. Size distribution includes individuals who are not acting on their own behalf (representing a business, bank, or other legal entity).

[a]Excludes one startup business with an indefinite number of owners (more than thirty).

remarkable is how similar the distributions are *across time*, revealing no significant differences between the PSED I and PSED II surveys for any size category.

Table 4.4 restricts attention to the enterprises with more than a single owner, sampling exclusively on entrepreneurial groups. The majority of business startups involve mixed-gender teams, but a substantial portion (nearly 30%) are comprised solely of men. The tendency toward demographic homogeneity is more striking in the case of ethnicity, with over 86 percent of all teams in the PSED II sample falling exclusively into one of the five ethnic categories noted in table 4.2. Diversity within the owner teams is evident primarily in the case of occupational composition. The majority of multi-owner teams (about 70 percent in the PSED II) draw on more than one of the major occupational categories, thereby mixing professional, administrative, service, production, or other skills.

Relationships within the teams of startup owners are enumerated in a simple (dichotomous) fashion in the table. Intimate ties are an important bond within entrepreneurial groups. Over half of all multi-owner teams include at least one couple who are either married or co-habiting. About a sixth of the owner teams rely on other kinship ties, including both affinal and consanguineous relationships. Teams with former co-workers are about as common (14–17%), while those with friends or acquaintances who have not worked together are slightly more common (19–21%). Notably, there are *no* teams of owners that only involve collaborations among strangers (with no prior ties before initiating the startup effort) among the nascent businesses surveyed in 2005–2006.

TABLE 4.4.
Descriptive Statistics for Teams of Owners: Panel Study of Entrepreneurial Dynamics, I (1998–2000) and II (2005–2006)

		PSED I		*PSED II*		*Significant*
Variable	*Response*	*Cases*	*Weighted % / mean*	*Cases*	*Weighted % / mean*	*Sample Difference?*
Gender composition	Mixed gender	412	64.0	557	65.2	No
	All male		28.1		29.5	No
	All female		7.9		5.3	No
Age	(Std deviation)	385	5.1	553	4.8	No
Ethnic composition	Single ethnicity	381	85.1	534	86.6	No
	Multiple ethnicities		14.9		13.4	
Industry tenure	(Std deviation)	411	5.1	547	5.2	No
Other startups	(Std deviation)	395	0.8	542	0.7	No
Occupational composition	Single occupational class	376	28.5	551	29.7	No
	Multiple occupational classes		71.5		70.3	
Relational composition[a]	With spouses / live-in partners	412	57.9	586	51.0	$p < .05$
	With nonspouse family member		15.3		15.9	No
	With business associates		17.1		13.8	No
	With other friends / associates		20.8		20.0	No

Source: Adapted from Ruef, Bonikowski, and Aldrich 2009.

Note: Statistics exclude single-owner firms and owners who are representatives of institutions. Inverse weighting for group size has been applied to all calculations.

[a] Indicates whether relationship is present for *any* pair of owners. "Other friends / associates" includes romantic partners who do not share a household.

The trend over time in the owner teams can be summarized very succinctly—there is little evidence of significant change in the composition of teams formed in 1998–2000 and those formed in 2005–2006. With one exception, the demographic and relational composition of these teams is statistically equivalent for the measures noted in table 4.4. There is also a remarkable level of stability for within-team variation in human capital, as measured by industry tenure and prior startup experience. Despite dramatic changes in the economic context of the late 1990s and that of 2005–2006, these statistics hint that the underlying mechanisms of entrepreneurial group formation may be relatively similar across the two periods.[9]

There is one noteworthy exception to the rule. Corresponding to the increase in entrepreneurs who have never been married (table 4.2), there has been a moderate and statistically significant decline in "mom-and-pop" startups. In the late 1990s, nearly 58 percent of startups included at least one couple, while this segment declined to 51 percent of new businesses more recently. Although the business literature has offered a number of anecdotal explanations for this trend, often emphasizing the impact of large retail stores and chains on mom-and-pop enterprises, there is little systematic evidence on the topic (cf. Sobel and Dean 2008). Because previous scholarship has often equated mom-and-pop ventures with the small business sector as a whole, far more research is required into the specific demographic processes contributing to the decline of startups owned by spouses or cohabiting partners.

The limited amount of temporal variation in the composition of owner teams in the United States also raises the question as to how much heterogeneity we might expect to see across industries. Table 4.5 offers a preliminary exploration along these lines for the 2005–2006 PSED data. Business startups in the table have been classified into four broad industrial sectors, including (a) construction, manufacturing, and transportation; (b) wholesale, retail stores, and restaurants; (c) financial and business services; and (d) consumer and health services.[10] Several characteristics of owner teams—including group size, demographic homogeneity, and diversity in startup experience—display relatively little variation across industrial sectors. Industry heterogeneity is more apparent in the case of the network composition of owner groups, as well as in team diversity in occupational and industry experience. Along several of these dimensions, the outliers can be found in the financial and business services sector, where owner teams tend to involve fewer married or cohabiting couples, more entrepreneurs who are linked through past work experiences, and a greater degree of occupational homophily. These features of relational demography tend to reflect the greater amount of professionalized management among real estate agencies, insurance agencies, management consultants,

Table 4.5.
Descriptive Statistics for Teams of Owners by Industry (PSED II, 2005–2006)

Variable	*Response*	*Industrial Sector*				*Significant Sample Difference?*
		Construction, Manufacturing, and Transport	*Wholesale, Retail, and Restaurants*	*Finance, Real Estate, and Consulting*	*Consumer and Health Services*	
Group size	Number of owners	1.4	1.5	1.5	1.4	No
Gender composition	Single gender	62.2	65.1	55.4	67.4	No
	Mixed gender	37.8	34.9	44.6	32.6	
Age	(Std deviation)	5.5	4.8	4.6	4.7	No
Ethnic composition	Single ethnicity	85.6	83.6	85.6	87.5	No
	Multiple ethnicities	14.4	16.4	14.4	12.5	
Industry tenure	(Std deviation)	6.8	3.4	5.6	5.3	$p < .001$
Other startups	(Std deviation)	0.6	0.7	0.9	0.6	No
Occupational	Single occupation	36.9	19.3	42.5	30.0	$p < .01$
composition	Multiple occupations	63.1	80.7	57.5	70.0	
Relational	With spouses / live-in partners	51.3	52.9	28.5	55.3	$p < .001$
composition	With nonspouse family member	15.9	20.7	11.6	14.1	No
	With business associates	18.8	11.8	22.2	11.5	$p < .05$
	With other associates	23.4	23.0	20.5	17.3	No
SIC Divisions		C, D, E	F, G	H, I (group 87)	I (remainder)	
Sample Size		205	253	188	508	

Note: With the exception of group size, statistics exclude single-owner firms and owners who are representatives of institutions. Inverse weighting for group size has been applied to all calculations.

investment advisors, and similar enterprises offering financial or business counsel. Aside from these types of business startups, the composition of owner teams is fairly similar across industrial sectors.

Mechanisms of Group Formation

Based on these descriptive statistics, it is tempting to make more precise inferences regarding the mechanisms that lead to the formation of entrepreneurial groups. For instance, the high level of ethnic homogeneity among owner teams may be taken as an indication of a strong in-group bias along this demographic dimension, with white entrepreneurs preferring to collaborate with other whites, African-American entrepreneurs preferring other blacks, and so forth. By contrast, the lower level of homogeneity observed for the occupational composition of teams may be taken to suggest that functional diversity also plays a role in collaboration among business co-owners. Although these mechanisms are theoretically plausible, it should be cautioned that their existence cannot be intuited from descriptive data alone, for several methodological reasons. First, the aggregate descriptions of owner team composition do not take any account of the marginal distribution of business owner characteristics, as shown in table 4.2. Considering ethnic composition, the relatively large proportion of white business owners in these samples yields a considerable amount of homogeneity, even in the absence of in-group bias. Thus, one would expect the majority of owner dyads (51 percent) to consist of two white entrepreneurs under conditions of random mixing ($p = 0.714 \times 0.714$). Second, statistical expectations regarding owner team composition also depend on group size. In the absence of an in-group bias, the expected percentage of teams that are exclusively white drops to 36 percent for three owners ($p = 0.714 \times 0.714 \times 0.714$), 26 percent for four owners, and 18.5 percent for five. Finally, these univariate statistics do not account for other factors that may contribute to group homogeneity or heterogeneity along some dimension. It is plausible, for instance, that ethnic homogeneity among these owner teams is at least partially attributable to the reliance of entrepreneurs on kinship ties and that occupational diversity may be reduced, in part, when business owners recruit former co-workers as startup participants.

To offer a more nuanced examination of the mechanisms of owner team formation, the following sections deploy multivariate models of group structure (see Ruef 2002c and appendix C for details on methodology). In sequence, I consider the impact of three mechanisms introduced in chapter 2, first addressing the effect of homophilous affiliation (in-group

bias) on entrepreneurial groups, then the effect of network constraint, and, finally, the role of ecological constraint in group formation.

Homophilous Affiliation

Three of the most widely studied demographic characteristics driving homophily are gender, ethnicity, and age. Distributions of these attributes are consequential for understanding conflict and turnover in organizations (Pfeffer 1983). Gender homophily has been documented in a variety of contexts, including work establishments (Kalleberg et al. 1996), voluntary organizations (McPherson and Smith-Lovin 1987), managerial networks (Ibarra 1997), and entrepreneurial networks (Carter 1994). Ethnic homophily has been found in workplaces (Kalleberg et al. 1996; Reskin 1999) and classrooms (Schofeld 1995). In entrepreneurial activity, considerable attention has also been paid to ethnic homogeneity, especially among minority and immigrant groups reacting to prejudice in traditional employment contexts (Aldrich and Waldinger 1990; Portes and Sensenbrenner 1993). Age homophily may be particularly relevant in entrepreneurial group formation, as suggested by the empirical puzzle of age dependence in chapter 3.

While these ascriptive characteristics are durable drivers of homophily, achieved characteristics (such as socioeconomic status and occupation) are also salient contours of in-group bias in modern society (McPherson et al. 2001). For entrepreneurial activity, occupation is of particular interest, since previous research has documented segregation in network ties between bureaucratic and entrepreneurial jobs, controlling for segregation by income and social status (Laumann and Pappi 1976). Marxist scholars, such as Wright (1997), posit that underlying class differences in property, authority, and skills account for many of the observed barriers to friendship ties across occupational groups.

Figure 4.3 displays estimates of in-group bias for the owners of U.S. startups. The owners generally exhibit a strong propensity toward homophilous affiliation, at least relative to an (idealized) model of random mixing. Homophily is especially pronounced on the dimension of ethnicity, where white owners affiliate with one another at a rate that hovers around 120 to 150 times random expectations and ethnic minorities affiliate with one another at a rate that has historically ranged between 380 and 660 times expectations. To the uninitiated, these rates of in-group affiliation may seem extremely high, though some simple calculations support their face validity. For instance, if we consider the idea of three Asian-American entrepreneurs going into business together, the founding event may appear reasonably probable based on our everyday experiences.

Figure 4.3. Incidence Ratios for Homophilous Affiliation among Startup Owners in the United States, 1998–2000 and 2005–2006. *Sources*: PSED I and PSED II. All incidence ratios are estimated relative to a model of random mixing, based on the marginal distribution of entrepreneurs in each national sample. Estimates include controls for presence of social networks in entrepreneurial groups.

Given the marginal distribution of entrepreneurs and an assumption of random mixing, however, we would only expect to observe this demographic configuration of entrepreneurs in 1-in-455,166 business startups ($p = 0.013 \times 0.013 \times 0.013$, using 2005–2006 data).

Rates of in-group affiliation among men, women, professionals, and nonprofessionals also exceed random expectations, but by a much lower amount than is evident for ethnicity (with incidence ratios historically ranging between two and eleven times expectations).[11] Similarly, in support of the theory first laid out in the last chapter, there is clear evidence of age homophily in the formation of entrepreneurial owner teams. During the period of the dot-com boom, entrepreneurs were twice as likely to form a startup with another individual within their age cohort as someone outside of it.[12] Interestingly, by the mid-2000s, such age bias appears to have increased slightly, with same-cohort entrepreneurial groups becoming three-and-a-half times as common as mixed-age groups.

Several specific differences in rates of homophilous affiliation are worth emphasizing. Women entrepreneurs are consistently less inclined to limit themselves to same-gender owner teams than male entrepreneurs. Previous studies of networks in established firms (e.g., Ibarra 1992, 1997) have suggested that such heterophily can result because women tend to draw social and emotional support from other women, while they rely on men more for instrumental purposes. Men, according to this theory, are inclined to seek both social-emotional and instrumental resources from

other men exclusively. In a later chapter on resource contributions (chapter 7), I examine whether there is evidence for this network division of labor among entrepreneurial groups in the United States. An alternate explanation for the difference in rates of homophily considers the numerical prevalence of male entrepreneurs. According to this logic, men find it relatively easy to locate other men who have an interest in starting a business, while women entrepreneurs face greater difficulty in doing the same, owing to their smaller numbers. If true, this would suggest that women are not only inclined toward a greater level of heterophily as a consequence, but are also inclined toward a disproportionate rate of isolation. Data from the PSED I support this contention, with solo female owners appearing 21 percent more often than would be expected based on the marginal distribution of gender (Ruef et al. 2003).

As noted above, the rate of homophilous affiliation among (ethnic) minority entrepreneurs is significantly higher than that found among white entrepreneurs. One possible explanation is the spatial concentration of minority entrepreneurs—and some immigrant groups, in particular—in ethnic enclaves. If these enclaves serve as a "training system" for the development of entrepreneurial human capital (Bailey and Waldinger 1991; Portes and Shafer 2007), then one result will be a high preponderance of co-ethnic ties in enclave business startups. A second, and largely complementary, explanation is that ethnic minorities gain benefits from collaboration with co-ethnics, even in the absence of spatial concentration. For instance, Portes and Sensenbrenner (1993) suggest that opportunistic economic behavior may be constrained in co-ethnic business networks, owing to robust norms of reciprocity, solidarity, and enforceable trust. In contrast to some analyses of managerial networks, which posit *less* homophily among minorities and emphasize the utility of a combination of mixed-race and same-race contacts (Ibarra 1995), research on minority entrepreneurs tends to underscore the instrumental benefits of homophilous groups.

A comparison of rates of homophilous affiliation across time also suggests a number of trends, with in-group bias appearing to decline for ethnicity, gender, and occupation and to increase for age during 1998–2000 and 2005—2006. It is worth emphasizing, however, that none of these changes is statistically different from what would be expected under random sampling. Consequently, there is little reason to believe that there has been any significant progress over this period in ameliorating in-group bias among entrepreneurs.

While the incidence ratios displayed in figure 4.3 give us a sense of the overall strength of homophilous affiliation on a number of sociodemographic dimensions, they reveal little about the processes that produce these patterns. Are the patterns a social psychological consequence of

prejudice on the part of owners, who prefer affiliations with members of their in-group? Or are they a result of discriminatory exclusion from the business activities of others? Do these patterns result from the propensity of entrepreneurs to search for associates within the constraints of their own social networks? Or are the relevant constraints ecological in character, reflecting the tendency of entrepreneurs to be segregated by race, gender, age, or occupation in their places of residence and employment? In these respects, an important distinction drawn in sociological research is that between choice homophily and induced homophily (McPherson and Smith-Lovin 1987; Ibarra 1992; Heckathorn and Rosenstein 2002). *Choice homophily* refers to an in-group bias that is generated purely by an individual propensity to associate with others that are similar to oneself. This choice process may occur proactively, through prejudicial attitudes for instance (Allport 1954); or it may occur reactively, as entrepreneurs find that they are rebuffed when approaching out-group members and, as a consequence, fall back on in-group members as business partners. *Induced homophily* refers to an in-group bias that is produced by the opportunity structure that an individual is exposed to, even assuming that their choice of partners for some particular purpose is random. Induced homophily is sensitive to the distribution of entrepreneurs within preexisting social networks, neighborhoods, and workplaces, since these contexts dictate the affiliations that can possibly be formed.

One complication in the distinction between choice and induced homophily is that the social context of any decision maker is, at least partially, a product of their past choices. Individuals self-select into careers, marriages, friendship circles, neighborhoods, and employment relationships, which then affect the kinds of entrepreneurial partners that they are able to affiliate with. Stated another way, "the line between choice and induced homophily depends on the level of the decision" (Heckathorn and Rosenstein 2002: 53). If an individual chooses to live in an ethnically homogeneous neighborhood and then finds that the availability of entrepreneurial partners close to home is highly constrained by ethnicity, choice homophily in the first decision (where to live) has generated induced homophily in the second (who to start a business with).

A basic solution to this problem of infinite regress is twofold. First, levels of homophily can only be defined with respect to a particular decision, or focus, in affiliation activity (Feld 1981). For entrepreneurial groups, this necessarily involves the decision as to who one should partner with in a new venture (rather than which neighborhood to live in, whom to marry, etc., even when those decisions are not unrelated). Second, given this definition, choice homophily can be estimated as the level of in-group bias that remains once plausible sources of induced homophily have been controlled for. This is the task that we take on in the next

two sections, addressing the level of homophily that can be attributed to social network and ecological constraints, respectively.

Social Network Constraint

During the process of entrepreneurial group formation, the choice of other founders is inevitably constrained by opportunities for social contact. One conduit of structural opportunity involves prior network ties among group members. These ties can be characterized broadly in terms of three concentric circles of social relationships: spouses and family members (strong ties); friends, co-workers, and acquaintances (weaker ties), and strangers (Aldrich et al. 1996). In addition to feelings of emotional closeness, variation in tie strength is a reflection of the duration of a relationship and the amount of reciprocity exercised within it (Granovetter 1973). Arguably, the extent to which the relational composition of a group relies on one concentric circle rather than another has crucial implications for the constraints imposed on group composition.

Family members, particularly spouses and domestic partners, fulfill many requisites of shared identity that are otherwise generated through choice homophily. They interact frequently and tend to share rewarding experiences. With respect to entrepreneurial activity, family members have many opportunities to discuss the possibility of starting a new organization together, partially owing to the duration of these ties. In the PSED II, for instance, entrepreneurs who go into business with their spouses have, on average, been together with them for fourteen years, while those that go into business with other relatives have known them for an average of twenty-seven years (see table 4.6). Ideas that might be superficially discussed and dismissed in other contexts often lead, among kin, to more cumulative plans for action.

These considerations suggest that a failure to control for the presence of kinship ties in entrepreneurial groups may lead to inflated estimates of choice homophily along some sociodemographic dimensions. However, for one source of in-group bias—gender—the reverse is true. Owing to the substantial number of heterosexual spouse pairs who attempt to start businesses or nonprofit organizations together, the presence of these network ties will deflate estimates of gender homophily. To separate choice homophily from the gender heterogeneity induced by co-owner spouses, one should recognize that entrepreneurial groups including spouse pairs will have greater gender diversity than teams lacking such ties.

These intuitions can be quantified more precisely by comparing estimates of homophilous affiliation across different sociodemographic dimensions in models that do and do not control for the presence of strong ties. Figure 4.4 offers these estimates for a pooled sample that draws on

Table 4.6.
Strength of Network Ties between Focal Entrepreneurs and Co-Owners by Tie Duration, 2005–2006

Relational Role	*Number of Cases*	*Median Duration of Tie (years known)*
Spouse / live-in partner	303	14
Nonspouse family member	163	27
Other friend / associate	165	7
Co-worker	91	5
Stranger before initiating startup	38	1
Entire sample	760	12

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample of ties is limited to those between a focal entrepreneur (respondent) and other co-owners.

both PSED I and PSED II data.[13] As noted previously, rates of homophilous affiliation among co-ethnics are very high and remain largely unchanged when controlling for the presence of prior workplace contacts. Only when we introduce controls for spouses, kin, and cohabiting partners does the estimate of in-group bias among co-ethnics drop significantly (to an incidence ratio around 100). This suggests that a substantial amount of the in-group bias among business owners that we observe for race and ethnicity can be attributed to a preexisting bias toward same-race marriages (Kalmijn 1998) and ethnically homogeneous family formation.

For gender homophily, ties of kinship and marriage also exercise a substantial effect, but in this case they generate a propensity *away* from in-group bias. Without controlling for strong network ties, rates of gender homophily appear relatively low among co-owners of startup businesses (see figure 4.4). After accounting for those ties, estimates of choice homophily increase more than fivefold, to an incidence ratio that is nine times that expected under a model of random mixing. This dramatic change results mostly from the fact that spousal or cohabitation relationships increase the gender heterogeneity of entrepreneurial groups beyond what would be dictated by business owner preferences in the absence of strong ties.

Not all sociodemographic dimensions are subject to induced homophily or heterophily from strong tie networks. The occupational composition of entrepreneurial groups is relatively untouched by controls that address the presence of spouses, partners, or kin. In this case, the potential benefits of diversity are counteracted primarily by the tendency of entrepreneurs to recruit former work associates with overlapping compe-

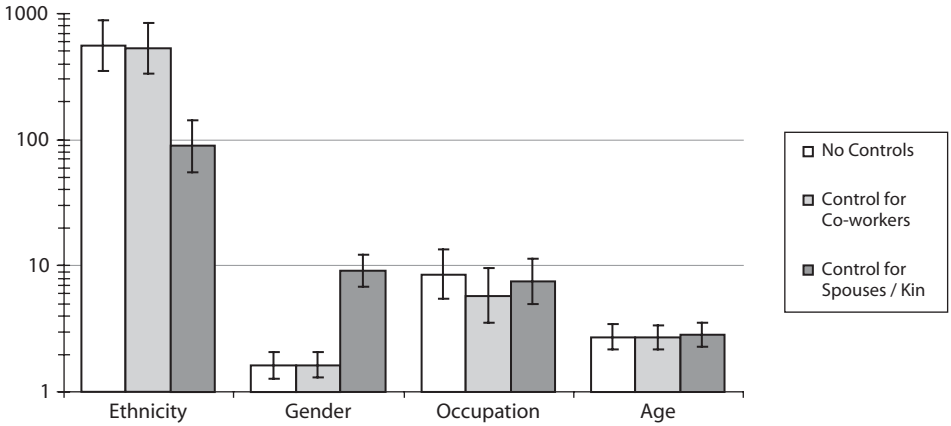


Figure 4.4. The Impact of Network Controls on the Incidence of Homophilous Affiliation among Startup Owners in the United States. *Sources*: PSED I and II (pooled sample). All incidence ratios are estimated relative to random mixing, based on the marginal distribution of entrepreneurs. Controls for the presence of social network ties vary, as shown in legend. Confidence intervals are $\pm 1.39\sigma$.

tencies and occupational backgrounds. Without adjusting for the presence of co-worker ties, the rate of homophilous affiliation within different occupational groups (professional, administrative, sales/service, and production workers) is about nine times random expectations.[14] Controlling for co-worker ties, the incidence ratio drops to about two-thirds of that estimate.

Other sociodemographic dimensions appear to be largely free from any network constraint, whether of the strong tie or weak tie variety. For instance, entrepreneurs tend to favor members of their own age cohort as business co-owners, independently of whether those individuals are spouses, kin, former co-workers, or strangers. In contrast to friendship and discussion networks in the general population (e.g., Fischer 1982; Marsden 1987), strong ties play a limited role in connecting entrepreneurs of different generations.

While the effect of strong tie constraint on homophily is not ubiquitous, several features of this aspect of induced homophily are worth emphasizing in the context of entrepreneurial groups. First, strong ties explain a significant amount of the variation in the composition of owner teams—nearly 6 percent across the sociodemographic dimensions of gender, ethnicity, age, and occupation, compared to the 12 percent explained by generic in-group bias. Second, strong ties explain a far greater amount of variation, in this respect, than weak ties, which account for less than 1 percent of the heterogeneity across the same dimensions. Finally, strong

ties impose constraints on more dimensions (gender and ethnic composition) than do weak ties (occupational composition). It remains to be seen, of course, whether a reliance on strong ties within entrepreneurial groups is ultimately beneficial or detrimental for the owners of startup businesses.

Ecological Constraint

Aside from network constraint, the spatial distribution of entrepreneurs will influence what associations they are likely to form. The importance of geographic proximity in group formation has long been recognized in both the microsociological (Goffman 1963) and macrosociological (Hawley 1950) literature. Peter Blau's (1977) program of structural research developed predictions explicitly on the basis of which nominal or rank-ordered characteristics tend to be more common among the population of a region. Similar ecological constraints operate at a micro level, affecting baseline expectations about which individuals are expected to be found together in social groups.

Entrepreneurship scholars have increasingly noted the importance of geographic context in organizational founding activities (Sorenson and Audia 2000; Stuart and Sorenson 2003; Saxenian 2006; Audia et al. 2006). A less studied aspect of entrepreneurial geography involves the physical site of new businesses and how it affects interaction patterns. As shown in table 4.7, there has been a historical shift in the locations chosen by nascent entrepreneurs, even over the relatively short time span between the late 1990s and mid-2000s. During the late 1990s, the majority of business startups in the United States were initiated in a physical brick-and-mortar setting, typically the residence of an entrepreneur or, less commonly, a separate commercial facility or a site sponsored by an existing business. A relatively small percentage of entrepreneurs (11%) reported that a specific location was not needed in the early stages of business development. By 2005–2006, the percentage of startups that were not associated with a physical location had mushroomed to nearly 40 percent. Meanwhile, the number of brick-and-mortar startups in both commercial and residential settings declined by nearly a third over the same time period.

What implications does this trend have for the formation of entrepreneurial groups, in general, and homophilous affiliation, in particular? Recent scholarship has noted the rise of geographically dispersed owner-managers in "virtual teams," linked by common entrepreneurial goals, information technology, and task interdependencies (Matlay and Westhead 2005). When running small businesses, these teams of entrepreneurs have been particularly successful in globalized industries, such as hospitality and tourism. The lack of propinquity or face-to-face communication in "virtual" groups

Table 4.7.
Location of Startup Businesses in the United States, 1998–2000 and 2005–2006

Location	*PSED I (Weighted %)*	*PSED II (Weighted %)*
Residence or personal property	68.5	45.9
Site of existing business[a]	8.4	6.1
Separate location for new business[b]	12.1	9.0
Specific location not yet needed	11.1	39.0
Sample size	815	1,207

Note: All data are inverse weighted by group size for representativeness (see appendix B).

[a] In the PSED II, this category includes a small number of businesses (N = 4) that are located in both the site of an existing business and a residence / personal property.

[b] Subsuming rented space and incubators. In the PSED II, this category also includes a few businesses (N = 5) that are located in both a dedicated facility and a residence / personal property.

also raises an important question for homophilous affiliation—is the in-group bias that we observe in traditional entrepreneurial ventures primarily a function of ecological constraints on the availability of entrepreneurial partners near a physical location? And would such bias be reduced if these ecological constraints were removed?

We gain some preliminary insight into these issues by comparing rates of homophilous affiliation across startup businesses in virtual, commercial, and residential locations (see figure 4.5). On two sociodemographic dimensions—ethnicity and age—the point estimates for homophilous affiliation in a business lacking a physical location are *higher* than rates in residential or commercial settings. For the most part, these differences are not statistically significant. On another dimension—occupation—rates of homophilous affiliation among entrepreneurs in virtual locations are lower than comparable rates in residential locations, though they remain indistinguishable from the in-group bias found in commercial settings. Consequently, there is little evidence to support the contention that the elimination of physical sites of entrepreneurial activity will help reduce in-group bias in the selection of business partners.

In many respects, the more suggestive pattern for homophilous affiliation can be found in commercial settings, such as incubators, leased retail or office space, and facilities sponsored by existing businesses. Here, we see a tendency toward the lowest levels of in-group bias across most sociodemographic dimensions (though this conclusion must be tempered by the relatively large standard errors associated with this small subsample). The reduced level of bias is consistent with sociological theories

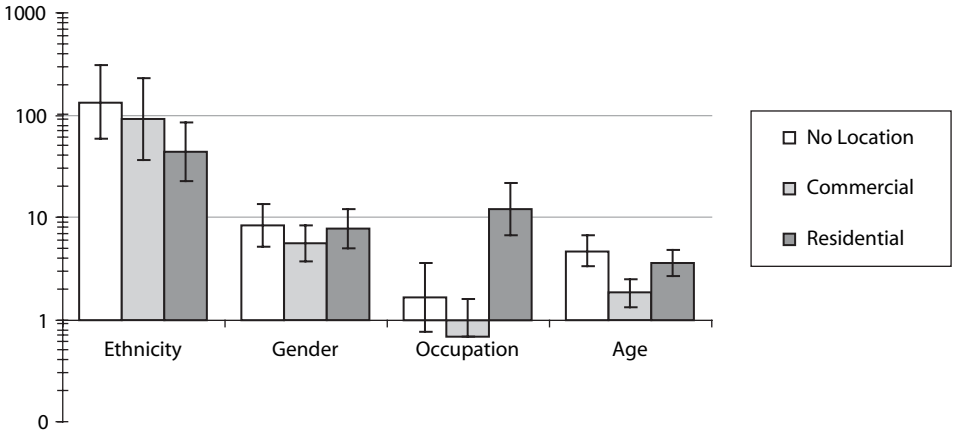


Figure 4.5. The Impact of Location on the Incidence of Homophilous Affiliation among Startup Owners in the United States. *Sources*: PSED I and II (pooled sample). All incidence ratios are estimated relative to a model of random mixing, based on the marginal distribution of entrepreneurs. Subsampling by business location varies, as shown in legend. Confidence intervals are $\pm 1.39\sigma$.

of behavior that is publicly observable and, thus, more rule-bound than behavior that is private (e.g., Goffman 1963). If contemporary society encourages diversity in the patterning of social contact, then entrepreneurial groups that are formed in commercial settings will exhibit less in-group bias than those that are formed in private homes. For instance, a clique of young business founders may appear to be a comfortable team configuration within the confines of one of the co-owners' residences, but attracts additional scrutiny when it convenes in a rented space in a retail district. This is especially true when customers or other supporters of the business believe that the diversity norms that apply to larger businesses (e.g., the EEO-1 reports that must be filed in the United States with the Equal Employment Opportunity Commission) should also, in principle, extend to startup businesses.

Correlates of Group Formation

Why do entrepreneurs rely so heavily on homophilous affiliation when a diverse set of owners might bring distinctive skills and perspectives to a startup organization (Eisenhardt and Schoonhoven 1990)? Why are strong network ties a crucial foundation of many business partnerships, even though they are often plagued by redundant information and pressures for conformity (Granovetter 1973; Burt 1992; Ruef 2002a)? Why do en-

trepreneurs favor private or "virtual" settings for their business startups when these locales afford limited contact with their customers, limited visibility in a community, and little physical space to accommodate inventory or employees?

In later chapters, I will address a number of possible explanations for these mechanisms, ranging from the problems posed by resource constraints, transaction costs, and potential opportunism of business partners to the benefits produced by reciprocity and creativity across different group configurations. Here, we focus on a single correlate of homophilous affiliation, strong network ties, and business location that has been cited as crucial to the survival of new organizations: the degree of *familiarity* that startup co-founders display with respect to each other.

As Stinchcombe (1965) first emphasized in his influential discussion of the "liability of newness," entrepreneurial groups face considerable difficulties when they rely on social relations among strangers. Under these circumstances, "relations of trust are much more precarious in new than old organizations—trust that a stranger will do the job he [*sic*] says he will, that his promises to pay actually bind the resources he says they do, that the new goods he describes are something like what he says they are, that he will not divert organizational funds into his own pocket beyond tolerable levels, that he will make personnel decisions largely on the basis of competence rather than (or at least along with) kinship, and so forth" (149). Among business startups, a solution to this problem is that very few ventures rely exclusively on collaboration among strangers—indeed, as I noted above, none of the startups in the PSED II sample fit this profile. Instead, business partners have generally known one another for a number of years (a median of 12 in 2005–2006) and thus experience a fairly high level of subjective familiarity with the competencies and personalities of their collaborators.

Network ties are perhaps the most obvious proxy for familiarity. The average amount of time that owners have known one another decreases predictably as we move from kin and spouses to friends to co-workers to strangers (table 4.6). Less obvious is the fact that homophily, *apart* from its influence on network tie formation, can also be a proxy for familiarity. Friends, co-workers, and kin with similar sociodemographic attributes or attitudes spend more time with one another (or stay in touch for longer) than friends, co-workers, and kin with different attributes or attitudes. On some dimensions, such as education, age, and religion, there is evidence that homogamous marriages are more durable than heterogamous marriages (see Tzeng 1992 for a critical overview). And among minority groups, homophily may allow individuals in passive role relationships, such as acquaintanceship, to move from "nodding" recognition to proactive interaction, based on a sense of shared fate within a broader ethnic

community. All of these considerations suggest that homophily will generally be positively correlated with the familiarity that business partners have with one another, even after controlling for their role relationships.

The physical site of a business is also likely to be correlated with the level of familiarity displayed among entrepreneurs. Individuals running startups from their homes or other private property will tend to favor colleagues whom they know more intimately. Location-less ("virtual") businesses rely on trust that inheres in durable relationships and familiarity among owners as a substitute for the possibility of direct monitoring in a brick-and-mortar location. Naturally, these correlations need not imply a unidirectional causal relationship. Entrepreneurs may choose a home-based or virtual location because they know that they can rely on business partners whom they have known for a long time. Or they may be more inclined to recruit familiar partners because they have located their startup in the intimate confines of their home or the boundary-less domain of the Internet. In either case, business location will serve as a proxy for the degree of familiarity among startup co-founders.

To test these empirical claims, we can examine the association between the amount of time that entrepreneurial partners have known each other and the homophily, role relationships, and business location that characterize their social interaction (see table 4.8). Net of role relationships, business partners of the same ethnicity have known each other 27 percent longer than co-founders of different ethnicities, while same-gender business partners have known each other 5 percent longer than co-founders of different genders. The duration of these ties also declines by 1.8 percent for every year of age difference between co-founders, though there is no statistically significant relationship with occupational homophily. Role relationships themselves affect the duration of prior contact in a predictable fashion. Considering business location, we find that business partners working out of homes or private property have known each other 5 percent longer than partners working in commercial sites; and, more dramatically, partners who do not yet have a physical location for their startup business have known each other 14 percent longer than those in commercial sites.

In sum, these results suggest that part of the attraction of homophilous affiliation, strong network ties, and noncommercial locations is that these mechanisms are associated with the recruitment of business partners who have known each other for a longer period of time. If familiarity among co-founders is a crucial requirement for new organizations seeking to avoid the "liability of newness," then reliance on these mechanisms may be quite sensible, despite arguments to the contrary among business management and social network scholars.

Table 4.8.
The Association of Homophily, Role Relations, and Ecological Constraint with the Amount of Time That Startup Co-Owners Have Known Each Other

Variable[a]	*Incidence Ratio*[b]	*Statistically Significant?*
Homophilous Affiliation		
Same ethnicity	1.270	$p < .001$
Same gender	1.050	$p < .10$
Same occupation	1.019	No
Age difference (years)	0.982	$p < .001$
Relational Role[c]		
Spouse / live-in partner	6.048	$p < .001$
Nonspouse family member	11.689	$p < .001$
Other friend / associate	4.159	$p < .001$
Co-worker	2.797	$p < .001$
Business Location[d]		
Residence or personal property	1.052	$p < .05$
No location ("not yet needed")	1.143	$p < .001$

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of dyadic relationships is 732, following listwise deletion. Analysis is limited to business startups with more than one owner.

[a] Analysis includes controls for age, gender, ethnicity, and occupation of focal entrepreneurs.

[b] Ratios can be interpreted as multipliers for the amount of time that co-owners have known each other. Estimates are based on a Poisson regression with a model fit (pseudo R^2) suggesting that about 39.6% of the variance in the duration of personal ties is explained with this specification.

[c] The omitted category is that of strangers.

[d] The omitted category is that of startups located in commercial properties (incubators, rented space, commercial space owned by entrepreneurs, and facilities provided by existing companies).

Conclusion

During group formation, entrepreneurs seek out trusted alters, as well as those with whom they already have strong interpersonal relationships, while avoiding strangers who could bring fresh perspectives and ideas to the organizational founding process. Just as in other arenas of economic life, the commercial exchanges involved in organizational foundings are strongly influenced by socially embedded patterns of association (Zelizer 1994; DiMaggio and Louch 1998). Founders of business startups appear more concerned with interpersonal familiarity, at this early stage, than with the functional diversification of owner teams.

These mechanisms of group formation carry obvious shortcomings. As Stinchcombe has argued, "a cultural tradition in which obligations to kin and friends invariably override obligations to strangers . . . limits organizational structure to that which can be built out of combinations of kinship loyalty and force[;] many types of organizations cannot be efficiently built on this basis" (1965: 149). The widespread reliance of new business startups on strong ties, homophily, and noncommercial locales would seem to call for greater justification than the mere familiarity of business partners, particularly as the startup grows beyond the core group of owners. In the next chapter, I consider the extent to which these mechanisms are applied in drawing boundaries between owners, employees, and other startup participants. I also address whether an emphasis on relational demography leads founders to discount functional competence in the recruitment of owners and employees.

CHAPTER FIVE

Boundaries of the Startup Firm

Boundaries are an essential element of most definitions of organizations (Thompson 1967; Williamson 1975; Aldrich and Ruef 2006). As a condition of their existence, organizations maintain boundaries that distinguish them from their environments, though these boundaries may be incomplete and permeable (Meyer and Lu 2005; Scott and Davis 2006). The processes contributing to boundary formation have been examined from several major perspectives (Santos and Eisenhardt 2005).[1] *Transaction cost economics* (TCE) emphasizes the efficiency of contractual governance and suggests that boundaries should be set at the point that minimizes the cost of governing activities for an organization (Coase 1937; Williamson 1975). That is, to set the boundary, the marginal costs of internalizing a transaction should be compared with the marginal costs of transacting with an exchange partner through the market. Scholars employing a *resource dependence perspective* (Pfeffer and Salancik 1978) focus on power. They propose that organizations should set their boundaries to reduce their dependency on other exchange partners in the environment. A third perspective, the *resource-based view of the firm*, emphasizes organizational competency, suggesting that boundaries should be set at the point that extracts maximum value from the organization's resource configuration (Wernerfelt 1984; Barney 1991). Scholars employing an *identity* approach offer yet a fourth perspective on organizational boundaries, asserting that the rationale for boundary decisions is coherence with organizational identity and image (Walsh 1995; Kogut and Zander 1996; Rindova and Fombrun 2001). They consider the mental maps maintained by organizational members, in particular the shared beliefs about "who we are."

While the theories described above have been fundamental in shaping thinking about organizational boundaries, empirical work from those perspectives focuses mostly on large, established firms, rather than analyzing how boundaries emerge in the first place. For instance, a substantial body of TCE research addresses vertical integration decisions affecting extant hierarchies (Shelanski and Klein 1995). As David and Han (2004: 54) note, analyses concerning the key postulates of TCE tend to be "tests of the largest, surviving firms" and therefore exhibit a bias toward mature organizations. Recent longitudinal examinations of boundary

decisions (e.g., Bigelow and Argyres 2008) avoid severe survivor bias, but still focus on populations of operational organizations rather than startups. Other perspectives on boundaries simply avoid entrepreneurial organizations entirely, as intimated by the silence on this topic in a recent review of progress in resource dependence theory (Pfeffer 2003).

The gap in the literature may not be merely empirical. Existing perspectives on boundaries—developed in the context of stable, well-established organizations—may be poorly equipped *theoretically* to explain similar phenomena when applied to entrepreneurial ventures (Santos 2003). Considering the resource dependence perspective, for instance, it is hard for entrepreneurs to make boundary decisions based on power dependence if important players have yet to be identified in emerging markets (Aldrich and Baker 2001). Proponents of an identity-based approach may wonder how entrepreneurial organizations can leverage identity—shared beliefs about "who we are"—to inform boundary decisions, if they have yet to establish a collective image (Aldrich and Fiol 1994; Sarasvathy 2001). Similar issues bedevil the transaction cost and resource-based approaches to boundary definition, insofar as entrepreneurs lack a clear sense of the "assets" that will be required for a new venture. At an early stage, even those entrepreneurs that merely reproduce existing organizational templates may not be clear about the key players in a particular market, the resources that need to be deployed, or the organizational identity they seek to project.

This chapter examines how organizational boundaries emerge in entrepreneurial contexts. Emerging organizations have distinctive features that influence the conceptualization of their boundary formation processes. Unlike well-established formal hierarchies, startups are more like peer groups or other types of decentralized collaborative groups. The key to drawing their boundaries is to decide what kinds of people should be brought inside the organization, as founders or employees, and what individuals will remain outside the organization, as vendors, consultants, and the like. As an example, consider the wholesale clothing business envisioned by Luis Hernandez and discussed in the last chapter. Why do some startup participants (Diego Ramon and Bill Shipley) come to assume roles as owner-managers, others (Miguel Hernandez) as more passive investors, and yet others (Sophia Hernandez) as "helpers"? An obvious answer would seem to revolve around the functional capabilities of each startup participant, as reflected in their industry tenure, startup experience, and the like. In reality, these factors explain almost none of the variance in owner recruitment and relatively little of the variance in the recruitment of startup employees among American business startups. As I review below, more adequate explanations of boundary formation re-

quire attention to the composition and resource configuration of entrepreneurial groups.

To complement the descriptive analyses in the last chapter, I begin with a summary of the demographic and relational characteristics of startup assistance networks in the United States, emphasizing individuals outside of the core group of owners. Then, drawing from the economic literature on transaction cost economics and the resource-based view of the firm, as well as sociological perspectives on identity-based (homophilous) affiliation, network dependence, and ecological constraint, I propose two criteria demarcating organizational insiders and outsiders: *functionality* and *relational demography*. I evaluate functionality by examining the level of asset-specificity and uniqueness of the resources that startup participants possess; I address relational demography by studying the strength of network ties, the level of similarity in sociodemographic identity, and the spatial setting of activities among group members. The final part of the chapter examines the conditions under which the boundaries among startup participants become established legally, particularly as external recognition is sought for the legal form of the business firm.

Characteristics of Startup Assistance Networks

The majority of entrepreneurs in the United States depend on some nonowners for assistance in their business startup efforts. In both the late 1990s and mid-2000s, only 38 percent of startup founders relied exclusively on themselves or other owner-managers for key contributions to their business. As is the case among owners, most of the individuals comprising startup assistance networks are autonomous persons rather than representatives of institutions (table 5.1). The PSED II data suggest, however, that institutional representatives are clearly more prominent within assistance networks than among the ranks of owners themselves.[2] The involvement of these institutional representatives remains somewhat peripheral to business startup activities. For instance, representatives of other organizations are significantly less likely to participate in the day-to-day operational decisions of a startup than individuals who are acting on their own behalf.

The gender composition of the startup assistance networks involves more men than women, though this propensity is less pronounced than that found among startup owners (cf. table 4.2). Moreover, there appears to be a significant historical tendency away from male dominance in these networks, a trend that may begin to address concerns that the underrepresentation of women in startup activity is produced by their exclusion

Table 5.1.
Descriptive Statistics for Individual Non-Owners: Panel Study of Entrepreneurial Dynamics, I (1998–2000) and II (2005–2006)

		PSED I		*PSED II*		*Significant*
Variable	*Response*	*Cases*	*Weighted % / mean*	*Cases*	*Weighted % / mean*	*Sample Difference?*
Type	Person	1,288	100.0	1,606	81.6	
	Institution		0.0		18.4	
Gender	Male	1,277	61.8	1,288	57.3	$p < .05$
	Female		38.2		42.7	
Age	(Years)	1,242	42.4	1,244	42.9	No
Ethnicity[a]	White	1,226	74.6	1,270	70.0	$p < .05$
	Black		15.3		18.1	No
	Hispanic		6.1		7.4	No
	Asian		2.3		2.7	No
	Other		1.7		1.7	No
Industry tenure	(Years)	—	—	1,246	7.2	
Other startups	(Count)[b]	1,150	0.4	1,163	2.0	
Occupation	Professional	1,207	23.4	1,255	23.0	No
	Administrative		29.4		28.1	No
	Sales / service		21.2		21.5	No
	Production		13.4		16.2	No
	Other[c]		12.6		11.1	No
Education	No HS degree	—	—	1,173	5.2	
	HS degree		—		31.6	
	Some college[d]		—		21.9	
	BA / BS		—		26.4	
	Postgraduate		—		14.9	
Marital status	Married	—	—	1,253	55.6	
	Never married		—		19.1	
	Cohabiting		—		8.5	
	Other[e]		—		16.9	

[a] Due to changes in operationalization, statistics for ethnicity may not be strictly comparable in the PSED I and II. "Other" category includes Native American, mixed ethnicity (non-Hispanic and non-white), and other (unspecified). "Hispanic" category refers to non-white Hispanics.

[b] Variable is dichotomous for PSED I, indicating whether non-owner has or has not started another business.

[c] Includes students, homemakers, retirees, the self-employed, and the unemployed.

[d] Includes vocational and community college degrees.

[e] Includes separated, divorced, or widowed.

from men's business discussion networks (Aldrich and Ruef 2006: 72). A similar conclusion holds for ethnicity, where there has likewise been a statistically significant decrease in the prevalence of white non-owners within the assistance networks of U.S. entrepreneurs (see table 5.1).

Other characteristics of individuals within startup assistance networks—such as average age and occupational background—have remained fairly stable over time. Considering the age and human capital of non-owners, two important distinctions from startup owner-managers are apparent. First, non-owners tend to be substantially older than owners, by a margin of three-and-a-half years on average.[3] Second, this distinction is consistent with the difference in startup experience between these two roles, with the average owner-manager having experience with the founding of only one previous business and the average non-owner having experienced the founding of two startups. A more nuanced treatment of these differences requires that we address heterogeneity in the social roles of assistance network members, including employees, investors, and other helpers.

Table 5.2 summarizes the sociodemographic characteristics of business owners and non-owners by the roles introduced in the previous chapter. One startling result can be gleaned immediately from the statistical tests reported in the right-hand column: on the whole, the roles exhibit significant differences on *all* reported dimensions, including gender, age, ethnicity, human capital, occupation, and network composition. Consequently, an effort to lump all of these roles into one generic category of "entrepreneur"—or to view them, perhaps from a particular disciplinary lens, exclusively as "investors" or "workers"—appears misguided. An appropriate perspective on entrepreneurial groups recognizes the heterogeneity in the attributes and goals that may link individuals to entrepreneurial activity.

Consider the entrepreneurial group members who are involved in the day-to-day activities of a business startup, but lack an ownership stake. These employees and managers tend to be significantly younger than other startup participants and are more likely to be minorities. They are also slightly less likely to have held professional jobs in the past and are more likely to have a background in blue-collar occupations. Accounting for sampling error, neither their industry tenure nor startup experience is significantly different than that of startup owner-managers. Their relational ties, however, are drastically different, as strong ties among owners often involve relationships as spouses or cohabiting partners, while the strong ties of startup employees to owner-managers are more likely to be ones of other kinship.

The sociodemographic profile of other roles in these entrepreneurial groups is also distinctive. With an average age of forty-five and a history

TABLE 5.2.
Characteristics of Entrepreneurial Group Members by Role, PSED II (2005–2006)[a]

		Weighted % / Mean				
Variable	*Response*	*Owner-Manager*	*Employee / Manager*	*Investor*	*Consultant, Vendor, Other*	*Significant Sample Difference*[b]
Gender	Male	64.0	58.8	56.7	55.3	$p < .01$
Age	(Years)	39.1	36.7	43.7	45.0	$p < .001$
Ethnicity	White	73.5	63.1	65.6	74.2	$p < .001$
	Black	17.3	22.3	22.5	15.9	
	Hispanic	5.8	10.6	8.4	5.5	
	Asian	1.1	1.7	1.3	3.1	
	Other	2.3	2.3	2.2	1.3	
Industry tenure	(Years)	7.6	6.4	4.5	7.9	$p < .001$
Other startups	(Count)	0.9	1.0	0.9	2.8	$p < .001$
Occupation	Professional	19.7	16.0	25.3	25.9	$p < .001$
	Administrative	26.7	29.6	24.6	27.9	
	Sales / service	21.3	20.3	18.3	23.0	
	Production	20.2	21.1	18.7	12.7	
	Other	12.1	12.9	13.1	10.5	
Relation to owner-manager(s)	Spouse / Partner	36.3	7.5	31.3	7.3	$p < .001$
	Nonspouse Kin	17.0	28.5	38.5	33.2	
	Business Associate	15.1	21.9	9.3	19.4	
	Other Friend	26.2	32.9	16.8	32.4	

[a]Excludes individuals who represent a business, financial institution, government agency, or other legal entity.

[b]All tests of significance are F-tests, conducted within an ANOVA or MANOVA framework as dictated by outcome variable.

of three previous business foundings, startup participants working in the role of consultants or vendors tend to be the oldest and most experienced members of the groups. In this position, we observe the greatest amount of gender diversity and the least amount of ethnic diversity among all startup participants. Investors tend to have relatively limited personal experience in the industries in which their startups operate. Most commonly, they are family members of owner-managers (either spouses, cohabiting partners, or other kin), rather than friends or former co-workers.

Despite such differences in entrepreneurial group roles at the individual level, the overall composition of startup assistance networks displays a number of similarities with that of owner teams (table 5.3). Like the teams (and entrepreneurial groups, as a whole), the assistance networks have a skewed size distribution. In both the late 1990s and mid-2000s, the modal business startup had no involvement from individuals outside the team of owner-managers, but an upper tail of 14–17 percent of startups had access to contributions from four or more non-owners. Also corresponding to the composition of owner teams, the demographic diversity of the startup assistance networks is not especially high, with nearly three-quarters of the assistance networks being composed from a single ethnic group and slightly less than half being limited to participants of a single gender. Seen in descriptive terms, diversity is again most prominently displayed in the occupational background of non-owner participants, with the majority of assistance networks (over 75%) drawing on participants from multiple occupational categories.

There are some noteworthy compositional differences from the teams of startup owners. With a standard deviation over nine years, the age dispersion of participants in the startup assistance networks is much higher than that found among the owner-managers (around five years). This raises the question as to whether age homophily exercises as much influence in the recruitment of non-owners in startup activities as it does in the recruitment of owner-managers. Another important contrast can be found in the relationships linking startup participants to owner-managers. Between owners and non-owners, these ties only infrequently involve the most intimate relationships (spousal or romantic cohabitation), while those relationships are extremely common among startup owners themselves (cf. table 4.4). The phenomenon of entrepreneurial collaboration between intimates, sometimes referred to as "copreneurs" (Marschak 1994), may be largely limited to owner-managers for a number of reasons, including norms of inclusion within these relationships and a legal doctrine in many U.S. states that ascribes (at least implicit) ownership stakes to spouses when businesses are developed over the course of a marriage.

Considered on the whole, several features of startup assistance networks seem to stand out. First, like teams of owner-managers, their structure is

TABLE 5.3.
Descriptive Statistics for Assistance Networks: Panel Study of Entrepreneurial Dynamics, I (1998–2000) and II (2005–2006)

		PSED I		PSED II		
Variable	*Response*	*Cases*	*Weighted % / mean*	*Cases*	*Weighted % / mean*	*Significant Sample Difference?*
Size	None	830	33.8	1,193	36.1	No
	One non-owner		18.9		21.7	No
	Two non-owners		17.6		17.8	No
	Three non-owners		13.0		10.2	No
	Four + non-owners		16.7		14.3	No
Gender composition[a]	Mixed gender	358	57.9	378	54.1	No
	All male		29.5		27.4	No
	All female		12.5		18.5	$p < .05$
Age[a]	(Std deviation)	346	9.2	361	9.5	No
Ethnic composition[a]	Single ethnicity	345	74.6	371	72.8	No
	Multiple ethnicities		25.4		27.2	
Industry tenure[a]	(Std deviation)	—	—	367	5.6	
Other startups[a]	(Std deviation)[b]	324	0.3	331	1.1	
Occupational composition[a]	Single occupational class	343	22.2	368	23.9	No
	Multiple occupational classes		77.8		76.1	
Relational composition[c]	With spouses / live-in partners	516	15.9	639	19.5	No
	With nonspouse family member		36.9		46.0	$p < .01$
	With business associates		35.8		29.6	$p < .05$
	With other friends / associates		58.3		43.1	$p < .001$

Note: For PSED II, size distribution includes individuals who are not acting on their own behalf. Other statistics are limited to autonomous individuals. Inverse size weights apply to all statistics.

[a] Limited to firms that have involvement from more than one non-owner.

[b] Original variable is dichotomous for PSED I, indicating whether non-owner has or has not started a business.

[c] Indicates whether relationship is present between focal entrepreneur and *any* non-owner.

remarkably stable in the aggregate. With the exception of social relationships, there is little change between the late 1990s and mid-2000s in the composition of these assistance networks. The shift in relational composition—from a reliance on former co-workers, friends, and neighbors to a reliance on spouses, cohabiting partners, and kin—is itself instructive, since it coincides with a broader movement in American so-

ciety toward networks of confidants that are centered on intimate relations (McPherson et al. 2006). Consistent with Robert Putnam's (2000) cautionary warning, such insularity may inhibit the ability of new business owners to develop "bridging" ties with different parts of their community or even reduce their connection with the community at large. The empirical validity of this claim for entrepreneurs remains to be investigated.

A second generalization follows from the individual-level data on non-owner startup participants (tables 5.1 and 5.2). On average, there are only modest differences between owner-managers and other participants in those aspects of human capital (particularly, industry tenure and startup experience) that appear to have a direct bearing on the management of a startup firm. Consequently, an adequate explanation of the process by which boundaries between owners and non-owners are shaped must rely on other mechanisms, considering the configuration of resources, demography, and networks within the startup assistance network. The next section turns to a theoretical discussion and empirical examination of these mechanisms.

Mechanisms of Boundary Delineation

The sorting process that leads to boundary formation in business startups can broadly be conceptualized as shown in figure 5.1 (Xu and Ruef 2007). Two sets of factors help define the ongoing role relationship of individuals in the startup assistance network to the emergent organization. One set, which has already been discussed in previous chapters, concerns the relational demography among group members, including the mechanisms of homophily, strong network ties, and ecological constraint. Within the sociological literature, these mechanisms are often seen as affecting the access and trustworthiness that are attributed to potential startup participants. An alternative argument, represented by the second set, draws attention to the resources that different participants may bring to a startup effort and the resulting functional performance of the firm. The implicit mechanisms, in this perspective, tend to be ones of transaction cost minimization or resource uniqueness, as discussed in economics or the literature on strategic management.

Transaction Costs and Asset Specificity

Transaction cost economics (Coase 1937; Williamson 1975) is one of the most widely used explanations for organizational boundary decisions. Owing to the bounded rationality and possible opportunism of entrepreneurs,

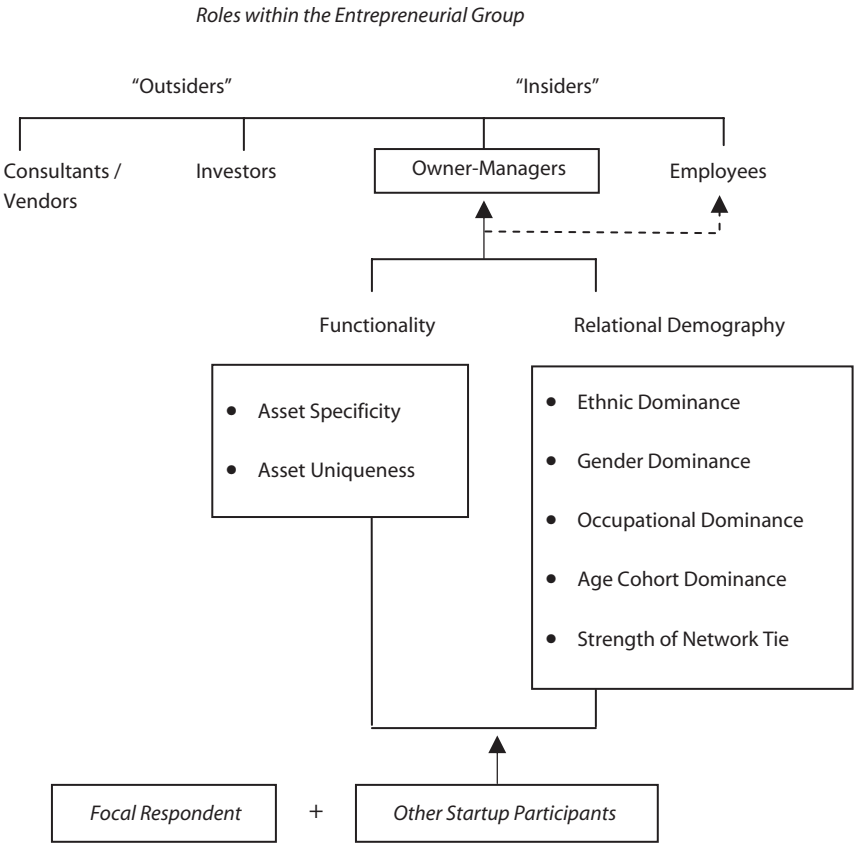


Figure 5.1. Sorting Startup Participants into Roles. *Source*: Adapted from Xu and Ruef 2007.

transactions among them are costly to define, monitor, and enforce, leading to incomplete contracts. Under these circumstances, many economic functions may be performed more efficiently within the boundaries of startup firms than through market exchange with external consultants, vendors, investors, and the like. When transactions are internalized within the startup, entrepreneurs need not anticipate all possible contingencies; they can be handled ex post within the firm's governance structure instead of ex ante, through prior negotiations. Opportunism may also be constrained by the authority relations within the startup; entrepreneurial group members who are identified as opportunistic can be punished monetarily or threatened with removal.

Asset specificity is one of the key transaction attributes that TCE scholars examine when predicting which transactions should be coordinated within an organization as opposed to in the marketplace (David and Han 2004).[4] Assets that are specific to a transaction between two parties cannot be readily redeployed for other purposes, possibly owing to the specialized nature of skills and knowledge that are required, the specialized nature of physical assets, or the location of the activities dictated by the transaction (Williamson 1981). The presence of asset specificity in repeated transactions creates small number bargaining and increases the potential for hold-up by opportunistic actors (Klein 2000; Williamson 1991). For instance, if one entrepreneur in a group of startup participants is the only one who understands how to use the firm's customized information technology, then that entrepreneur has assets that are highly specific to the enterprise. This asset specificity may create not just unilateral but also bilateral dependence (Klein 2000). On the one hand, the other startup participants can ill afford to lose the involvement of the entrepreneur, owing to the difficulty of replacing her. On the other hand, the entrepreneur's own specific investment in the firm's customized IT renders her skills more valuable in this context than in other startups or established organizations.

One of the most common measures of asset specificity considers the presence of specialized skills and knowledge in a transaction (David and Han 2004). Sociologists tend to add social capital to this list as well, since personal familiarity and trust with other parties involved in a transaction will also generate conditions of bilateral dependence (in the lingo of economics) or embeddedness (in that of economic sociology) (Granovetter 1985). By contrast, contributions of more generic financial and physical resources or widely available business services are unlikely to be specific to a particular startup effort. Therefore, applying the logic of transaction cost economics to boundary formation in entrepreneurial organizations, we expect that startup participants with skills, ideas, or social capital that are specific to the startup effort will be more likely to become organizational "insiders" (owner-managers or employees) than those whose contributions are not organization-specific.

An analysis of the relationship between resource contributions and the roles held by different startup participants generally supports these intuitions (figure 5.2).[5] Startup participants who offer critical information or advice are far more likely to occupy the role of owner-manager (by a factor of 13) than those participants who do not. Similarly, participants who offer introductions to people or provide training in business-related tasks or skills tend to be located in the role of owner-manager. For other contributions, such as access to general business services (e.g., legal, accounting, or clerical assistance), financial resources (equity, loans, or loan guarantees),

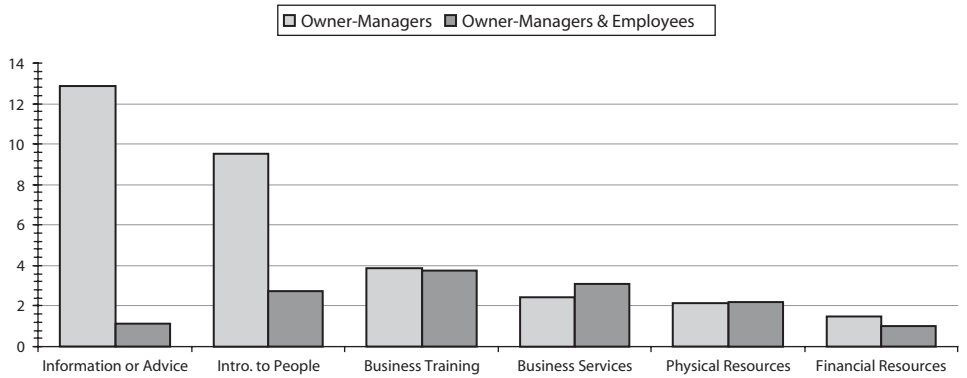


Figure 5.2. Odds Ratio of Holding a Particular Startup Role Based on Type of Contribution, 2005–2006. *Source*: PSED II. All odds ratios are estimated using a Generalized Estimating Equation (GEE) regression to account for clustering of members within startups. Estimates include controls for human capital (startup and industry experience) and industry fixed effects.

and physical resources (land, facilities, or equipment), the relationship with owner-manager status is more modest. Considering owner-managers alone, then, we might array these contributions from left-to-right in order of declining asset specificity.

Expanding the definition of organizational "insiders" to include employees complicates this depiction slightly. For some resource contributions, such as business training, business services, physical and financial resources, the relationship between asset specificity and the likelihood of being an insider remains consistent with that found for owner-managers themselves. But in other cases, such as contributions of information, advice, or social capital, there is a fairly weak relationship to the insider role. In this respect, part of the empirical problem may be the tendency of TCE to ignore the importance of power, in addition to asset specificity, in predicting the governance mechanisms for a transaction (Perrow 1986). Assuming that startup participants have critical ideas and social capital that are highly specific to a given startup effort, they may be inclined to take on (the more powerful) role of external consultant or investor in order to leverage those contributions, rather than being relegated to the role of startup employee.

Resource Configuration and Uniqueness

An alternative functional perspective on boundary decisions in startups is offered by the resource-based view (RBV) of the firm. This approach conceptualizes organizations as bundles of physical, human, and organi-

zational resources that are used in economic activities (Wernerfelt 1984; Barney 1991; Barney et al. 2001). According to the RBV, resources are often deployed in specific configurations to increase organizational capabilities or competencies (Pralahad and Hamel 1990; Amit and Schoemaker 1993). Empirical research has generally focused on how established firms shape organizational boundaries strategically by leveraging existing resource configurations or by exploring new ones to adapt to changing market conditions. Management scholars suggest that combinations of valuable, rare, inimitable, and non-substitutable resources can lead to sustained competitive advantage (Barney 1991).

Some preliminary insights into the relationship between firm boundary decisions and resource configurations can be gleaned from the statistics in table 5.4. Unsurprisingly, owner-managers in U.S. startups are responsible for the majority of resource contributions, especially those with a high level of asset specificity (e.g., business information, advice, and social capital). However, external consultants are also an important source of specialized business ideas for new startups. Investors offer access to their social networks and advice, in addition to access to financial resources. And startup employees—aside from offering their time, expertise, and business services—share responsibility for numerous contributions to startups. On the whole, these flows suggest that the ad hoc process of assembling resources in new startups, referred to as "bricolage" by some entrepreneurship scholars (Baker and Nelson 2005), often cuts across the conventional boundary between firms and markets, making use of whatever resources are at hand. Consequently, the boundary of startup enterprises may be far more fluid than anticipated by the discrete structural alternatives of transaction cost economics (e.g., Williamson 1991).[6]

Given its focus on adaptable resource configurations, the resource-based view substitutes a new criterion—asset uniqueness—in lieu of asset specificity in evaluating where the boundaries of an organization should be drawn. While a business startup may need access to a variety of resources, participants who contribute unique and non-substitutable assets should be seen as more valuable to the startup than those whose asset contributions overlap with those of others in the startup assistance network. Based on the logic of RBV, individuals with unique assets are more likely to be brought inside the organization as owner-managers or employees than those who offer assets that are reproduced elsewhere.

Analyzing PSED II data on startup participants by their contributions and roles offers support for this contention. A member of an entrepreneurial group who is able to offer a unique asset—one that is not replicated by any other individual in the startup assistance network—is more than four times as likely to become an owner-manager and three times as

Table 5.4.
Contributions of Entrepreneurial Group Members by Role, PSED II (2005–2006)[a]

	Weighted %				
Contribution	*Owner-Manager*	*Employee / Manager*	*Investor*	*Consultant, Vendor, Other*	*Significant Sample Difference*[b]
Information or advice	94.6	24.0	47.9	61.6	$p < .001$
Introductions to people	76.5	9.6	32.0	7.8	$p < .001$
Training in business-related tasks or skills	51.3	12.3	11.4	8.8	$p < .001$
General business services (e.g., legal, accounting, clerical assistance)	46.5	19.3	13.9	6.9	$p < .001$
Physical resources (e.g., land, space, buildings, equipment)	57.3	15.4	25.5	7.0	$p < .001$
Access to financial resources (in addition to personal investments of money)	30.9	9.5	44.8	0.3	$p < .001$

[a]Excludes solo owner-managers.
[b]All tests of significance are F-tests, conducted within an ANOVA framework.

likely to become a startup employee than a member who lacks such a unique asset (figure 5.3). This relationship holds even after controlling for the demographic characteristics and human capital of startup participants, as well as the asset specificity of their contributions. Some caution should nevertheless be exercised in interpreting this evidence. First, startup participants may only be forthcoming with rare, inimitable, or non-substitutable capabilities (or seek to develop them) when they have incentives to do so. Consequently, asset uniqueness—like asset specificity—may be endogenous to the process of startup role assignment itself. Second, previous studies of boundary delineation in business startups have not identified a statistically significant relationship between asset uniqueness and the allocation of "insider" roles. For instance, Xu and Ruef (2007) found no support for the RBV thesis in examining the 1998–2000 PSED I sample. As they suggest, the resource-based view of the firm may be primarily true in an evolutionary sense if, as time goes by, the firms initiated by entrepreneurs who ignore resource configurations are subject to higher rates of failure. In the boom times of the late 1990s, this leads us to observe numerous startups that allocate equity to owner-managers

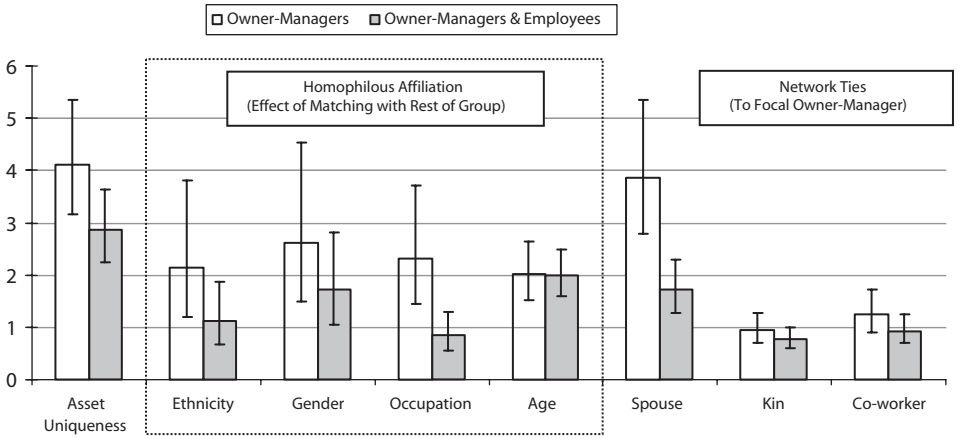


Figure 5.3. Odds Ratio of Holding a Particular Startup Role Based on Asset Uniqueness, Homophily, and Network Ties, 2005–2006. *Source*: PSED II (multi-owner groups only). All odds ratios are estimated using a Generalized Estimating Equation (GEE) regression to account for clustering of members within startups. Estimates include controls for demographic attributes (ethnicity, gender, occupation, and age), human capital (startup and industry experience), marital status, asset specificity, and industry fixed effects.

or hire employees even when those participants do not contribute unique capabilities to the effort. Nearly a decade later, in a much less forgiving economic environment, fewer business startups have been able to indulge in that luxury.

Homophilous Affiliation

In contrast to the emphasis on resource contributions in TCE and RBV, the principle of homophily explains boundary decisions in terms of the similarity of group member characteristics. As documented in a wide array of research on homophilous affiliation (see McPherson et al. 2001 for a review), individuals with similar sociodemographic characteristics tend to have a greater level of interpersonal attraction, trust, and understanding than dissimilar individuals. These considerations are especially relevant within emergent organizations, where participants often place a premium on a high level of interpersonal trust and understanding in order to survive the "liability of newness"—the high risk of dissolution or bankruptcy among young ventures (Stinchcombe 1965; Carroll 1983; Ruef 2002b).

Based on the logic of homophily, individuals who match the dominant age, gender, ethnicity, or occupational class in a startup group will enjoy a higher level of interpersonal trust than those who do not. With respect to the boundary decision process, this suggests that startup participants are more likely to become organizational insiders when their sociodemographic profile is like that of the rest of the members in the entrepreneurial group. For owner-managers, in particular, an analysis of role allocation within entrepreneurial groups seems to bear out this hypothesis (see figure 5.3). When the age cohort, gender, ethnicity, or occupation of a startup participant matches that of all other participants, they are two to three times as likely to become an owner-manager compared to when these sociodemographic attributes do not match those of any other participants. Despite some observed differences in the estimates of homophily across these dimensions, none appears to be significantly more salient in driving this boundary decision than any other. As we expand the boundary of the startup firm to include employees, there is a decline in the salience of ethnicity, gender, and occupation in homophilous matching. Only similarity to the mean age of the entrepreneurial group remains statistically significant as a predictor for which participants will be recruited as startup managers and employees.

Comparing these effects for homophilous affiliation with those in figure 4.4 suggests some of the dramatic differences between a model in which homophily is estimated conditional on random mixing and a model in which it is estimated conditional on a particular set of startup participants. In the latter case, all participants have already chosen to be involved in a given business startup *in some role*, thus accounting for a considerable amount of choice homophily. Moreover, those participants are already constrained to work with business partners who can be recruited through their social networks and are geographically proximate, thus accounting for a considerable amount of induced homophily. As a consequence, when we estimate the probability that a focal entrepreneur will recruit another member of their startup assistance network as an owner-manager, the odds of homophilous affiliation (2–3 times random expectations) are far more modest than those observed at a population level (3–100 times expectations, with controls for the presence of spouses and kin).

Social Network Constraint

A network perspective on boundaries emphasizes the high network density within a social group—which facilitates the flow of goods and communication among actors and exerts informal pressures toward normative consensus—as opposed to the low density outside the group. Dense

social networks generate trust through norms of reciprocity that are reinforced with social sanctions against untrustworthy behavior (Granovetter 1985). For example, opportunistic behavior by an entrepreneur in a dense startup assistance network may be sanctioned by other members through temporary or permanent exclusion from the group (Coleman 1990). For a group member *A* and alter *B*, the stronger the tie between *A* and *B*, the more third parties *A* and *B* would be likely to share. The more shared third parties between *A* and *B*, the less likely it is that *B* would free ride on their responsibilities to the entrepreneurial group as a whole (given the possibility of third-party punishment). This restriction of opportunism tends to occur when ties of marriage or kinship are invoked within these groups.

Dense networks also transmit normative expectations. Podolny and Baron (1997: 676) argue that within an organization, "a dense, redundant network of ties is often a prediction for: (1) internalizing a clear and consistent set of expectations and values in order to be effective in one's role; and (2) developing the trust and support from others that is necessary to access certain critical resources (political aid, sensitive information, etc.)." The organizational startup process, in particular, entails a considerable amount of collective decision-making. To avoid friction, entrepreneurs will tend to affiliate most closely with others whom they expect to have similar views. Consequently, the stronger the ties between an entrepreneur and an alter, the more likely it is that the entrepreneur would favor the alter for an insider role in the business startup.[7]

Empirical estimates for U.S. startups suggest that spousal relationships may be the principal driver leading to insider startup roles, rather than other types of network ties (figure 5.3; Xu and Ruef 2007). Considering the PSED II data, members of the startup assistance network are four times as likely to become owner-managers when they are married to a focal entrepreneur and nearly twice as likely to become startup employees. Kinship ties do not exercise a statistically significant effect in the sorting of startup participants into owner-manager or employee roles, nor do weaker relationships, such as co-worker ties. Although the finding for spouses and partners may be taken as an indication of the inclusive or egalitarian nature of intimate relationships, other research has found that such family businesses tend to be *more* traditional in their sex-role orientation and work responsibilities than dual-career couples (Marshack 1994).

Considering the boundaries between entrepreneurial work and family life, it is instructive to compare the effect of being married to a focal entrepreneur in a startup with the effect of being married in general. Controlling for the other factors shown in figure 5.3, married participants in the startup assistance network are only half as likely to become owner-managers or employees as singles, as long as they are *not* married to a

focal entrepreneur. Far from being clearly divided, the spheres of love and work are commingled for many entrepreneurs, as they are for workers in more traditional employment contexts (Jacobs and Gerson 2004). For married or cohabiting participants in startup assistance networks, entrepreneurship can become an "all-or-little" choice, as individuals tend to either join their intimate partners as regular contributors in new businesses or remain in more peripheral roles (as investors or external helpers), consistent with the less entrepreneurial inclinations of their spouses. A disproportionately small number of couples straddle the boundary between conventional and entrepreneurial employment.

Ecological Constraint

The boundary-defining mechanisms proposed by social network analysts, the resource-based view, and the homophily principle may be contingent on the site in which a new business is located. An emphasis on the resource configuration of the firm, for instance, may be especially salient when a startup is located in a commercial site (such as an incubator or space hosted by an existing business), where this configuration of the business is subject to the scrutiny of others, but less so in a residential or "virtual" site. Conversely, strong network ties may be a central criterion for delineating the set of owner-managers and employees who will operate a home-based enterprise, but can prove less useful in a commercial setting, where such nepotism is more likely to be frowned upon. Finally, as suggested in the previous chapter, the degree of in-group bias itself may vary across locales, particularly if the boundaries of the startup firm are more porous in commercial sites and, thus, open to startup managers and employees with diverse identities and backgrounds.

A consideration of startup role allocation, conditional on business location, is generally consistent with these intuitions (figure 5.4). The salience of homophily and intimate ties generally declines as we move from noncommercial to commercial locales and from owner-managers to employees. Employing an index for homophilous affiliation that is averaged across the dimensions of gender, ethnicity, age, and occupation, we find that participants in noncommercial sites who match other members of the startup assistance network on every dimension are twenty-two times as likely to become owner-managers and five times as likely to become owners or employees, relative to participants who do not match other members on any dimension. By comparison, participants in commercial sites are not significantly more likely to become employees when they match the sociodemographic characteristics of other members of the startup assistance network (though homophily still matters for the owner-

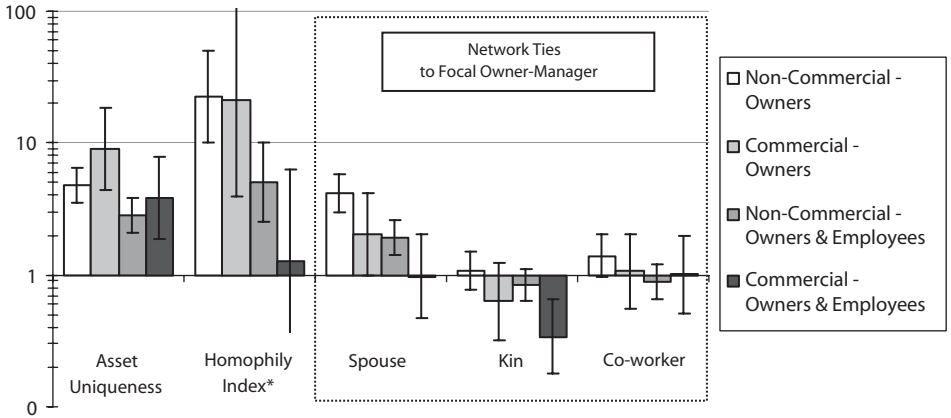


Figure 5.4. Odds Ratio of Holding a Particular Startup Role, Conditional on Type of Startup Location, 2005–2006. *Source*: PSED II (multi-owner groups only). All odds ratios are estimated using a Generalized Estimating Equation (GEE) regression to account for clustering of members within startups. Estimates include same controls as Figure 5.3.

* Homophily index reflects the average extent of demographic matching for a startup participant with all members of the entrepreneurial group, considered across the dimensions of ethnicity, gender, occupation, and age cohort (=1 if participant and all members match on every dimension).

manager role). A similar trend is evident for the spouses of focal entrepreneurs, with odds of four and two times random expectations that they will be recruited as owner-managers or as either owners or employees, respectively, in noncommercial locales. In commercial sites, on the other hand, participants who are the spouses or cohabiting partners of focal entrepreneurs are not significantly more likely to assume insider roles than other participants who lack this strong network tie.

Turning to the functional criterion of asset uniqueness, this trend is reversed to some extent. Considering the odds that a unique contribution will propel a startup participant into an owner or employee role, we find that point estimates are generally higher in commercial than noncommercial settings, though the small number of sampled startups in commercial sites prevents definitive conclusions. For instance, a startup participant with a unique contribution is nine times as likely to become an owner-manager in a business that is sited commercially, but only three times as likely to become an owner or employee in a business that is located in a residence or has no location at all. A parallel trend (not shown in figure 5.4) is apparent for the relevance of asset specificity in boundary decisions. In sum, these

findings suggest that the importance of criteria such as functionality and trust in delineating the boundaries of the startup firm are not acontextual, but are affected in part by the spatial ecology of founding activities.

Summary

Boundary delineation in new firms is a result of the resources that participants bring to the startup process and the relational demography among those participants. These factors are especially determinative in differentiating an "inner circle" of owner-managers, who are both regular contributors and holders of a substantial equity stake in the business venture. The same factors also bear on the differentiation of employees from outside helpers, but these effects are weaker in magnitude and statistical significance (see figures 5.2–5.4). Such differences are consistent with the idea that the combination of owner-managers and startup employees represents a more generous and porous definition of organizational insiders in the context of the entrepreneurial firm.

While much of the preceding discussion has emphasized the factors that seem to matter in the process of sorting participants into startup roles, it is equally important to acknowledge individual attributes that have comparatively little effect on this boundary decision. With the exception of age (which consistently evidences a negative relationship with the adoption of insider positions), sociodemographic attributes—such as gender, ethnicity, and occupation—do not have any direct bearing on the sorting of startup participants into owner-manager or employee roles. In the startup context, the effect of these attributes tends to be exercised *indirectly* via homophilous affiliation, as would-be entrepreneurs who are able to locate groups with a demographic profile that matches their own are more likely to enjoy the possibility of active involvement in the startup process. As suggested previously, a similar conclusion holds with respect to the human capital of startup participants. Startup experience has no bearing on the selection of participants into owner-manager or employee roles, and industry experience only matters for non-owner employees (with the probability of selection into this role increasing predictably with tenure). Importance within the startup assistance network is typically not a function of *which* generic capabilities or resources a participant brings to the process, but *how* those capabilities and resources mesh with those of other participants.

The limited explanatory power of individual attributes—considered in isolation—affirms the relevance of the entrepreneurial group as a unit of analysis. What remains to be seen are the conditions under which firm boundaries become institutionalized at the group level and recognized by external legal authorities.

Firm Boundaries and Legal Form

Within entrepreneurial groups, the boundaries between owner-managers and employees (or between employees and outside helpers) may be relatively flexible until they are defined in writing and accorded legal status. The *legal form* of the business firm delineates the set of individuals who will have an ownership stake in the enterprise and their liability with respect to each other, their employees, and outside stakeholders. Although experts in the entrepreneurship field often tout the importance of choosing a legal form for a startup business, many entrepreneurs are slow to do so. Among startups in the United States, only 28 percent have a legal form that is formally registered with an appropriate government agency (table 5.5). In another third of startups, the owner-manager(s) have come to some determination as to what the legal form of the business will be, but have not yet established it formally; among the remaining startups, the legal structure of the business remains uncertain, even at an informal level. Notably, this low level of formality holds even though the average entrepreneur in the PSED II sample has been thinking about and working on their business venture for a (median) period of seventeen months. Consequently, a porous understanding of organizational boundaries seems to be the norm, rather than the exception, among these nascent entrepreneurs.

What determines the level of formality in the legal structure of business startups? The two sets of perspectives on organizational boundaries introduced previously in this chapter offer insightful—albeit divergent—explanations of this process. For transaction cost economics and the resource-based view of the firm, formality is expected to be a function of the assets that are present within the entrepreneurial group. When these assets are highly specific to the startup firm (TCE) or unique to a given participant (RBV), then the high costs of policing those assets in market exchange warrant the creation of a formal governance structure within the startup firm (Williamson 1991; Barney 1991). Underlying these theories is the assumption that entrepreneurs "look ahead, perceive potential hazards, and embed transactions in governance structures that have hazard-mitigating purpose and effect" (Williamson 1998: 76). Within this view, appeal to outside legal authority is a course of last resort; instead, consistent with our descriptive evidence, "most of the governance action works through private ordering" (ibid.).

For sociologists, a more perspicacious explanation for legal formality can be found in the interpersonal relationships within an entrepreneurial group. From a social network perspective, for instance, legal formality may be sought within an economic enterprise when the strength of ties is not sufficiently high to ensure mutual trust (Coleman 1990). Legal formality

Table 5.5.
Legal Form of Startup Businesses in the United States, 2005–2006

Legal Form	*Weighted %*
Not yet determined	37.3
Determined, but not formally registered	34.7
Formally registered (as a):	28.0
Sole Proprietorship	14.5
General Partnership	1.4
Limited Partnership	0.8
Limited Liability Corporation (LLC)	6.7
Subchapter S Corporation	3.2
General Corporation	1.4
Sample Size	1,193

Source: PSED II (with inverse size weighting).

may also be important when an entrepreneurial group is marked by heterogeneous identities or interests and when it interfaces with external stakeholders in public settings. In each of these instances, formality serves as a *substitute* for trust that would otherwise be achieved through durable ties, common interests, and solidarity generated by shared identities within the startup firm.[8]

Arthur Stinchcombe (2001) has noted that most sociologists have been inclined to view formality as a replacement for substantive interpersonal relations, and a poor one at that: "the notion is that the more formal, impersonal, technical social relations there are in a group, the less intimacy, charity, and mutual faith there is likely to be" (Stinchcombe 1965: 185). Yet, Stinchcombe cautions, there is "not a shred of evidence for this proposition and a good deal of evidence against it" (ibid.; see also Silver 1990). Within organizations, an alternative explanation proposes that formality (legal and otherwise) *builds on* interpersonal relations, clarifying their intentions and consequences. As Weber's (2003) dissertation suggested, the legal origins of medieval commercial partnerships resided in earlier principles derived from family law, such as the concept of the "joint household" (see chapter 2). Among modern entrepreneurial groups, the complexities of community property, succession planning, inheritance, and the mitigation of tax liability continue to serve as catalysts for the legal formalization of enterprises that involve spouses and/or kin. Moreover, if interpersonal understanding and trust is a pre-condition to legal formalization, rather than a substitute, then homophilous affiliation along various demographic dimensions may likewise serve to increase the likelihood that a startup firm will become legally established.

Empirical evidence on legal formality in business startups paints a slightly more complicated picture than that envisioned by either the functional or the relational perspectives (table 5.6). Consistent with the resource-based view of the firm, there is a significant increase in formality when many of the key contributions to the startup are unique to one or more participants. In this context, legal formality may be critical in securing property rights (intellectual and otherwise) or writing contracts. There is no evidence that the asset-specificity of contributions serves as an impetus to legal formalization. Participants who provide "generic" resources, such as access to financing, appear as likely to seek legal protection as those who make firm-specific investments, such as the development of business ideas that are tailored to the startup enterprise.

The evidence for the relational account of legal formalization is also mixed. As anticipated by social network explanations, formality is low when startup participants are able to rely on long-standing interpersonal ties within the entrepreneurial group. For instance, the odds of legal formalization in a startup where members have known each other for twenty-five years are merely half those of a startup where members have not known each other for any duration. Similarly, formality is substantially less likely outside of commercial business settings, where startup participants have an opportunity to work with one another in intimate or flexible locales and contact with customers and external business partners tends to be more limited. But there is no support for the claim that demographic homogeneity within the entrepreneurial group serves to limit its degree of legal formalization. Indeed, the opposite seems to be true for several sociodemographic dimensions, including ethnicity, occupation, and especially age. Perhaps, as Stinchcombe (1965, 2001) has suggested, this is indicative of a tendency to build formal conceptions of organizational relationships and boundaries on top of a preexisting foundation of mutual trust and (perceived) understanding. By the same token, legal formalization is significantly more likely when spouses or cohabiting partners are present in the entrepreneurial group and marginally more likely when other kin are present, once tie duration is controlled for. These processes seem to track the salience of interpersonal relationships as preconditions to formality, rather than reflecting a lack of trust among kin or homophilous partners.

Conclusion

The processes contributing to boundary formation have been explored from a variety of perspectives in organizational theory, but most have focused primarily on how established firms shape their boundaries, offering little guidance as to how boundaries first emerge in an entrepreneurial

Table 5.6.
Effect of Entrepreneurial Group Composition and Location on the Formal Legal Establishment of Business Startups

Variable[a]	*Odds Ratio*[b]	*Statistically Significant?*
Demographic Composition		
Same ethnicity	1.412	$p < .05$
Same gender	1.093	No
Same occupation	1.364	$p < .10$
Age dispersion (years)	0.971	$p < .05$
Relational Composition[c]		
Duration of ties (mean years)	0.972	$p < .001$
Spouse / live-in partner	1.497	$p < .05$
Nonspouse family member	1.444	$p < .10$
Co-worker	1.178	No
Business Location[d]		
Residence or personal property	0.382	$p < .001$
No location	0.194	$p < .001$
Resource Configuration		
Percent of participants with high asset specificity in their contributions	1.229	No
Number of contributions that are unique to one participant only	1.150	$p < .05$

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of startup organizations is 878, following listwise deletion. Analysis is limited to organizations with more than one startup participant (including owners).

[a] Analysis includes controls for number of participants, participant demography (mean age, % male, % white, % professional), lag time since inception of startup, and industry fixed effects.

[b] Ratios can be interpreted as multipliers for the odds that the legal form of the startup firm has been determined and registered by its owners. Estimates are based on an ordered logit regression, with outcomes rank-ordered into three categories (0 = legal form not yet determined, 1 = form determined, but not registered, 2 = form registered with appropriate government agency).

[c] Indicates whether relationship is present between any pair of owners or the focal entrepreneur and any non-owner.

[d] The omitted category is that of startups located in commercial properties.

context. In this chapter, I have sought to explain boundary formation in business startups by contrasting the functional considerations that tend to be emphasized in economic accounts with the relational demography that comes into play in sociological approaches. Analyzing recent data on nascent entrepreneurs in the United States, the findings suggest that informal boundary decisions are based to a considerable extent on both rela-

tional demography and functional contributions among startup participants. Understanding the legal formalization of these boundaries also benefits from both perspectives, though findings concerning some mechanisms (e.g., transaction cost minimization) are inconclusive and others (homophilous affiliation) require further attention to the underlying processes that generate them.

Viewed historically, relational demography appears to be the most stable predictor of boundary decisions in startup firms. Considering the PSED I data, for instance, Xu and Ruef (2007) found that participants who matched the dominant gender or age of the entrepreneurial group, or those who had a spouse as an owner-manager, were significantly more likely to become owner-managers themselves. By comparison, the transaction cost and resource-based views of the firm performed poorly in explaining how startup participants were sorted into owner roles for this data set. One explanation proffered for this result was that many nascent entrepreneurs during the late 1990s were economically unsophisticated, driven by a faddish interest in entrepreneurial activity rather than attention to functional considerations that would allow them to develop a viable entrepreneurial group.[9] Consequently, it could be argued, these "startup bubble" entrepreneurs often ignored transaction costs or resource complementarities in making decisions about the composition of the group.

An alternative account, based on social exchange theory, suggests that entrepreneurs may be acting in ways that are economically rational, even when they are primarily influenced by relationships and demography in their group formation decisions. In this view, the finding that boundary formation often occurs on the basis of perceived trustworthiness reflects the nature of exchange in emergent organizations, in which owner-managers receive a specified share of the benefits (through an equity stake), while their specific contributions (in terms of ideas, specialized skills, labor, etc.) cannot be contracted for ex ante. In the next section of the book, I will employ a social exchange perspective to consider how benefits are allocated to group members and what conditions lead to opportunistic shirking in some entrepreneurial groups and successful collective action in others.

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PART THREE

Collective Action within the Group

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CHAPTER SIX

Allocation of Rewards and Control

DURING HIS DOZEN YEARS as a custodian and building maintenance worker in Aurora, Illinois, Carl Whitaker noticed that many employees in small businesses and nonprofits went to great lengths to organize corporate social functions, taking on food preparation and planning activities that fell outside their area of expertise. Perplexed by the motley assortment of hors d'oeuvres and drinks offered at these occasions (and, more personally, the mess that was often left behind), he envisioned a hospitality enterprise that might address an unfilled market niche, introducing low-cost catering to small departments and work groups. In June 2004, he began to devote substantial periods of his off-hours to developing the template for a new business startup.

Given his lack of expertise in the catering industry, Carl knew he would need some assistance. His friend, Rodney, whom he had known for a number of years, had worked as a cook and already had some experience with event catering. When Carl approached him, Rodney appeared eager to sign on as a full-time owner-manager and even devote some of his personal savings to the business. But he also insisted that they would require another partner to do the books for the startup, since neither had any accounting experience. Rodney mentioned a friend, Steve, who had some college-level training under his belt and would be able to commit a lot of time to running numbers for the catering business. While Carl had never met Steve, he trusted Rodney's judgment and invited Steve to join the business venture.

By July 2004, the three partners had worked out an informal agreement concerning their contributions and ownership shares. Rodney would be in charge of the day-to-day operations of the catering business and serve as a general manager; he also contributed $200 and kitchen equipment to get the business off the ground. In return, he would receive a 60 percent ownership share in the venture. Steve would be in charge of accounting and provide much-needed financial advice, but not invest any of his own money in the business. In return, he received a 25 percent ownership share. Carl, whose specific contribution had become less and less clear over time, would handle the sales and marketing end of the business, using contacts from his building maintenance job to identify possible clients. He received a 15 percent share of ownership in the catering venture.

Over the course of the next fifteen months, Rodney devoted more than forty hours a week to the catering business, Steve devoted around twenty per week, and Carl spent five to six hours per week on sales contacts. Although Carl had been the "lead" entrepreneur who first became involved as an owner-manager in the catering business, he found that his ownership and control in the enterprise had become rather peripheral. Carl could only wonder whether his meager role was due to his limited experience in the catering industry, his inability—compared with Rodney—to bring other close friends into the founding team, or his low socioeconomic status as a janitor with a high school diploma.[1]

• • •

Although entrepreneurship is commonly viewed as a path to upward mobility in capitalist societies, remarkably little scholarship has addressed the allocation of rewards among entrepreneurs themselves. Perhaps because the initiation of new business ventures is perceived as a risky, even foolish, endeavor (cf. Aldrich and Fiol 1994; Xu and Ruef 2004), entrepreneurs are seen as entitled to receive whatever profits—or incur whatever losses—such ventures may generate. Governments, unions, and academics monitor inequality and human resource practices in larger, established enterprises (e.g., Kalleberg et al. 1996; Tomaskovic-Devey et al. 2006; Kalev et al. 2006), but collect little systematic data on ownership shares or incomes in business startups. As a result, most of what we know concerning the link between entrepreneurship and inequality is at an aggregate level, relating inequality (or norms of egalitarianism) in nation-states to their rates of entrepreneurial activity (Lippmann et al. 2005; Siegel et al. 2007). The mechanisms that generate inequality between entrepreneurs remain largely uncharted.

This empirical gap is surprising when one considers the earliest sociological treatment of entrepreneurship, Max Weber's (2003) J.D. dissertation on the *History of Commercial Partnerships*. As discussed in chapter 2, Weber's primary thrust in this work was a comparative analysis of commercial law, with an emphasis on its influence in the creation of partnerships among medieval entrepreneurs. In surveying the differences between various forms of partnerships, Weber also speculated about the effects that these organizational forms might hold for inequality among participating entrepreneurs. For instance, whereas the limited partnership "derived from an association of people who were economically and, as one could say, socially unequal," the institution of joint liability "developed out of associations among . . . people who had an equal right to dispose of property" (Weber 2003: 146–147). Weber thus raised the pos-

sibility that different social contexts had distinct implications for stratification among groups of entrepreneurs.

Drawing on contemporary social science research, this chapter seeks to develop two basic insights from Weber's path-breaking work. First, entrepreneurial groups are natural sites for understanding inequality among entrepreneurs. Whereas analyses emphasizing differences in economic outcomes *between* entrepreneurial ventures must account for variance in organizational structure, industry, regional infrastructure, and even dumb luck (Aldrich and Kenworthy 1999), analyses emphasizing economic inequality *within* entrepreneurial ventures inherently control for these features of organizational performance. Applying this insight to Carl Whitaker's catering business, for instance, it may not be as important for students of stratification to establish whether the startup is profitable or not, but who would benefit most *if* it was profitable. Second, the mechanisms governing the distribution of entrepreneurial rewards must be understood in a social context of identities, relationships, and norms. Within entrepreneurial groups, the distinctive status characteristics of entrepreneurs and the norms of justice they adopt affect their degree of egalitarianism in distributing rewards and managerial control of the business.

To develop this argument, I begin by reviewing some of the relevant literature in sociology and economics regarding the distribution of goods within dyads and small groups. For social psychologists, this issue has historically been posed as a problem of distributive justice (Homans 1961; Jasso 1980; Hegtvedt 2005). A number of efforts have sought to understand the norms guiding the distribution of goods within formal organizations (Randall and Mueller 1995; Roberson and Colquitt 2005), but this framework has yet to be applied to entrepreneurial groups. Among economists and economic anthropologists, recent experimental work has emphasized the allocation of rewards within a game-theoretic approach (e.g., Camerer 2003; Henrich et al. 2004). Findings from one experimental game—the ultimatum game (UG)—are of special interest, since they offer rough approximations of the exchange processes leading to the distribution of ownership stakes within entrepreneurial partnerships. These results are complemented by social exchange experiments (Molm et al. 1999), which offer insights into the effect of entrepreneurial networks on the differential allocation of rewards.

Drawing on these general frameworks for understanding inequality, I interpret the empirical evidence concerning the allocation of rewards and control among groups of entrepreneurs. At a micro level, this entails the identification of mechanisms that assign rewards or shares to individual entrepreneurs; at an aggregate level, it entails consideration of the mechanisms that specify the overall shape of the reward distribution within

entrepreneurial ventures (i.e., whether profits generally tend to be distributed on an egalitarian basis). While the purpose of this chapter is not to offer a definitive empirical test of the mechanisms that may generate entrepreneurial inequality, I review some preliminary evidence, based on analyses of nationally representative samples of business founding teams in the United States. My discussion suggests that the drivers of entrepreneurial ownership shares at the individual level—especially, norms of equity—are largely separated from comparable mechanisms at the group level. The consideration of reward and control allocation thus requires careful attention to the relevant unit of analysis in exchange processes among entrepreneurs.

Mechanisms of Inequality

Two generic mechanisms lead to variation in the shares received by participants in entrepreneurial partnerships. On the one hand, a mechanism of *distributive justice* entails a set of moral principles whereby differences in participant characteristics are translated into differences in ownership or control. While these principles may be contested between participants, they are offered with the conviction that they are fair and serve to maximize the welfare of the group as a whole (Hegtvedt 2005). By contrast, a mechanism of *self-interest* seeks to maximize the welfare of an individual participant, possibly to the detriment of the rest of the group. Within an entrepreneurial team, the ability of any participant to seek self-interested advantage is likely to depend on their access to scarce resources or opportunities for brokerage (Emerson 1962; Burt 1992; Aldrich and Ruef 2006: chapter 4).

Since the distinction between these generic mechanisms hinges on the intentions of entrepreneurs—and those intentions are typically unobservable—it primarily serves to classify the relevant research literature, rather than yield operational implications for empirical study. Social psychologists have traditionally begun with an emphasis on mechanisms of distributive justice, while economists tend to assume that actors are self-interested. Nevertheless, the results of behavioral experiments in these disparate domains reveal considerable similarity in outcomes, as reviewed below.

Justice Norms and Inequality

The process of ownership allocation in entrepreneurial teams establishes norms for subsequent *group-generalized* exchange. Over the history of the organization, "individuals involved in this type of social exchange successively give to the group as a unit and then gain back as part of the

group" (Ekeh 1974: 53; see also Blau 1964).[2] Thus, founders expect to contribute time, skills, and ideas to the organization (which are unspecified ex ante), and expect to receive income, status, and other socially desired goods in return (which are also sometimes left unspecified). Given the ample threat for subsequent shirking and collective dilemmas, the norms that allow for the emergence of such group exchange systems are of considerable practical and research interest.

Because the future benefits of group exchange in new ventures are typically not predictable, empirical interest centers on the allocation norms that entrepreneurial teams use to distribute inducements among their members. Based on the literature on distributive justice (see Eckhoff 1974; Cook and Hegtvedt 1983; Hegtvedt 2005), I identify four generic norms of distributive justice that may apply in such contexts (see table 6.1). These include norms of objective equality, subjective equality, rank order equality, and equity.[3]

OBJECTIVE EQUALITY

The simplest principle of distributive justice is that of objective equality: all group members receive equal benefits, independently of their capabilities, contributions, needs, social status, or position within the group. As an allocation norm, objective equality has been observed widely in experimental studies, with one classic study reporting incidence rates as high as 82 percent in laboratory groups (Kahn et al. 1980). Representative sampling of entrepreneurial groups suggests similarly high rates of equality. Among U.S. business startups with multiple founders, for instance, 70 percent had equal ownership allocations in the late 1990s and 56 percent had equal ownership in 2005–2006. Typical reasons proposed for allocation on the basis of objective equality include simplicity, reduction of conflict between group members, and compliance with norms that encourage trust within a group (Eckhoff 1974: 214–215). Insofar as group emergence is contingent on interpersonal trust and decision-making efficacy, this leads to the assertion that the majority of entrepreneurial groups should have reward distributions that are allocated equally to all members.

An empirical issue that arises in probing this assertion is that observations of equal reward distributions in entrepreneurial partnerships need not reflect a norm of objective equality. Partnerships that allocate benefits based on the level of contribution from each member (norm of equity) will likewise evidence equal reward distributions when there is limited intra-group variation in financial investments and human capital. Similarly, an allocation norm that emphasizes ascriptive status variation (e.g., older team members should receive greater rewards than younger members) would also lead to observed equality when there is a strong propensity toward group homogeneity along the same ascriptive dimension. The

Table 6.1.
Norms of Distributive Justice in Entrepreneurial Groups

Norm	*General Principles*	*Empirical Hypotheses and Assumptions*
Objective Equality	All group members should receive equal rewards, independently of contributions or attributes.	A1: The majority of small groups have formal reward distributions that are allocated equally to all members.
Subjective Equality	Group members should receive equal rewards if their identity matches that of other members.	A2: The majority of small groups are constituted by individuals with similar ascriptive characteristics. H1: Equality in group exchange is related directly to homogeneity in members' ascriptive characteristics.
Rank Order Equality	Group members should receive rewards commensurate with their status in society.	H2: High status members will receive more rewards from group exchange.[a]
Equity	Group members should receive rewards based on the resources and human capital they contribute to the group.	H3: Equality in group exchange is related directly to homogeneity in resources among members. H4: Equality in group exchange is related directly to homogeneity in human capital among members.
Self-Interest	Group members should seek to maximize their rewards, subject only to the constraints imposed by negotiation sequence and networks.	A3: Lead members in groups will receive most of the rewards from group exchange. H5: Equality in group exchange is related directly to the strength of network ties among group members. H6: Equality in group exchange is related inversely to opportunities for brokerage among members.

[a]Hypothesis applies exclusively at the level of individual members, rather than the group.

Source: Ruef 2009, "Inequality among Entrepreneurs," *Research in the Sociology of Work*.

norm of objective equality thus serves primarily as a null hypothesis against which other norms of distributive justice may be tested, once the demographic and relational composition within entrepreneurial groups is taken into account.

SUBJECTIVE EQUALITY

In many instances of group exchange, the allocation of benefits proceeds on the basis of members' needs, desires, or what those members are thought to deserve. The resulting distribution is not necessarily objectively equal, although recipients feel that it is fair from a subjective perspective, at least when the norm is effective (Eckhoff 1974: 36). For example, in an age-typed entrepreneurial team, co-founders may incentivize an older team member with stock options that are held as part of a retirement portfolio, while a younger team member receives income for her contributions. In this scenario, the rewards allocated to each entrepreneur may be unequal by an objective standard, but the desired outcome is that all co-founders achieve an equivalent level of material satisfaction.

Invocation of the norm of subjective equality requires considerable empathy among group members and intersubjective understanding of the distinctive identities that are involved. As a result, direct assessment of the norm is difficult. Entrepreneurs may believe that they are satisfying the needs of their business partners, even though this results from cognitive misattribution. Conversely, entrepreneurs may feel that they are not receiving what they desire from a venture, even though the rewards allocated to them satiate unrecognized or unconscious needs. For these reasons, examinations of subjective equality are more easily conducted on the basis of indirect indicators, such as the distribution of demographic attributes in an entrepreneurial team, rather than underlying psychological states and desires.

The norm of subjective equality will most likely contribute to objectively equivalent rewards when group members are highly homogeneous with respect to sociodemographic characteristics, such as gender, ethnicity, age, or class. Entrepreneurs assume that others with similar characteristics also share their cognitive orientations, desires, and needs (McPherson et al. 2001). When entrepreneurial teams are heterogeneous, members may have greater difficulty in achieving empathy with others and, rightly or wrongly, assume that the subjective needs of others are different from their own (table 6.1, *Hypothesis 1*).

The norm of subjective equality only yields implications for the distribution of benefits in a group as a whole, not the distribution of benefits to any particular individual within a group. Consider the three hypothetical business teams in figure 6.1. Team A is a heterogeneous dyad (involving members from two different social identities, denoted by a black

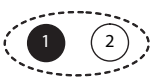
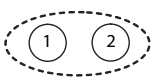
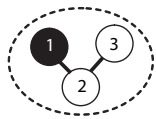
Norm	*Hypothetical Reward Allocation*						
	A1	A2	B1	B2	C1	C2	C3
Objective Equality	½	½	½	½	⅓	⅓	⅓
Subjective Equality	¾	¼	½	½	¼	⅜	⅜
Rank Order Equality	¼	¾	½	½	¼	⅜	⅜
Self-Interest (with Brokerage)	½	½	½	½	¼	½	¼
	 Team A		 Team B		Team C 		
	Group Composition						

Figure 6.1. Group Composition and Reward Allocation Under Different Norms. *Source*: Ruef 2009. "Inequality among Entrepreneurs," *Research in the Sociology of Work*.

and white circle), team B is a homogeneous dyad, and team C is a heterogeneous triad. Under the norm of subjective equality, the reward distribution in team B is identical to that obtained under a norm of objective equality. By contrast, we expect to observe deviations from equal reward distributions in both teams that have a heterogeneous composition (A and C), given the same norm of allocation. These deviations reflect the difficulty that group members have in understanding what members from different social identities need or deserve. At the individual level, however, there is no consistent expectation as to what identity will garner greater or lesser rewards. Thus, team member A1 receives a disproportionately large stake as her condition for organizational participation, while member C1—who assumes an equivalent social identity—receives a disproportionately small stake in her venture.

In conjunction with sociological findings on homophily, the norm of subjective equality readily explains the widespread use of equal reward allocations. As reviewed in chapter 4, single-gender groups occur at a rate

that is two to ten times higher than that expected under a model of random mixing, while the incidence rate for ethnically homogeneous groups is even greater. If group formation generally occurs under a strong norm of homophily and reward allocation proceeds according to a criterion of subjective similarity, then the norm is likely to lead to equal ownership stakes in most entrepreneurial partnerships.

Generally, there is strong empirical evidence for the intuition that demographic composition affects the level of inequality in shares for business ventures as a whole. Using PSED data and a standard Theil (1967) index of inequality, aggregate influences on ownership stakes in U.S. startups are summarized in figure 6.2.[4] Homogeneity in demographic characteristics tends to increase equality among entrepreneurs, most significantly so for same-gender and same-ethnicity teams. Groups of startup owners that are restricted to a single ethnicity are twice as likely to allocate equal ownership shares as mixed-ethnicity groups. Groups that are restricted to a single gender are two-and-a-half times (2005–2006) to five-and-a-half times (1998–2000) as likely to allocate equal shares as mixed-gender groups. What remains unclear from these results is whether inequality increases in mixed-gender and mixed-ethnicity groups because of discrimination against entrepreneurs with specific gender or ethnic characteristics or whether—reflecting a norm of subjective equality—the effect suggests a general lack of trust or empathy in entrepreneurial teams with members from diverse backgrounds, leading to greater errors in the attribution of competencies or needs. Disentangling these mechanisms requires attention to the individual allocation of ownership shares and the norm of rank order equality, which we turn to next.

RANK ORDER EQUALITY

Rank order equality rewards entrepreneurs on the basis of ranked positional or status characteristics that are not necessarily related to performance. Thus, some entrepreneurial teams may allocate more benefits to older members than younger members, or more rewards to men than to women. Physical location or temporal precedence may also be a consideration by this criterion of justice, as in "first come, first serve" norms that allocate benefits exclusively based on arrival time (Eckhoff 1974). Although some may view such rankings as simple discrimination, these status assignments also reflect the problems inherent in identifying salient contributions and capabilities within entrepreneurial ventures. Lacking more direct measures of entrepreneurial quality, business partners and investors may rely on positional or status characteristics as performance predictors, leading to statistical discrimination against some types of entrepreneurs (for instance, see Blanchard et al. 2005 for evidence from the credit market for small businesses).

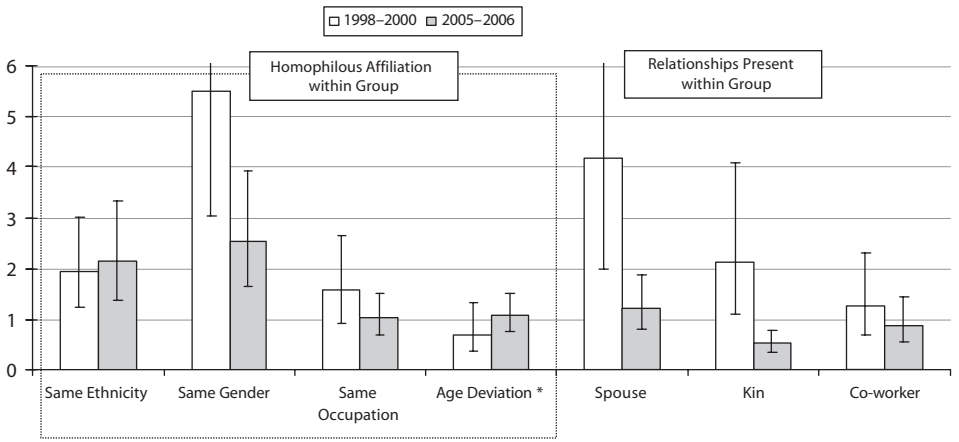


Figure 6.2. Effect of Entrepreneurial Group Composition on the Odds of Equal Ownership Share Allocation. *Sources*: PSED I and II. Sample size of multi-owner startups is 341 for PSED I and 494 for PSED II, following listwise deletion. Estimates are based on a general linear model with a logit link function and a binomial distribution (Papke and Wooldridge 1996).
* Estimate for age cohort is defined as effect of one standard deviation (13 years) on this variable.

Estimating the prevalence of rank order equality is difficult, not only because it requires that individual variation in achieved characteristics be controlled for, but also because its aggregate implications are often identical to those of subjective equality. Drawing on the distributive justice literature, it is useful in this respect to distinguish between macrojustice outcomes, which affect the functional form of exchange in groups as a whole, and microjustice outcomes, which relate rewards to characteristics among individual members (Jasso 1983). As principles of macrojustice, both subjective equality and rank order equality hold that homogeneous groups (e.g., team B in figure 6.1) should exhibit higher levels of equality than groups with a diverse membership (teams A and C). In the case of subjective equality, this results from a cognitive bias, as entrepreneurs assume that alters with similar identities also have similar needs; in the case of rank order equality, the explanatory mechanism is discrimination, as high-status entrepreneurs only support an equal reward structure for other high-status entrepreneurs.

Simultaneously, this distinction yields separate principles of microjustice. Under a norm of subjective equality, entrepreneurs with different status characteristics do not consistently receive greater or lesser benefits—there is simply more difficulty (i.e., needs attribution error) in reaching parity in mixed-status partnerships. Under a norm of rank order equality, on the other hand, status and rewards are clearly correlated at the individual level (Hypothesis 2). This is illustrated graphically in figure 6.1 as a reward premium received by team members occupying "white" circles in heterogenous groups (A2, C2, and C3). For business founders in the United States, discriminatory biases often appear to favor white males in this respect. Given the risk-seeking behavior attributed to the entrepreneurial mind-set (Xu and Ruef 2004), younger entrepreneurs may also enjoy some status benefits.[5]

Table 6.2 considers the effect of sociodemographic characteristics on *individual* ownership shares using 2005–2006 data. Deviations from equality are assessed using Jasso's (1980) justice formula, with "just shares" being computed on the basis of objective equality.[6] As suggested in the table, demographic characteristics explain little of the variance in ownership stakes among entrepreneurs in the United States. There is some evidence that older entrepreneurs receive disproportionately smaller shares of ownership, but no biases are observed on the basis of gender or occupation. The effect of ethnicity is only marginally significant and counter to conventional predictions (ownership shares are slightly smaller for whites than minorities). These results parallel findings for experimental exchange games, such as the UG, which have found few systematic correlations between inequality and a variety of sociodemographic measures (Henrich et al. 2004). They are also very similar to findings for the PSED I survey, suggesting that the correlations are stable across time (Ruef 2009).

Contrary to the hypothesis of rank order equality, demographic variation within groups appears to play a limited role in entrepreneurial stratification. What might account for this non-finding? One possibility is that selection into entrepreneurial groups winnows much of the variance in sociodemographic characteristics, leading to groups that are generally homogeneous and equitable. In this respect, discrimination (statistical and otherwise) may not occur at the stage of ownership stake allocation, but in deciding who should be part of a business venture in the first place (see chapters 4 and 5).

Another possibility, already raised in our discussion of subjective equality, is that demography exercises its influence on inequality at the group level, not the individual. In this case, diversity in demography within the group leads to more "errors" in assessing the capabilities and needs of business partners. To some extent, statistical evidence of such errors can

Table 6.2.
Effect of Demographics, Networks, and Contributions on Individual Ownership Shares, 2005–2006

Variable[a]	*Coefficient*[b]	*Statistically Significant?*
Demographics		
Ethnicity (1 = white)	−0.044	No
Gender (1 = female)	−0.017	No
Occupation (1 = professional)	−0.032	No
Age (years)	−0.004	$p < .01$
Networks		
Spouse / live-in partner	0.052	No
Nonspouse family member	0.004	No
Co-worker	0.033	No
Broker[c]	0.335	$p < .001$
Contributions[d]		
Financial contributions	0.137	$p < .001$
Industry experience	0.078	$p < .001$
Startup experience	0.004	No
Resource Configuration		
High asset-specificity	0.066	No
Unique contribution	0.090	$p < .01$

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of owners is 1,234 following listwise deletion and removal of owners representing institutions. Analysis is limited to organizations with more than one owner.

[a] Analysis includes controls for startup location.

[b] Coefficients can be interpreted as additive effects on logged equity shares, with a mean standardized to zero based on group size. Estimates are based on an OLS regression model adjusted for the correlation of clustered observations within entrepreneurial groups.

[c] A broker is a member of a group whose network ties to two other members are stronger than the network ties between those two other members.

[d] All contribution variables are standardized as z-scores.

be seen by plotting the residuals from individual-level predictions of ownership shares against the demographic composition of the teams. Consider the case of gender composition, as analyzed in figure 6.3. Controlling for obvious resume builders such as past industry and startup experience, predictions of ownership shares are most accurate (and residuals are the smallest) in all-female teams of entrepreneurs and slightly less so in all-male teams. Mixed-gender teams display the least accurate predictions (and greatest dispersion in residuals) based on individual-level characteristics. This supports the existence of a norm of subjective equality, in which the homogeneity of an entrepreneurial group is a precondition to the predictable and equitable allocation of rewards.

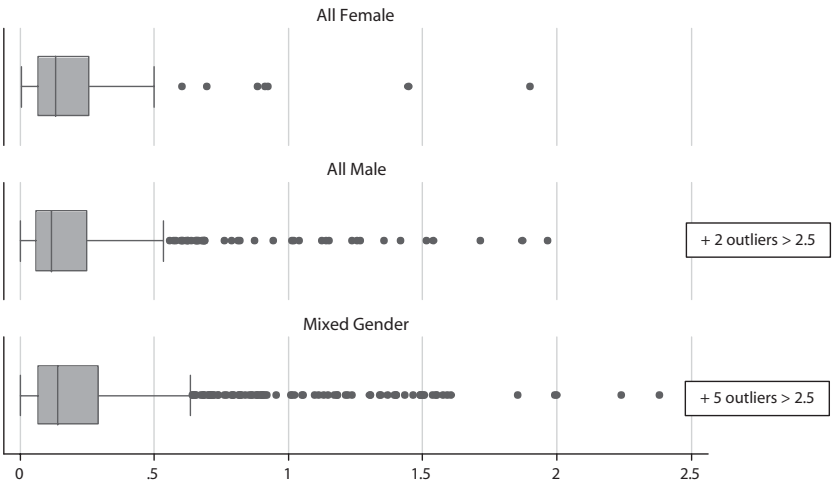


Figure 6.3. Boxplot of Residuals in Individual-Level Prediction of Ownership Shares by Team Composition. *Source*: Adapted from Ruef 2009.

EQUITY

The norm of equity specifies that entrepreneurs receive rewards according to their capabilities and contributions to a venture. Early exchange theoretic formulations, such as that of Homans (1961), relied overwhelmingly on equity as a central pillar of distributive justice, summarized in the ratio formula that the "net rewards, or profits, of each man [*sic*] be proportional to his investments" (75). Subsequent research has found that equity calculations tend to assume a linear, rather than ratio, form (Harris 1983) and that the predominance of equity norms is influenced by cultural and compositional factors (Kahn, et al. 1980; Chen 1995). Baseline specification of the equity norm proceeds by splitting the "investments" referred to by Homans into two components: financial and human capital. Insofar as new entrepreneurial groups suffer from liquidity constraints and rely on the skills and credentials of their members (see Kim et al. 2006 for a discussion and critique), the norm of equity proposes that equality is related directly to homogeneity in resource contributions (Hypothesis 3) and task-relevant human capital (Hypothesis 4).

We observe a wide variety of financial investments and funding sources among business entrepreneurs (table 6.3). Considering the contributions made by startup owners in 2005–2006, nearly a third of these entrepreneurs invested no money at all. Among the remainder who did, the majority drew

Table 6.3.
Source of Financial Investment by Owners in U.S. Business Startups, 2005–2006

Source	*Percentage of Owners Contributing*[a]	*Median Amount ($) among Contributors*	*Percentage of All Seed Funding*
None	32.3	—	—
Personal savings	63.9	3,000	47.6
Loans from family members	12.2	2,000	10.5
Loans from co-workers / friends	4.7	2,000	5.7
Credit cards	7.0	2,000	1.8
Bank loans	7.0	10,000	18.5
Asset backed loans (e.g., second mortgages, car loans)	3.6	15,000	14.9
Other sources	0.4	5,000	1.0
All sources		4,000	

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of owners is 1,926 following deletion of missing cases.

[a]Percentages need not total to 100% since sources of funding are not mutually exclusive.

on personal savings or other personal sources of funding. This source of financing comprised nearly half of all seed funding for new businesses in the United States. To a slightly lesser extent, entrepreneurs also drew on commercial and asset-backed loans; funds borrowed from family members, co-workers, and friends; and credit card debt (in declining order of total funding amount). The level of funding derived from these sources was generally rather modest, with the exception of loans from banks and other financial institutions. The median amount of startup investment by contributing owners was $4,000, though this sum is far lower if noncontributing owners are added to the mix.[7]

To what extent do these financial investments bear on the ownership shares of individual entrepreneurs? As shown in table 6.2, individual shares increase significantly with financial contributions (in U.S. dollars) to a venture, as anticipated by Homans' norm of equity. Human capital also matters to some extent, as shares are larger for those entrepreneurs who have more experience in an industry (though there is no significant effect for previous experience in founding other business startups). In combination, these measures of financial and human capital account for about 41 percent of the total explained variance in shares among individual entrepreneurs.

Considering inequality within entrepreneurial groups as a whole, however, the dispersion of startup experience, financial and human capital is

not as statistically significant, accounting for only about 18 percent of the explained variance in group-level inequality. To some extent, these results explain the quandary faced by Carl Whitaker in the case study that began this chapter. At one level, his small stake in the catering business can be explained logically by his lack of material investment in the venture and his inexperience in food services. At another level, he senses—correctly—that the overall distribution of ownership in his business is fairly unequal and is affected by structural and compositional influences that extend beyond the mere discrepancy of contributions among cofounders.

SUMMARY

Although the norms of objective equality, subjective equality, rank order equality, and equity offer distinctive principles for structuring rewards within social groups, they need not be mutually exclusive. Because entrepreneurs in startup teams may hold different justice norms simultaneously, the distribution of ownership stakes is likely to reflect a combination of these principles. Moreover, the salience of justice norms may vary depending on the attributes that are involved. For instance, a group may rank the contributions of young entrepreneurs over those of older participants, yet be indifferent to the distinction between men and women in the founding team. Using the criterion of explained variance, equity is the most important norm affecting the allocation of ownership shares at the individual level, while demographic composition (and, thus, subjective equality) assumes some importance at the group level (figure 6.4). What remains to be examined is the role of self-interest and networks in the allocation of business ownership.

Self-Interest and Inequality

To many economists, the emphasis on justice norms in social psychology is likely to paint an unfamiliar portrait of negotiation over entrepreneurial ownership shares. From a rational choice perspective, a more appropriate model is that of an entrepreneur who tries to maximize his or her own returns, while forming contracts with other entrepreneurs and outside investors (Aghion and Bolton 1992). These contracts are necessarily incomplete in entrepreneurial ventures, since capital contributions and resumes may be verified, but the effort put forth by entrepreneurs is often not observable nor contractible (Bernheim and Whinston 1998). Under these circumstances, self-interest may be an important mechanism generating inequality among entrepreneurs, depending on the resources they hold, the network positions they occupy, and strategies for opportunism that they pursue.

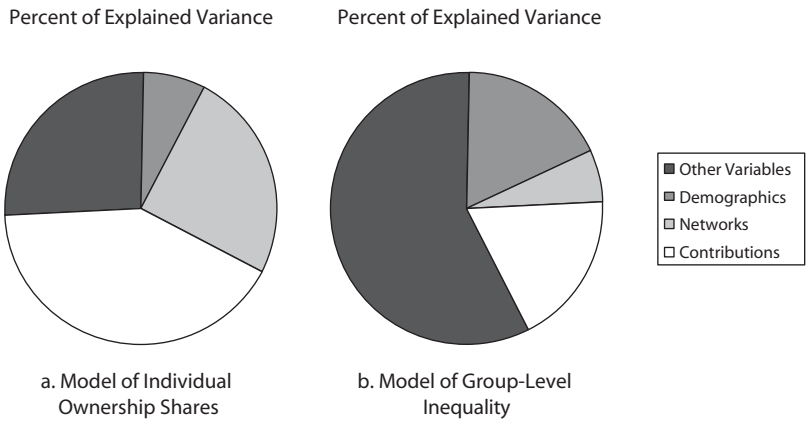


Figure 6.4. Percentage of Total Explained Variance in Ownership Inequality Accounted for by Different Clusters of Variables. *Note*: Models were nested by first including (a) control ("other") variables; then (b) demographics; (c) network attributes; and (d) contributions. Aspects of a startup team's resource configuration (asset-specificity and uniqueness) were included under the control variables.

Two experimental paradigms have been widely deployed to consider the extent to which exchange behaviors match the idealized, self-interested model of *homo economicus*. In the game theoretic paradigm, subjects are asked to engage in bargaining games with paired players under constraints that affect the conduct of negotiations and the payoffs received (Camerer 2003). In the exchange theoretic paradigm, subjects are asked to engage in bargaining games with paired players under network constraints that affect *whom* they can exchange with (see Macy and Flache 1995 for a comparison of these paradigms). Although both forms of experiments are greatly simplified compared to real-world bargaining among entrepreneurs, they offer insights into the processes that may generate inequality between entrepreneurs. More importantly, they establish a theoretical baseline for the pattern of inequality that would result under an assumption of economic rationality and, thus, allow us to probe deviations from a model of self-interested action.

NEGOTIATION CONSTRAINTS

One way to conceptualize ownership allocation within entrepreneurial ventures is to imagine a "lead" entrepreneur who has come up with the preliminary idea for a startup and who then invites a partner to join him or her. If the startup requires little or no investment, offers a relatively stable return, and requires the participation of both entrepreneurs to suc-

ceed, then the viability of this venture is largely contingent on only two factors: (a) the ownership share that the lead entrepreneur offers to the prospective partner; and (b) whether the prospective partner accepts this share and participates in the venture. This scenario is approximated by the well-known *ultimatum game* (UG), in which subjects (one lead and one follower) are instructed to split a divisible "pie" (usually consisting of a cash payoff). Under conditions of self-interest and anonymity, the lead entrepreneur in this scenario should offer the smallest possible (non-zero) share to his or her partner.

According to the predictions of the ultimatum game, inequality among entrepreneurs will result largely as a function of precedence in initiating entrepreneurial activity (i.e., the distinction of lead entrepreneur versus follower). Experimental results, however, have suggested overwhelming divergence from the model of self-interest when considering typical student subject pools. In the UG, modal offers for subject dyads are typically an equitable 50 percent, and mean offers vary between 40 percent and 45 percent (Henrich et al. 2004). Like the experiments that have been conducted from a social justice perspective, these results imply that equality will be the norm, rather than the exception, among small entrepreneurial teams. Game theory also suggests that sociodemographic characteristics will not have much impact on the distribution of individual shares. This contention has largely been supported in empirical experiments conducted within this paradigm, with little systematic variation observed in negotiation behavior based on the gender, age, or wealth of adult subjects (Camerer 2003).[8] As discussed previously, the non-experimental evidence on entrepreneurial groups is likewise supportive of this hypothesis (e.g., table 6.2), with two caveats being that age does seem to influence entrepreneurial reward allocation and that demographic composition has substantial effects at the group level.

Table 6.4 cross-tabulates the mean ownership share (beyond the largest stake held by a lead entrepreneur) with the number of co-founders in U.S. startups. The sample in the left column defines lead entrepreneurs as those individuals who have (exclusive) control over the day-to-day operations of a business startup; the sample in the center column defines them as the individuals who initiated startup activity before all other co-founders.[9] Exchange processes in these samples most closely resemble the scenario presented experimentally by the ultimatum game, which requires the clear differentiation of a lead entrepreneur—either by the criterion of control or temporal precedence—and a set of one or more followers. The small sample in the right column is restricted to cases where neither criterion can be used to distinguish lead entrepreneurs and followers. Here, the "lead" entrepreneur is arbitrarily identified as the respondent and the observed shares serve as a baseline for comparison.[10]

Table 6.4.
Average Ownership Share among Entrepreneurs involved in U.S. Startups (2005–2006), Excluding Lead Entrepreneur

	Definition of "Lead" Entrepreneur					
	Individual in Charge of Day-to-Day Operations		*Individual Who Initiated Startup Activities Before Others*		*Focal Respondent*[a]	
Team Size	*% Share*	*Equal Share %*	*% Share*	*Equal Share %*	*% Share*	*Equal Share %*
2	45.8	91.6	46.6	93.2	49.6	99.2
3	29.9	89.7	32.2	96.6	33.2	99.6
4	21.7	86.8	22.4	89.6	25.0	100.0
5+	15.5	(74.5)[b]	15.9	(73.0)[b]	23.8	—
Observations	$N = 514$		$N = 327$		$N = 33$	

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Analysis is limited to organizations with more than one owner.

[a]Limited to cases where there is no single entrepreneur in charge of day-to-day operations and no single entrepreneur who initiated startup activities before other members of the owner team.

[b]Calculation of equal share percentage limited to teams with five owners. No such teams exist for the third definition of lead entrepreneur (focal respondent).

Several descriptive statistics are worth noting in the table. First, the ownership shares are relatively close to the standard of objective equality (50%, 33%, 25% etc., depending on team size). In conventional models of self-interested behavior, lead entrepreneurs who come up with the idea for a business startup reserve large ownership shares for themselves and offer only scraps to other co-owners or institutional investors. This premise is echoed by the expected outcome for ultimatum games, where a rational "proposer" offers a low stake to a "responder" and the responder accepts that stake, in lieu of receiving nothing at all (Camerer 2003). By contrast, the mean (second-best) share observed in entrepreneurial dyads is over 45 percent (using a definition of lead entrepreneur based on either control or temporal precedence), suggesting a far more egalitarian model than that theorized for *homo economicus*. This share also approximates the stakes received by student responders in UG experiments, which are typically above 40 percent. Among college students at UCLA, for instance, Henrich (2000) found that the mean stake size offered to responders was a rather equitable 48 percent. Like these experimental studies, the data on business partnerships suggest that norms of fairness are typically

a precondition to cooperation among entrepreneurs and, in contrast to game theoretic predictions, there is limited reliance on pure principles of self-interest.

Second, the two samples represented toward the left of the table evidence systematic variation in the equality of ownership shares by group size.[11] When day-to-day operations are controlled by a single lead entrepreneur, the ownership allocation of other entrepreneurs, considered as a ratio of objectively equal shares, declines monotonically as co-founders are added to the business venture. When the lead entrepreneur is defined as the first individual to initiate startup activities, ownership allocations also generally decline as group size increases (with the exception of a slight increase in shares among triads of business partners). From a perspective of self-interested reward allocation, one possible explanation is that ownership shares are adjusted for ex ante to account for the possibility of more free-riding in larger entrepreneurial groups. Whether this represents an effective approach to managing opportunism among owner-managers will be examined in the next chapter.

A comparison of ownership shares across the three samples also suggests a pattern in which the rewards received by followers are lowest when a lead entrepreneur is in charge of the day-to-day operations of the startup, slightly higher when the lead entrepreneur was simply the first to initiate startup activity, and identical to those anticipated by objective equality when the "lead" entrepreneur is arbitrarily identified as the focal respondent. In seven out of the eight mean shares reported in the first two samples, the rewards received by followers are significantly lower than those expected under a standard of objective equality (at a $p < .01$ level). This suggests that the category of lead entrepreneur is generally a meaningful differentiator with respect to the rewards received within these groups. Some caution should be observed, though, in inferring distinctions between the two definitions of lead entrepreneur, since these differences are only statistically significant for entrepreneurial triads. The boundary between managerial control and temporal precedence is largely irrelevant with respect to the ability of lead entrepreneurs to negotiate larger ownership shares.[12]

NETWORK CONSTRAINTS

Sociological experiments involving self-interested exchange (e.g., Cook et al. 1983; Molm et al. 1999) emphasize that the network structure among group members is a principle determinant of interpersonal power and, hence, exchange outcomes. Extending this logic to entrepreneurial teams, one can argue likewise that the importance of self-interest will vary systematically based on both the content and arrangement of preexisting network constraints. Previous studies of business founding teams

have identified a substantial influence of strong network ties—such as those involving kinship or marital relationships—on group composition (Ruef et al. 2003). In light of the reciprocity and pressures for conflict reduction associated with such relationships, negotiation on the basis of pure self-interest may decrease and principles of allocation tend toward objective equality. When teams are developed on the basis of weak ties, as among social or business acquaintances, emotional investment and trust tends to decrease, while the diversity of information flows increases (Granovetter 1973; Ruef 2002a). In weak tie contexts, entrepreneurs become oriented toward self-interested exchange. Self-interest may be even more likely when groups bring together complete strangers, who have no prior investment in interpersonal relationships and limited knowledge about one another's respective intentions or capabilities (Hypothesis 5).

Recent experimental results suggest a mechanism that may produce such variation in exchange patterns conditional on tie strength. Linda Molm and her colleagues (1999) distinguish between subjects who engage in *negotiated* exchange, which entails explicit bargaining over contributions and reward allocation, and *reciprocal* exchange, which entails separate contributions in the absence of bargaining. In non-experimental situations, negotiated exchange is the norm between individuals with weak or no social ties (e.g., strangers in an entrepreneurial group), while reciprocal exchange is the norm between individuals with strong ties (e.g., kin running a family business). Laboratory experiments find that reciprocal exchange produces more equality and less use of interpersonal power, on average, than negotiated exchange. Interestingly, the experimental conditions of reciprocal exchange are very similar to those of games, such as the UG, which also yield a pronounced pattern of egalitarianism in their experimental results (but not their game theoretic predictions).

Turning to the empirical data on equality in entrepreneurial groups, the evidence for the impact of strong network ties is mixed. Considering data on business startups from the late 1990s, there is a pronounced tendency toward objective equality in owner teams involving spouses or kin (figure 6.2). But the effect of having spouses or live-in partners within an entrepreneurial group does not reach statistical significance in the 2005–2006 data. Moreover, groups that include kin actually exhibit *lower* levels of ownership equality in the more recent data, with merely half the odds of having equal ownership shares as entrepreneurial groups that do not include nonspouse family members. In certain respects, this is unsurprising given the deferential behavior that is likely to be observed in the most common kinship-based business partnerships, involving parents and their children (or the spouses of those children).

Beyond the content of interpersonal exchange, behavioral experiments suggest that the structure of an entrepreneurial network is likely to have

an impact on inequality, especially as it generates resource dependencies and opportunities for brokerage among group members. In a business founding team consisting of three members, a classic opportunity for brokerage arises when one member brings together two business acquaintances who have had no prior contact with one another (Burt 1992; see figure 6.1, group C). When allocations of ownership are discussed, the first member (C2) may be able to leverage her crucial position as the team's lynchpin and receive a disproportionate ownership stake. Classic exchange experiments (e.g., Cook et al. 1983) generally support the contention that equality in group exchange declines when some members occupy more powerful (brokerage) positions than others.[13]

Considering the non-experimental evidence from the PSED II, entrepreneurs in brokerage positions generally enjoy advantages in the exchange process, receiving shares that are significantly greater than those held by comparable entrepreneurs without brokerage opportunities (table 6.2). In addition, those entrepreneurs who offer unique resources—those which are not available from any other owner or non-owner in the startup group—are able to extract a greater share of ownership than entrepreneurs whose resources are duplicated elsewhere. Taken together, brokerage and resource uniqueness account for over 35 percent of the explained variance in ownership at the individual level, highlighting the importance of two tenets of network dependence theory in an entrepreneurial context: that business startups are more dependent on particular entrepreneurs (a) when those members mediate the goals of others (in the role of brokers); and (b) when the resources they offer are unavailable otherwise (Emerson 1962). These structural conditions allow for self-interested negotiation on the part of some entrepreneurs and increase their material ownership in new businesses.

Allocation of Control

Inequality within entrepreneurial groups is not produced solely through the distribution of material rewards, but also through the allocation of control over decision-making in the startup context (for a parallel distinction in households, see Woolley and Marshall 1994). In contrast to the relatively high level of objective equality in ownership shares, egalitarianism with respect to managerial control appears to be a rare quality in most American business startups. In 2005–2006, 89 percent of multi-owner teams allocated responsibility for most daily business decision-making to a single owner; little more than 1 percent shared decision-making control among a subset of owners, while around 9 percent shared managerial control on a (more or less) equal basis among all co-owners. Responsibility

for the day-to-day operations of a startup is clearly correlated with the functional roles inhabited by individuals within entrepreneurial groups. Entrepreneurs with extensive control rights tend to assume a general management role (doing a bit of "everything" in the startup), rather than assuming more specialized functions in marketing, finance, operations, and the like (table 6.5).[14]

Although the allocation of control rights has been a regular topic in the economic literature on startup ventures, most of the theoretical and empirical work in this domain has emphasized venture capital or joint venture contracts (e.g., Hellmann 1998; Bai et al. 2004; Dessí 2005), thereby ignoring the allocation of control among average entrepreneurs. To what extent do the norms and structural mechanisms that explain inequality in the allocation of ownership shares also apply to the allocation of control? Like the justice norms that affect material rewards, the allocation of control in new startups can be analyzed at both the group and individual levels (table 6.6). Consistent with the findings for material rewards, demographic composition—and ethnic composition, in particular—explains more of the variance for groups than it does for individual entrepreneurs. Thus, entrepreneurial groups that are restricted to business partners from the same ethnicity are more than five times as likely to share control among co-owners as those involving heterogeneous ethnic identities. While no comparable effect is evident for gender composition, most of this appears to get picked up by the presence of spousal and live-in partner ties, which lead to far less equitable distributions of control (as intimate co-owners are more likely to cede control to one another) than teams lacking these strong ties. Another parallel with the findings on reward allocation is that contributions, especially industry experience, matter far more for the allocation of control to individuals than they do for the dispersion of control in groups as a whole. In this respect, the norm of equity appears to be more salient in myopic considerations of individual experiences and their putative competencies for entrepreneurial leadership, while the norm of subjective equality is more salient in shaping the distribution of inequality in control across entrepreneurial groups.[15]

Conclusion

Entrepreneurial groups provide a unique laboratory for the analysis of norms governing the allocation of rewards and organizational control. Based on the tenets of an entrepreneurial ideology, business founders who are lucky or capable enough to enjoy the fruits of their labor may find themselves on a path to upward social mobility and wealth accumulation (Quadrini 1999). Yet the norms governing the distribution of tangi-

Table 6.5.
Distribution of Functional Roles and Control among U.S. Entrepreneurs in Multi-Owner Startups, 2005–2006

Functional Role	*Weighted Percentage*	*Percentage in Role with Control over Day-to-Day Operations of Business*[a]
General management	42.0	62.5
Sales / marketing / customer service	21.8	28.4
Finance / accounting	10.4	13.6
Administration / human resource management	9.0	29.3
Manufacturing / operations	8.6	36.8
Technical / R&D / engineering	8.2	31.5
F-test of differences		$p < .001$[b]

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Sample size of owners is 1,289 following listwise deletion and removal of owners representing institutions.

[a]For individual cases, control is operationalized at three levels: (a) owner is only entrepreneur in charge of day-to-day operations (= 1); (b) owner is in charge of day-to-day operations, along with other members of the group (= 0.5); and (c) owner is not in charge of day-to-day operations (= 0).

[b]Based on one-way analysis of variance across functional roles.

ble rewards and decision-making control among co-founders are relatively tacit and open to conflicting interpretations. For social scientists, eliciting these norms yields theoretical benefits for the study of inequality, in clarifying possible paradoxes between macro- and micro-level outcomes, as well as in broadening conceptions of social exchange.

From an individual perspective, the allocation of ownership stakes and control is driven by a process that might be described as "rational choice under constraint." This process entails a commitment to equity norms subject to the impact of network dependence. Based on an individual perspective, entrepreneurs employ *within-group* comparisons, expecting to receive a stake or a "vote" in collective outcomes that is proportional to their capabilities and financial contributions relative to other members, while leveraging brokerage opportunities or strong ties when they are able to do so. Empirical results for ownership shares and managerial control among U.S. entrepreneurs reproduce much of the received wisdom on dyadic exchange (e.g., Homans 1961; Burt 1992) in this regard.

TABLE 6.6.
Effect of Demographics, Networks, and Contributions on Day-to-Day Control of Business Startups at the Group and Individual Levels

Group Level (N = 490)			*Individual Level (N = 1,247)*		
Variable[a]	*Odds Ratio*	*Statistically Significant?*	*Variable*[a]	*Odds Ratio*	*Statistically Significant?*
Demographic Composition			*Demographics*		
Same ethnicity	5.391	$p < .05$	Ethnicity (1 = white)	0.888	No
Same gender	0.868	No	Gender (1 = female)	0.772	No
Same occupation	0.896	No	Occupation (1 = professional)	0.882	No
Age dispersion (std)	0.860	$p < .01$	Age (years)	0.983	$p < .01$
Relational Composition			*Networks*		
Spouse / live-in partner	0.168	$p < .05$	Spouse / live-in partner	1.532	$p < .01$
Nonspouse family	0.373	No	Nonspouse family	1.060	No
Co-worker	3.296	$p < .05$	Co-worker	1.015	No
Brokerage	3.156	No	Broker	1.140	No
Balance of Contributions					
Dispersion of industry experience	0.959	No	*Contributions* Industry experience	1.546	$p < .001$
Dispersion of financial contributions	1.000	No	Financial contributions	1.410	$p = .06$
Dispersion of startup experience	1.154	No	Startup experience	1.107	No

[a] Full list of covariates parallel those reported in figure 6.2 and table 6.2, respectively. For group level, outcome is whether day-to-day control of startup is shared by more than one entrepreneur. For individual level, outcome is level of control among individual members of the entrepreneurial groups, assessed at three levels (ordered logit specification): (a) full control of day-to-day business operations; (b) shared control of business operations or general management role; and (c) no control over day-to-day business operations/specialized role.

At the group level, the allocation of ownership and control is influenced to a greater extent by homophily, entailing a commitment to subjective equality, with equity and network dependence constituting ancillary norms. Based on this perspective, team members are influenced by *between-group* variation in demographic composition, although they may not be explicitly aware of its impact on norms of group exchange. The between-group variation is often not reducible to individual differences in attributes such as gender or ethnicity but, instead, reflects a tendency for social groups to employ a "like-deserves-like" rule in the allocation of collective rewards.

This chapter has sought to reconnect social exchange theory—which is often formulated from an individual's perspective—with distributive justice perspectives—which are often formulated at the level of the group. The intellectual connection arises from the uncertainty of contributions and payoffs in entrepreneurial efforts. While entrepreneurs may have some a priori knowledge of their mutual capabilities and material contributions, many of the more intangible contributions (e.g., ideas, social capital, idiosyncratic skills) are revealed only after members have committed themselves to joint projects. Moreover, the payoffs from these projects (both material and non-material) continue to be elusive for some time.

My discussion has emphasized principles of justice under which deviations from objective equality may be expected. This should not detract from the fact that much of the unexplained variance in aggregate and individual equality may result because groups adjust member stakes on the basis of less tangible motivations, many pertaining to the development of group solidarity and hopes that fairness will help promote future contributions. As Durkheim (1933: 379) put it, "all external inequality compromises organic solidarity." In the next chapter, I consider what effect inequality may exercise on collective effort within entrepreneurial groups.

CHAPTER SEVEN

Effort and Opportunism

At first glance, entrepreneurs may seem to be highly motivated workers, especially when compared with their salaried counterparts. The owners of startup businesses share directly in profits and often have the ability to exercise day-to-day control in the management of these ventures. Unlike the members and employees of larger organizations, entrepreneurs also have considerable discretion in setting the goals of their startups and in ensuring that those goals are in line with their personal interests. Cast in a positive light, the involvement of other business partners can serve as an additional catalyst to entrepreneurial effort, generating social benefits to startup activity, emotional energy around ideas, and the viable possibility of passing a business on to spouses, kin, or friends.[1] Much like early work on collective action more generally, there is often a belief in "a natural tendency for [entrepreneurs] with shared interests to act together in pursuit of those interests" and "an unproblematic congruence between individual . . . and group interests" (Oliver 1993: 272–273).

The case study of Carl Whitaker's catering business at the beginning of the last chapter suggests a more complicated narrative. Once more participants become involved, founders frequently feel that control of a startup organization slips away from them. They may have less ability to concretely identify how their actions and competencies contribute to the success of the startup. They find that they must give up a great deal of ownership and control in order to bring crucial participants on board, in either a co-owner or advisor role. If they are opportunistic, they may simply prefer to delegate startup responsibilities to others, rather than work the long hours that are often required to transform a startup into a mature business. As we move from an individualistic to a group conception, the elicitation of effort increasingly appears to be an accomplishment, rather than an intrinsic feature of entrepreneurial activity.

In this chapter, I will discuss the two problems that are most commonly cited by social scientists as barriers to collective action and consider their empirical implications for effort within entrepreneurial groups. The first problem is that of *free riding*, whereby self-interested members assume that others within a group will carry the responsibility of providing collective goods, particularly as the group becomes larger. The second is that of *hold-up*, whereby those members who contribute the information and resources that are most tailored to the specific needs of a group are

also least likely to be rewarded for their efforts. After introducing each problem from a theoretical perspective, I consider how they might be resolved in business startups through the relational demography among entrepreneurs.

The Free Rider Problem

In his classic book on the *Logic of Collective Action*, Mancur Olson addressed the widely cited "free rider" problem, whereby the contributions offered by group members toward collective goals decline with increases in group size.[2] The free rider problem tends to arise in groups, such as entrepreneurial teams, where access to collective rewards is defined in advance and, for any given group member, is not contingent on their subsequent effort. A strong version of this dilemma applies when entrepreneurial groups formally specify ownership shares (and other benefits) early in the startup process based only on the ostensible competencies and traits of owner-managers, with little provision for sanctioning entrepreneurs whose subsequent investment of time, ideas, or other resources falls short of expectations. More commonly, there is not a complete "impossibility of exclusion" from collective goods (Hardin 1982; Oliver 1993), since business partnerships retain some ability to remove lackadaisical participants from the group. Still, the process of exclusion from the group imposes sufficient burden and turmoil that the free rider problem remains highly salient even in these contexts.

Given the assumptions that (a) group members cannot be excluded from collective benefits (at least not without burden) and that (b) those benefits are produced jointly through the actions of group members, Olson argued that rational individuals would engage in shirking behavior, especially within larger groups where the link between individual effort and collective outcomes was less tangible. Applying his theory to business partnerships, Olson wrote:

> The fact that the [business] partnership can be a workable institutional form when the number of partners is quite small, but is generally unsuccessful when the number of partners is very large, may provide another illustration of the advantages of smaller groups. When a partnership has many members, the individual partner observes that his [*sic*] own effort or contribution will not greatly affect the performance of the enterprise, and expects that he will get his prearranged share of the earnings whether or not he contributes as much as he could have done. The earnings of a partnership, in which each partner gets a

> prearranged percentage of the return, are a collective good to the partners, and when the number of partners increases, the incentive for each partner to work for the welfare of the enterprise lessens. (Olson 1971: 55)

In Olson's perspective, there are compositional features of social groups that serve to mitigate the free rider problem. Particularly important, in this respect, are incentives that encourage individuals to contribute, even when they might otherwise be inclined toward free riding. Olson distinguishes between groups bound by strong preexisting social relationships and those that lack such interpersonal ties: "if a small group of people who had an interest in a collective good happened also to be personal friends . . . and some of the group left the burden of providing that collective good on others, they might, even if they gained economically by this course of action, lose socially by it, and the social loss might outweigh the economic gain" (ibid.: 60). Part of the reason that strong social networks are crucial to mitigating free riding is that they offer selective incentives to individuals that must not be explicitly agreed upon or "paid for" by other members of the group. As a consequence, these incentives avoid the circularity inherent in the provision of private economic incentives to resolve the collective action problem, in which one collective action problem (the provision of collective goods) begets another (the creation of a system of selective incentives to resolve that problem).

During the late 1960s, the impact of Olson's book on the study of entrepreneurship was immediate, especially if we define "entrepreneurs" broadly to include actors in the political as well as the business realm. In the revised (1971) edition, Olson wrote that "some recent writers, in discussions of the difficulty of providing collective goods for unorganized groups, have introduced the idea of the entrepreneur who might help a group obtain a collective good it lacked" (1971: 173). Frohlich and Oppenheimer (1970) advocated an entrepreneurial theory of political behavior that was developed explicitly based on Olson's ideas. The earliest formulation of such an entrepreneurial theory was advanced by Robert Salisbury (1969), who distinguished between lead entrepreneurs, who develop an incentive structure for a new organization, and mere supporters, who are offered these incentives at the opportunity cost of organizational membership. In Salisbury's framing, the successful emergence of new organizations hinges on the particular mix of benefits—material, solidary, and expressive—between lead entrepreneurs and supporters. Olson's problem of collective action was thus re-formulated as a problem of exchange within a group (see chapter 6).[3]

Despite its origin as a theory of economic groups, Olson's perspective has since been applied almost exclusively to the formation of groups outside the world of business.[4] As Nownes and Neeley (1996: 122) write,

"Olson's logic remains the dominant paradigm for explaining the formation (or lack of formation) of non-economic and public interest groups." In their own study of public interest group founders, Nownes and Neeley identified only partial support for an exchange-theoretic formulation of Olson's thesis: "virtually all entrepreneurs noted that they [could] offer charter members nothing in return for their support . . . a member responding to initial entrepreneurial pleas has little or no prospect of personal or collective gain" (137). Still, political scientists have routinely invoked Olson in drawing a link between entrepreneurs and political groups (e.g., Moe 1988; Schneider and Teske 1992; Ainsworth and Sened 1993). These commentators have also raised questions about the relevance of Olson's logic of collective action for new business partnerships, often by relying on individualist myths of entrepreneurship. Owing to the free rider problem, Schneider and Teske (1992: 741) suggest that the "stereotypical private sector entrepreneur works alone or in a small organization, thus solving collective action problems by avoiding collectivities." By contrast, "a public sector entrepreneur is much more likely to need a collective *group* foundation to survive and prosper in the political marketplace."

The importance of Olson's theory for the formation of political groups is widely acknowledged, but its implications for entrepreneurial activity in other sectors (e.g., business or social entrepreneurship) would benefit from further attention. Outside the realm of politics, most of the empirical tests of the free rider thesis have not been conducted in naturally occurring groups, but rather in experimental settings—where both tasks and group composition are subject to external manipulation.[5] The experimental approach offers the advantage of clear causal inferences (see Willer 2009 for an exemplary study), but invites questions about its applicability to entrepreneurs, who tend to view their own activities on a more voluntaristic basis.

Olson's own conception of the entrepreneur also retains an unusually heroic imagery, serving as a deus ex machina to resolve the (otherwise) unsolvable problem of collective action. This heroic attribution was pursued by Olson himself, when he wrote that the entrepreneur "can sometimes work out an arrangement that is better for all concerned than any outcome that could emerge without entrepreneurial leadership or organization" (1971: 175). But how should the entrepreneur accomplish this feat? As Olson acknowledged, such heroic visions must be tempered by the constraints on entrepreneurial groups: entrepreneurs "strive mightily to organize large groups . . . [but] many of [these efforts] will come to naught" (176). The puzzle for a theory of collective action is identifying the social conditions and incentives under which entrepreneurs can develop stable and successful groups that produce collective goods.

Critiques of Olson's Model

Several important critiques of Olson's argument are worth highlighting. Beginning with Hardin (1982), commentators have called attention to a tautological aspect of Olson's logic, insofar as his claims about the impact of group size on free riding actually entail an assumption about the relationship between size, the costs of contributions, and the value of benefits received by members.[6] If the ratio of costs to benefits increases with group size, as Olson claims, then group size will (tautologically) increase the probability of shirking for rational group members. Conversely, if this ratio has no relationship with group size, then the effect on shirking will likewise be absent (Oliver 1993: 275). The problem with this formulation—both in Olson's original book and in the work of many of his critics—is its microeconomic foundation, which assumes that there is an identifiable production function that relates contributions to payoffs. Although this assumption may hold in some contexts (e.g., established organizations), it is clearly inappropriate within business startups, where a lack of routinized production and established work roles generates fundamental uncertainty about the payoffs that can be expected or their relationship to the contributions of entrepreneurs. Indeed, many nascent entrepreneurs have little ability to predict when they will complete their first sale, much less how revenue will vary with the time, money, and other resources they are pouring into their startup organization.

Given this inability to anticipate payoffs, what appears to hold true from Olson's argument are its cognitive claims, not its "logic" of collective action. In short, there does seem to be increasing difficulty in identifying how one's contributions relate to a collective outcome when a group becomes larger. Moreover, in the absence of a formal organizational hierarchy, it also becomes more difficult to monitor exactly what other group members are doing (e.g., how many hours a business partner has worked in a given week). This problem of monitoring does not merely have implications for the policing of other group members—as implied by accounts of shirking—but also for mutual motivation among entrepreneurs and the development of collective norms of effort. In lieu of the calculus of contributions and benefits, these concerns about monitoring and agency may be driving the group size effect for free riding behavior.

A second critique arises from the impact of heterogeneity within a group on the provision of collective goods. Olson himself recognized very explicitly that inequality of interest in a collective outcome would have a (positive) effect on the successful production of that outcome, suggesting that "in smaller groups marked by considerable degrees of inequality—that is, in groups of members of unequal 'size' or extent of interest in the collective good—there is the greatest likelihood that a collective good

will be provided" (Olson 1971: 34). This conclusion followed, in his argument, because group members with a very large interest in an outcome would go out of their way to provide the resources that would secure its provision (including paying all of the cost by themselves). For example, an entrepreneur with a 90 percent ownership share in a business startup with one other partner would be more inclined to devote time to the effort than an entrepreneur with a 50 percent ownership share. In addition, given Olson's conclusion, this variation would be nonlinear, so that the difference in time contributed between a 70 percent and a 90 percent share would be greater than the difference between a 50 percent and a 70 percent share. If this is true, the somewhat controversial conclusion that follows is that inequality within a group may be beneficial to the production of collective goods and, moreover, that this occurs alongside "a surprising tendency for the 'exploitation' of the great [those with larger stakes in the collective outcome] by the small" (ibid.: 35).

More recent analytical investigations have reformulated Olson's thesis as a question of *critical mass* within groups (see Marwell and Oliver 1993 for an overview). In the critical mass theory, group heterogeneity arises when some subset of members will devote considerable time and funding to achieving a collective outcome. If this critical mass of large contributors provides a free ride to those with less interests and less resources, then Olson's broader argument about inequality would hold. However, as Gerald Marwell and Pam Oliver have shown, Olson's conclusion is sensitive to the assumption that there is *negative* interdependence within a group, such that each contribution that is offered toward a collective outcome lowers the value of the next contribution (ibid.: 182; Oliver et al. 1985). Given that many entrepreneurs form startup teams with the idea that there are positive interdependencies among their contributions, this assumption would seem somewhat dubious when generalized to entrepreneurial groups.[7] A more fundamental issue, perhaps, is that it is extremely difficult for nascent entrepreneurs to anticipate the nature of their task interdependencies. In established organizations, they may be able to characterize work processes and decisions in terms of pooled, sequential, or reciprocal interdependence (Thompson 1967; Scott and Davis 2006). But these aspects of internal coordination largely remain indeterminate in entrepreneurial startups. As in the case of anticipated payoffs, it thus becomes virtually impossible for entrepreneurs interested in a collective outcome to characterize its production function and, in turn, for that function to influence their level of effort based on heterogeneity in interests or shares.

Like Olson's "group size" argument, the cognitive aspect of his claims concerning group heterogeneity may be more persuasive than his rational choice logic when applied to the entrepreneurial context. Large shareholders

will tend to draw a more direct link between their contributions and collective outcomes than those with merely average shares, resulting in a disproportionate amount of effort among the former subset. This results, again, primarily from the problem of agency in collective action. An entrepreneur with full ownership of a startup organization will tend to adopt an internal locus of control, attributing full responsibility for the success or failure of that enterprise to their own actions. These instincts will be moderated slightly for entrepreneurs who hold a majority, but shared, interest in a business; and even more so when their interest is merely equal to, or less than, that of other business partners. What is commonly interpreted as free riding among group members with small stakes in an outcome may be a cognitive or practical inability to establish how their activities contribute to that collective good.

Empirical Analysis of Entrepreneurial Effort

Following the initial allocation of ownership stakes and control in business startups, as discussed in chapter 6, two basic indices of effort among entrepreneurs are how much time they devote to their startup and whether they contribute additional funding to it, beyond the "seed" financing they raised when ownership shares were first distributed. Among nascent entrepreneurs in the United States, there is considerable variance in the hours per week that they invest in their business. In 2005–2006, the average startup owner spent a median of four hours per week on their business, but one-quarter of entrepreneurs sampled in the first wave of the PSED II devoted seventy minutes or less per week to their startup effort, while another quarter devoted thirteen hours or more. To some extent, this pattern of time use can be explained by work contingencies, given that a majority (59%) of startup owners continue to work for another employer, treating their own business as a moonlighting effort. This trend continues a pattern observed in the PSED I data from the late 1990s, in which the mean entrepreneur devoted seven hours per weekday to paid work *outside* of their own startup (Owen and Greene 2004). Nevertheless, the constraints imposed by outside employment only account for a small amount of the variance in time investment among nascent entrepreneurs.[8]

There is less variance in the additional funding that entrepreneurs invest in their business startups. Defining "startups" as businesses that are not yet formally registered with a government agency, we find that the majority of owners (over two-thirds) interviewed for the PSED II have not invested money beyond seed financing at a one-year follow-up (table 7.1). Among those owners who do contribute additional funds, their second-stage financing draws overwhelmingly from personal savings,

Table 7.1.
Sources of Additional Funding for Business Startups at One-Year Follow-Up[a]

Source	*Weighted Percentage of Owners*[b]	*Median Amount among Contributors ($)*
No additional funding	68.7	—
Personal savings	29.1	2000
Loans from family members	1.4	1250
Loans from co-workers / friends	1.1	400
Credit cards	2.7	2500
Bank loans	1.6	12000
Asset backed loans (e.g., second mortgages, car loans)	0.8	17000
Other sources	0.0	—

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave B. Sample size of owners is 740 following deletion of missing cases.

[a]Sample uses a conservative definition of business "startup" that limits it to organizations not yet formally registered with a government agency as legal entities.

[b]Percentages need not total to 100% since sources of funding are not mutually exclusive.

with a median contribution of $2,000. Entrepreneurs requiring larger cash infusions rely on credit cards, bank loans, and, in rare cases, asset-backed loans, such as second home mortgages.

What factors prompt entrepreneurs to invest time and money in business startups after ownership shares have been allocated? Aside from the group characteristics (size and ownership shares) emphasized by Olson's theory of collective action, there are a number of individual attributes that bear on the level of entrepreneurial effort, particularly when time investments are considered (table 7.2). Older and female entrepreneurs tend to spend less time on business startups. For women, the three-and-a-half-hour per week difference from their male counter-parts is almost entirely accounted for by time that is devoted to household work, and child and elder care. Considering time-use diary data from the PSED I, for instance, we find that female entrepreneurs spent nearly *nine* more hours per week on domestic labor than male entrepreneurs, a pattern that underscores how traditional gender roles may be reproduced within a startup context (also see Marshack 1994). Among older entrepreneurs, the same time-use diaries suggest a slight increase in leisure time substitution with age, reflected in the fact that entrepreneurs who are fifty or older spent two-and-a-half more hours per week on reading, TV watching, hobbies, and the like than their younger counterparts.

Unsurprisingly, the time investment of entrepreneurs tends to increase with their level of financial investment in a startup, as well as their industry

TABLE 7.2.
Effect of Individual and Group Characteristics on Entrepreneurial Effort

	Hours Worked per Week (N = 1,635)		*Adding to Startup Funds (N = 670)*	
Variable[a]	*Coefficient*	*Statistically Significant?*	*Odds Ratio*	*Statistically Significant?*
Demographics				
Ethnicity (1 = white)	1.111	No	0.828	No
Gender (1 = female)	−3.647	$p < .01$	0.707	No
Occupation (1 = professional)	−3.047	$p \approx .06$	0.919	No
Age (years)	−0.151	$p < .01$	0.984	No
Networks				
Spouse / live-in partner	−9.634	$p < .05$	0.275	No
Nonspouse family	−2.110	No	0.841	No
Co-worker	−0.738	No	1.261	No
Broker	−2.153	No	1.884	No
Resource Contributions / Configuration				
Industry experience (years)	0.169	$p < .05$	0.994	No
Financial contributions ($1,000s)	0.014	$p < .05$	1.001	No
Startup experience	0.242	No	0.920	No
Ownership share[b]	6.511	$p < .001$	2.426	$p \approx .08$
Ownership share squared	2.141	$p < .05$	1.392	$p \approx .09$
Asset specificity	6.202	$p \approx .06$	2.449	$p \approx .08$
Group Attributes				
Size (number of owners)[b]	−6.504	$p < .001$	0.155	$p < .001$
Size × spouse / live-in partner	8.332	$p < .05$	8.221	$p < .05$

[a] Analysis includes controls for marital status, years of education, startup location, uniqueness of contributions, and whether entrepreneur has other employment. First outcome (average # of hours / week that entrepreneur has worked on startup) is modeled using OLS regression, while second (probability that entrepreneur adds funds during first year of startup effort) is modeled using logistic regression. Both estimates include adjustments for clustered observations within groups.

[b] Variables subject to logarithmic transformation, employing Jasso's (1983) formula for individual shares.

experience. The asset specificity of resource contributions likewise has a positive impact on entrepreneurial effort, albeit one that is only marginally statistically significant. Startup owners who devote nonrecoverable resources to a business—including ideas, training, and social contacts—are inclined to work longer hours (more than 6 hours per week, on average) and are more inclined to offer additional financing (nearly 2½ times as likely as owners with low asset specificity). This level of effort reflects the bilateral dependence between these entrepreneurs—who cannot easily move their investments elsewhere—and the business startup—which cannot easily replace the effort of these owners with that of other startup participants.

On the whole, the level of entrepreneurial effort is influenced only to some extent by factors aside from those outlined by Olson's theory of collective action. For time investments, a considerable amount of the explained variance (16% of the variance that is explained by the model) comes from group size, interactions with size, or ownership shares. Considering the probability of additional funding, the difference is even more stark, as the majority of the explained variance (53%) can be attributed to these factors. Consequently, I turn next to a more in-depth examination of the variables that bear directly on the free rider problem within entrepreneurial groups.

The Effects of Group Size

As anticipated by Olson's formulation, entrepreneurial effort decreases substantially as the number of owners in a firm grows larger (figure 7.1). While an entrepreneur in a solo startup is predicted to devote an average of seventeen hours per week to the venture, this declines to just over two hours in a business partnership involving ten co-owners. An even more precipitous pattern is apparent for funding activities: solo entrepreneurs exhibit a 50 percent chance of adding to the seed funding of their startup by a one-year follow-up, but this declines to a mere 1.5 percent chance in a partnership with ten co-owners. Both findings are broadly consistent with Olson's intuition that free riding and externalities tend to affect entrepreneurial effort in larger business partnerships.

Although the pattern of size-dependence dovetails with collective action theory, a simple alternative interpretation can be offered: entrepreneurs create larger groups with the *expectation* that this will ease the burden on each individual owner. Stated from a rational choice perspective, if entrepreneurs can predict the amount of resources that a business startup will require, then they can recruit the number of owners that will allow them to devote an optimal amount of time and money to the venture based on individual preferences. If this is true, then time-use and money-use

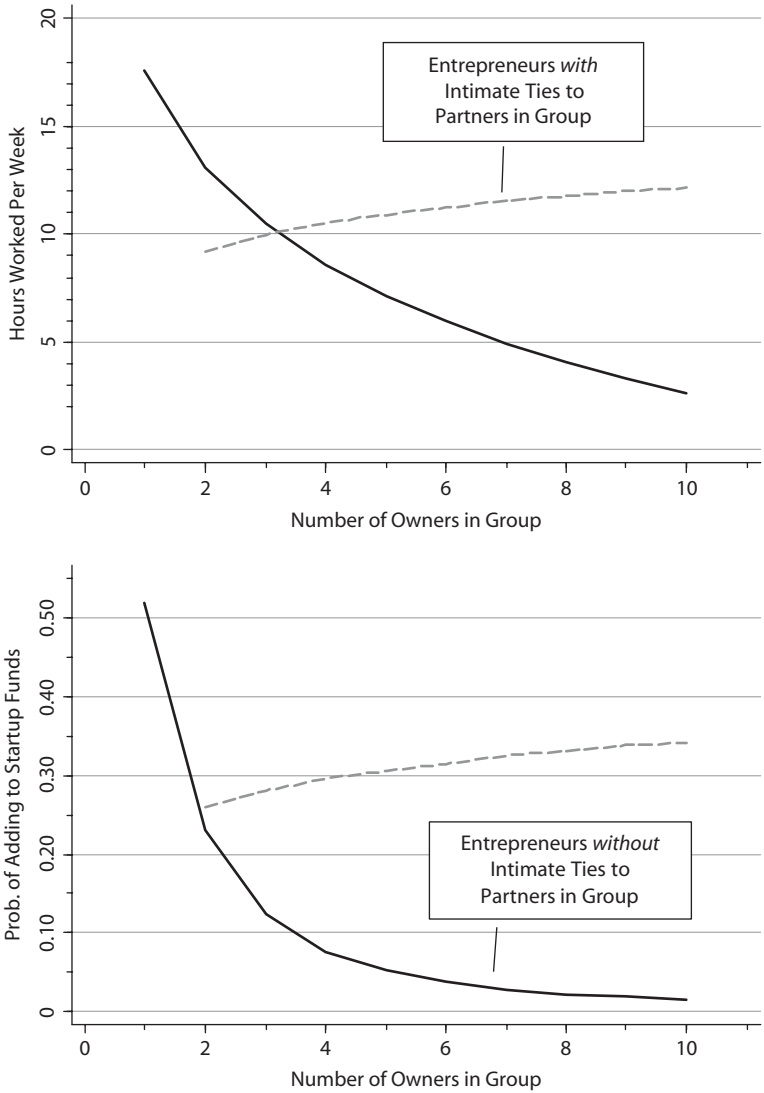


Figure 7.1. Variation in Entrepreneurial Effort by Group Size and Strong Network Ties. Estimates are derived from the models shown in table 7.2, holding all variables aside from the number of owners and spouse /cohabiting partner ties at their means.

preferences affect entrepreneurial group size, and the (observed) correlation between group size and entrepreneurial effort is spurious.

Though logically sound, there are a number of empirical arguments against this interpretation. First, there is little evidence that the time-use preferences of founders have the anticipated impact on the size of entrepreneurial groups. When entrepreneurs surveyed for the PSED II were asked why they wanted to start a new business, nearly 5 percent mentioned a need for flexibility, more free time, or the ability to set their own hours as a primary or secondary reason. Correlating these motivations with entrepreneurial group size, we find that these entrepreneurs tend to create startups with a *smaller*, not larger, number of co-owners ($r \approx -.07$). Second, there is little evidence to suggest that the resource requirements of founders have an impact on the number of co-owners they work with. Asked about opportunities that led them to start a business, 6 percent of the entrepreneurs surveyed in the PSED II mentioned low startup costs, low overhead, cheap supplies, and the like as a primary or secondary motivation. Even given this opportunity structure, however, these entrepreneurs did not scale the number of co-owners that they recruited for their ventures; in fact, the perception of low-cost opportunities is statistically uncorrelated with entrepreneurial group size.[9]

A third, and more theoretically interesting, argument against this interpretation is that the correlation between group size and entrepreneurial effort is highly dependent on the social incentives that are present for group members. Olson argued that the free rider problem could be resolved in face-to-face groups through social pressures created by intimate bonds among participants. In an entrepreneurial context, a particularly important source of such pressure involves the substantial number of ties between spouses and cohabiting (intimate) partners. Where such ties exist, we expect little free riding among entrepreneurs, since shirking in the amount of time and money devoted to the venture has immediate repercussions in the domestic realm. As shown in figure 7.1, this leads to a pattern of entrepreneurial effort that is relatively flat with respect to number of co-owners. The estimated number of hours worked (per week) hovers between nine and twelve with no statistically significant variation in effort with entrepreneurial group size; the estimated probability of adding to the seed funding of the startup hovers in the narrow band between 0.25 and 0.35 (again, with no significant group size heterogeneity). It should be emphasized, as well, that such a "solution" to the free rider problem is not apparent for weaker forms of social relationships (e.g., preexisting ties among co-workers or acquaintances). Contrary to arguments that tout the strategic or informational value of weak network ties, the strong tie constraints presented by relationships with spouses and

intimate partners may be critical in resolving the collective action problem within entrepreneurial groups.

It remains less clear as to what specific mechanisms are at play in generating the constant effort across group sizes when couples are present. On the one hand, a critic might suggest that this effect could be spurious, particularly if "mom-and-pop" startups tend to form in different industries than businesses lacking such ties. Analytically, this would be a problem if mom-and-pop businesses were more likely to rely on commission payments, in which business partners were rewarded directly on the basis of their output or sales and, thus, time invested in the startup. When we consider the cross-industry statistics on owner teams, though, the opposite seems to be true. The industries that rely heavily on commission incentive systems—such as real estate, insurance, and investment planning—are also those that are especially *unlikely* to attract business partners who are spouses or cohabiting couples (see table 4.5).

On the other hand, a critic might propose that the additional effort in groups involving couples is a function of the distinctive motivations that these entrepreneurs have. This would be the case, for instance, if entrepreneurs who bring their spouses into a startup effort tend to see these as "lifestyle" businesses, in which part of the utility that they derive from their work activities is social, as well as pecuniary.[10] A problem with this interpretation is that the impact of intimate ties on entrepreneurial effort is not simply additive. At baseline, a couple starting a new business will each work an average of four hours per week *less* than two unrelated entrepreneurs and are no more likely to add to initial startup funding (figure 7.1). The benefit of these strong ties only emerges as entrepreneurial partnerships grow beyond the couple themselves. It is the variation in effort with group size that is attenuated by the presence of strong interpersonal relationships.

The Effects of Ownership Heterogeneity

The final fragment in Olson's theory of collective action concerns the effect of heterogeneity of interest in a collective good. For entrepreneurial groups, this can be examined graphically by plotting standardized ownership shares on a horizontal axis and estimates of entrepreneurial effort on a vertical axis (figure 7.2). Shares are standardized by taking the ratio of each entrepreneur's actual share (e.g., a 40% stake in a four-owner team) to the objectively equal share (25% in the same team) and calculating the logarithm of this quantity (i.e., $\ln[.40/.25] = 0.47$). The resulting metric will be below zero for entrepreneurs who hold less than an equal share (conditional on group size alone), zero for those who hold an equal share, and above zero for those who have an especially large stake in a startup business.[11]

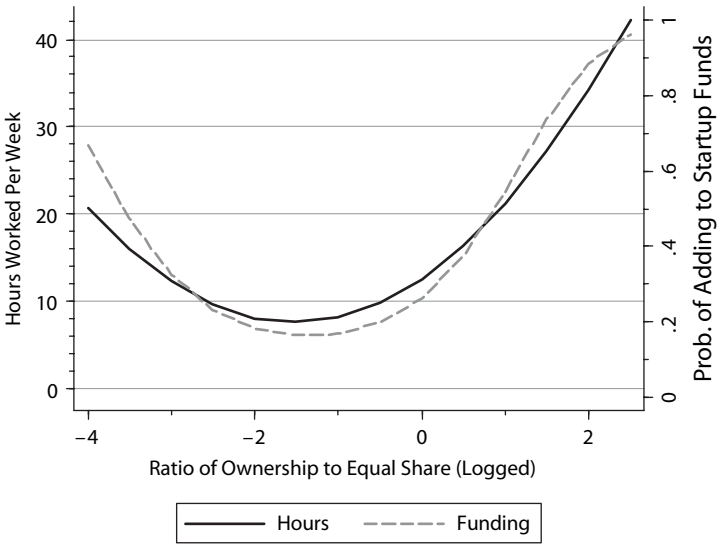


Figure 7.2. Variation in Entrepreneurial Effort by Standardized Ownership Share. *Note*: Estimates are derived from the models shown in table 7.2, holding all variables aside from ownership shares at their means.

Olson's theory predicts that the largest stakeholder in a group "bears a disproportionate share of the burden of providing the collective good" (1971: 35). This is consistent with the entrepreneurial effort observed in the right-hand side of the figure. Not only do time and monetary investments rise with increases in ownership shares, but this change is also nonlinear (i.e., entrepreneurial effort rises at an increasing rate, subject only to some ceiling effects for funding). Returning to the previous example of the entrepreneur with a 40 percent ownership stake, we would predict that she would devote fifteen hours a week to her startup (*ceteris paribus*) and have a 29 percent chance of adding funds to the startup beyond seed financing. If her share were reduced to 25 percent in a four-person team (log ratio = 0), the estimated amount of entrepreneurial effort would decline to eleven hours per week and a 19 percent chance of added funding.

What seems inconsistent with Olson's hypothesis is the left-hand side of the figure. As ownership shares become very small, owners again tend to increase their entrepreneurial effort. Taking the same example, if we decreased the share of our entrepreneur to merely 1 percent, we would predict that she would work the equivalent amount of time as a business partner with a 25 percent share (eleven hours) and would have a greater probability of adding funding to the venture (25% chance). Several mechanisms may account for this phenomenon. First, very small shares

may be indicative of entrepreneurs who are testing the waters in a startup business and who escalate their commitment if they choose to remain involved as owner-managers. Second, the small shares may be proxies of unmeasured status characteristics, which lead (low status) entrepreneurs to accept both limited ownership stakes and the exploitation of their time and resources by their business partners. In either case, there is no evidence for Olson's claim that there is a tendency for the "exploitation of the great by the small" in these groups.[12]

At the group level, some of Olson's broader claims concerning the relevance of inequality for the success of collective action continue to hold. In egalitarian groups, we expect all members to be clustered just to the right of the center of the U-shaped pattern. This contributes to what Olson termed a "tendency toward suboptimality" in the provision of collective goods, as measured by aggregate effort. For instance, the total amount of person-hours spent by an owner team with four members and 25 percent shares is estimated to be forty-four hours per week. If shares in the same team were redistributed so that one entrepreneur held a 97 percent share and three others held 1 percent shares, then the total number of estimated person-hours would increase slightly, to forty-six hours per week. It is worth highlighting that this departure from "suboptimality" only occurs under the most extreme conditions of entrepreneurial inequality. In an 85/5/5/5 split within the same owner team, for example, the predicted aggregate time investment is only thirty-nine hours per week. Given the modest benefits that result from extreme inequality in entrepreneurial groups and the declines in effort that tend to appear at intermediate stages of inequality, this aspect of Olson's "solution" to the free rider problem cannot be recommended as a matter of policy for designing incentive systems within startup businesses.

The Hold-Up Problem

Assuming that the free rider problem has been resolved—whether through the recruitment of a minimal set of business partners or a reliance on the disciplining influence of strong network ties—there is another problem of collective action that confronts entrepreneurial groups. When entrepreneurs become involved in startup activity, they contribute resources that are specific to a particular business. Some of these contributions are ideas that are tailored to the business; others involve the training of startup participants; yet a third category may entail the development of social contacts that will help the business to secure clients, suppliers, or employees. Contributions that are defined by a high level of *asset specificity* often represent an important line of demarcation between owner-managers

and other startup participants (see chapter 5). Yet these same kinds of contributions also present a dilemma for the entrepreneurs who are responsible for them: the more specific they are to a particular business and the less they can be covered by written contracts (usually, because it is hard to quantify what ideas, training, or social contacts are to be provided), the less ability the entrepreneur has to negotiate a reimbursement for them. The *hold-up problem*, then, is an anticipation on the part of these entrepreneurs that "subsequent bargaining will 'rob' them of the value of their specific investments" (Rogerson 1992: 777).

Following its early formulation by Oliver Williamson (1975; see also Klein 2000), the hold-up problem is widely recognized in economics as a basic influence on organizational structure. Much of the theoretical and empirical work on the topic, however, has been conducted in the context of established businesses. A typical formulation asks how bargaining is affected in a supplier-buyer relationship once the seller has incurred considerable sunk costs in providing a good or service for the buyer, as is typical in procurement processes with incomplete contracts (Tirole 1986). Another stream of research has considered the issue in a labor market context, where either employees or employers may be subject to hold-up, depending on the transaction-specific investments that they make before negotiating (or renegotiating) salaries (Malcomson 1997).[13] With the notable exception of venture capital financing (e.g., Hellmann 1998), far less is known about the impact of the hold-up problem on entrepreneurial partnerships.

As in other organizational contexts, hold-up in entrepreneurial groups is generated by three underlying mechanisms. First, some of the investments that entrepreneurs make in their startup businesses are *nonextractible*: once those contributions are provided to other startup participants, entrepreneurs may find it difficult (if not impossible) to retrieve them. The transfer of ideas, information, and advice falls into this category, as does business training. To a lesser extent, the social contacts that entrepreneurs have provided for their partners are also a "sticky" commodity; stated another way, entrepreneurs may be able to take their friends with them when they abandon a business venture, but those friends also have minds of their own. By contrast, physical equipment and property tend to be easier to remove when a startup effort is abandoned, provided that entrepreneurs have retained ownership and control rights to those resources.

Second, some of the investments offered by entrepreneurs are *nontransferable*. For ideas, training, and social contacts, in particular, it may not just be impossible for an entrepreneur to remove the benefit of these contributions from remaining startup participants, but also to leverage these investments in a new workplace. The redeployment of such investments is

most constrained when entrepreneurs have signed noncompete clauses or when the intellectual property of the startup is protected by other means (via patents, trademarks, or copyrights). In the absence of such legal restrictions, the idiosyncratic nature of a startup's line of business or the composition of the entrepreneurial group may still prevent entrepreneurs from using these ideas and capabilities in other contexts.

A final mechanism contributing to the hold-up problem involves the *incomplete* nature of the contracts that are drawn up in entrepreneurial startups. As discussed in chapter 5, the legal formalization of business startups in the United States tends to be relatively low, with only 30 percent being formally registered with a government agency. This means that most startups lack legally enforceable contracts covering the most rudimentary allocation of ownership and control rights among their owner-managers. It is even more difficult for entrepreneurs to anticipate (ex ante) what contributions will be required to move their startup toward an operational stage, whether those contributions are specific to the startup business (nonextractible and nontransferable), and what reimbursement (in ownership shares or direct payments) will adequately compensate them for their investments. Lacking such information initially, entrepreneurs are particularly prone to bargain over compensation ex post, once specific investments in a startup business have already been made.

In the remainder of this chapter, I examine the empirical implications of the hold-up problem for entrepreneurial groups. Since generic investments of time and money were addressed in the previous section, I first consider how the portfolio of other contributions among entrepreneurs affects their ability to negotiate higher ownership stakes in their startup business. I then address possible solutions to the hold-up problem, placing special emphasis on the role of experience and demographic composition within teams of startup owners.

Empirical Analysis of Hold-Up

Examining the entrepreneurs in the PSED II sample, we find that 11 percent of the startup owners in multi-member teams were able to negotiate for a larger ownership share between the first wave of the survey (when they were just beginning to initiate their businesses) and a one-year follow-up. The impetus to renegotiation was most commonly the abandonment of the startup effort by a co-owner (75% of these cases). In the remaining instances, the ownership share was increased with the involvement of a stable set of owner-managers.[14] The central question with respect to the hold-up problem is what kinds of startup contributions allowed

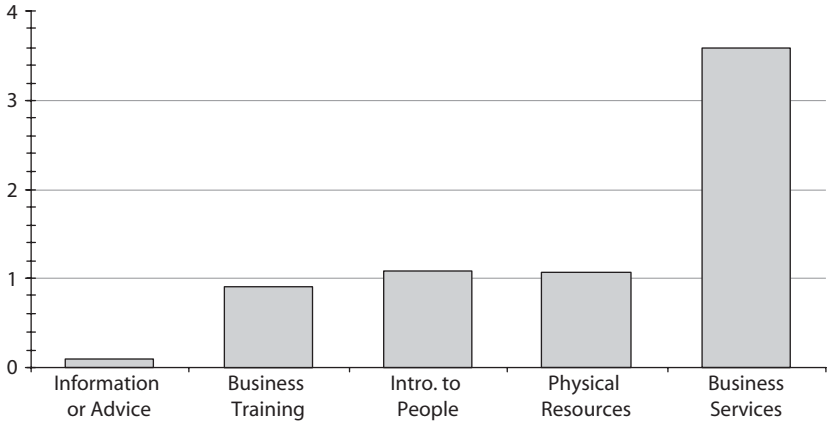


Figure 7.3. Odds Ratio for Renegotiating a Higher Ownership Share by Type of Contribution. *Source*: PSED II, Waves A and B. All odds ratios are estimated using a logit regression that accounts for the clustering of owners within startups. Estimates include controls for demographic attributes, human capital (startup and industry experience), seed financing, initial ownership share, increases or decreases in number of owners, social networks, startup location, and whether the owner has other employment.

entrepreneurs to expand their share over this one-year period, controlling for individual attributes and shifts in the number of owners.

As suggested by figure 7.3, the properties of extractability and transferability clearly have an impact on the ability of entrepreneurs to bargain in the startup context. Those entrepreneurs who primarily provide information or advice tailored to a particular business are severely handicapped in their ability to renegotiate, with an odds ratio of 0.09 of obtaining a larger ownership share.[15] Investments in business training produce a far more modest handicap (odds ratio of 0.91), perhaps owing to the ongoing need that startup participants have for further mentorship from the entrepreneur. Investments in social contacts and physical resources can be removed and transferred to a greater extent, leading to modest benefits (odds ratio > 1) in the process of renegotiation. Finally, the provision of generic business services (e.g., legal, accounting, and clerical services) leads to the greatest flexibility for the entrepreneur. Since these capabilities can be readily transferred to another startup or established business, the entrepreneurs providing them are least subject to the hold-up problem.

From a rational choice perspective, this varying potential for hold-up across different types of contributions should produce a thorny problem

for startup organizations, as entrepreneurs hoping to boost their bargaining ability will underinvest in the knowledge base of the business (owing to the firm-specificity of those assets) and overinvest in generic skills that will be transferable to other organizations. There is little evidence, though, that average entrepreneurs contemplate their investments in such a strategic fashion. In fact, aside from investments of time, the provision of critical information or advice is most commonly mentioned as a contribution among entrepreneurs (89% of owners in multi-member teams), while generic business services (41%) rank as less common than social contacts (70%), physical resources (53%), and business training (44%). This suggests that other catalysts to the provision of these contributions must be analyzed, addressing such factors as individual demography, group composition, and group size.

Individual Contributions and the Potential for Hold-Up

The general pattern of nonpecuniary contributions among entrepreneurs underscores a central dilemma in the hold-up problem. Individuals are often most inclined to invest cognitive or social resources in a transaction, rather than physical resources or labor. Thus, we think little of giving advice to strangers, but balk at the suggestion that we should work for them or offer them personal property without compensation.[16] Yet the resources that are offered most freely are also those that evidence the highest level of asset-specificity. Once provided to another party, it is difficult to remove information or social contacts; and if information and contacts are tailored to a particular context, they may be impossible to deploy in other transactions as well. For entrepreneurs, this leads to a lower probability of successful renegotiation of ownership stakes, especially among those startup participants who traffic primarily in information.

Based on their profile of contributions, what kinds of entrepreneurs are most susceptible to the hold-up problem? As highlighted in table 7.3, there is a single variable—industry experience—whose effect on contributions varies predictably with the extractibility and transferability of those assets. An entrepreneur with ten years of industry experience is 90 percent more likely to provide information or advice to a business startup than an entrepreneur with no industry experience. For business training, social contacts, physical resources, and business services, this experience premium declines monotonically to 56 percent, 28 percent, 19 percent, and 9 percent, respectively. Paradoxically, there is some benefit to entrepreneurial ignorance of the line of trade that a business startup will engage in, since inexperienced founders are less likely to bring

TABLE 7.3.
Effect of Individual and Group Characteristics on Types of Contributions Elicited (Odds Ratios)

Variable[a]	*Information or Advice*	*Business Training*	*Introduction to People*	*Physical Resources*	*Business Services*
Demographics					
Ethnicity (1 = white)	1.340	0.767	0.615	0.990	0.906
Gender (1 = female)	0.835	0.919	0.779	0.649	2.607
Occupation (1 = professional)	0.677	1.019	0.865	1.071	0.848
Age (years)	0.993	0.978	0.995	1.005	0.995
Networks					
Spouse / live-in partner	1.332	1.440	0.993	1.376	1.097
Nonspouse family	1.353	1.092	0.698	1.120	1.212
Co-worker	1.747	1.722	1.095	1.709	2.032
Broker	1.619	1.337	1.348	0.807	1.785
Contributions and Equity					
Industry experience (years)	1.066	1.045	1.025	1.018	1.009
Financial contributions ($1,000s)	1.001	1.001	0.999	1.001	1.002
Startup experience	0.956	1.118	1.050	1.046	1.074
Ownership share[b]	1.749	1.286	1.774	2.213	1.176
Group Attributes					
Size (number of owners)[b]	0.498	0.491	0.612	0.370	0.421
Demographic diversity[c]	3.183	2.102	2.248	2.499	3.077
Age diversity (sd)	0.965	0.995	0.988	0.998	0.995
Number of Cases	1177	1177	1171	1177	1178

Note: Cells shaded in dark gray are significantly different from 1.0 at the $p < .01$ level; those shaded in light gray are different at the $p < .05$ level.

[a]Analysis includes controls for marital status, years of education, startup location, and whether entrepreneur has other employment. All outcomes are modeled using logistic regression, with adjustments for clustered observations within groups.

[b]Variables subject to logarithmic transformation.

[c]Index of qualitative variation over three nominal dimensions (gender, ethnicity, and occupation).

transaction-specific investments to the table and are less likely to be exploited by other group members as a consequence.

The effects of several other individual and group attributes are worth emphasizing. As predicted by Olson's free rider theory, the odds that an entrepreneur makes a meaningful contribution along any nonpecuniary dimension generally declines with group size. The only exception to this pattern can be found for social resources ("introductions to other people"), which are arguably endogenous to group size itself (since the investment of more social contacts will tend to expand the number of startup owners). In contrast to the empirical findings for entrepreneurial effort, there is little evidence that the drop in contributions along most of these dimensions (other than money and time) can be moderated by intimate network ties within the group. In this respect, the "selective" social incentives emphasized by Olson are not especially selective, insofar as their function is to elicit generic entrepreneurial effort but not more precisely defined investments in the startup enterprise.

With the exception of age, demographic diversity generally increases the odds that an entrepreneur will make an important nonpecuniary contribution to the business.[17] Diverse entrepreneurial teams bring together individuals with distinct experiences and resources, reducing the likelihood that ideas, competencies, networks, or physical resources are redundant. Given that diversity disproportionately affects contributions at the extremes of the asset-specificity continuum (information at the high end and services at the low end), it should be cautioned that diversity may also increase the probability of hold-up in the team as a whole.

Considering previous research on the gendered division of labor in business, it is also essential to address how the burden of contributions is distributed among male and female owners in startup enterprises. As shown in table 7.3, women are significantly less likely than men (0.65 times) to provide physical resources such as equipment, land, or office space and significantly more likely (2.6 times) to provide business services. Thus, there is evidence of a substitution of service for physical investments among female entrepreneurs. Other predictions advanced by the management literature (e.g., that women are more likely to provide social contacts) are not borne out in the PSED II data. Supplementary analyses also do not reveal any support for the intuition that the provision of contributions among men and women is contingent on whether they are involved in same- or mixed-gender teams (cf. Ibarra 1992, 1997). Akin to the "diversity premium" that has been observed in other small group contexts—such as investment clubs (Harrington 2008)—the principal compositional effect of group structure seems to be attributable to the favorable impact of diversity on the elicitation of distinctive nonpecuniary contributions among entrepreneurs.

Conclusion

Entrepreneurial effort can seldom be taken for granted in new business startups. The profitability and survival of nascent ventures is subject to high levels of uncertainty. Owing to the demands of outside employment and other commitments, the average entrepreneur in the United States only spends four hours per week on their startup and only provides a modest amount of seed financing. Although the vagaries of entrepreneurial success affect all startups, the problem of eliciting effort is especially acute among groups of business partners. Whether measured in terms of time allocation or pecuniary investment beyond seed financing, effort declines precipitously with group size. This problem extends to less concrete contributions, such as an entrepreneur's willingness to provide information or advice to a startup or to train other startup participants in business routines. Equally problematic is the concern among entrepreneurs that those contributions that are most tailored to the development of organizational "knowledge" in a new startup are also those that are least likely to be rewarded with larger ownership shares.

Relational demography offers some basic solutions to the problem of collective action in new organizations. The constraint imposed by intimate ties on spouses or cohabiting partners discourages free riding in groups involving several owners and smooths the variance in effort that is otherwise observed with changes in group size. Demographic diversity increases the likelihood that group members will bring distinctive nonpecuniary contributions to the process of starting a new organization. Ownership shares can likewise be allocated in order to elicit effort from entrepreneurs, particularly by avoiding the intermediate levels of group inequality that lead to low commitments of time and money. For each of these mechanisms, a common feature is that compositional properties of the entrepreneurial group have a pronounced impact on the willingness of entrepreneurs to participate in the production of a collective good, even when there is little ability to generate this outcome through contractual agreements or side payments.

My treatment of the collective action problem in this chapter has retained somewhat of an individualistic flavor, insofar as contributions have been treated as divisible investments attributable to particular members of the entrepreneurial group. This emphasis is consistent with what Oliver (1993) has termed "individual decision models," wherein participants are assumed to possess a subjective utility function (influenced by social and material incentives, costs, and group structure) and are thought to generate collective action on a piecemeal basis. Even a cursory consideration of some of the goods that are produced within business startups—including

creativity, status within the community, autonomy from salaried employment, and self-fulfillment—suggests that these are often not, strictly speaking, divisible elements. Self-fulfillment in an entrepreneurial venture, for instance, results from a complex set of interactions among startup participants and often cannot be attained by one entrepreneur independently of their business partners. A more complete understanding of collective action follows when we address some outcomes as joint achievements of the entrepreneurial group, rather than the individual efforts of its members. In the next chapter, I turn to an analysis along these lines, considering those aspects of relational demography that produce innovation within entrepreneurial groups.

PART FOUR

Performance of the Group

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CHAPTER EIGHT

Innovation

When Wendy Finch was starting a business with her daughter and two friends in Houston, Texas, making money was not at the top of her list of priorities. Having spent seventeen years as a teacher in the Houston school system, Wendy was dismayed by the number of students she knew who were homeless. Inspired by local precedents, such as the "lighted schoolhouse" program, which used schools to provide temporary shelter for urban youth, she began to think about other facilities that were underutilized and could be rapidly furnished with comfortable bedding and living quarters. Her goals centered on developing the idea for this service, as well as on following the example of respected teachers who had created similar social innovations.

As a divorced mother of two, Wendy reached out to her own children and friends for help in launching the venture. Her twenty-seven-year-old daughter Belle was working in insurance sales and offered to contribute her accounting skills to the organization. One of Wendy's oldest friends in Houston, Clara Feinman, worked as a shipping clerk and could provide much-needed expertise in the logistics of transporting make-shift furnishings from one location to another. Wendy reasoned that an important component of the service was providing privacy for the families who would be housed in temporary quarters. She soon recruited Jane Fisher, another friend, who was working on a new idea for building modular panels that could be set up rapidly to partition any open space. The four women would all hold ownership in the business, with Wendy receiving a majority (52%) share.

In August 2003, Wendy took the initial steps toward creating the business by bringing together the group of owners. They then spent the next half year working on an informal business plan, identifying a number of challenges that the startup would face. The biggest hurdle was the high cost of renting space at night for homeless (and, sometimes, troubled) children and their families. There was also the issue of promoting the service among likely clients, including social service agencies both within and outside the region. The group's members did not know of any other business that offered this service, and it was likely to be unfamiliar to many homeless assistance organizations. The novelty also introduced some technical challenges, since the technology to produce the modular partition

panels had only been developed in the last year. Nevertheless, Wendy saw her organization's first-mover status as a key component of her strategy to competing in the social services arena.[1]

• • •

An understanding of organizational innovation is critical to most accounts of entrepreneurial performance. While considerable scholarly attention has been brought to bear on the issue of innovation, much focuses on the diffusion of existing departures from conventional routines or ideas rather than the creation of new routines or ideas (see reviews in Strang and Soule 1998; Rogers 2003). Social scientists have considered how innovations are spread via direct communication, intermediaries, role similarity, and a variety of institutional pressures. These analyses have led to sophisticated models of the structural, spatial, and temporal dynamics of innovation diffusion, but have not advanced our empirical understanding of how departures from established ideas and routines arise in the first place.

Following the influential work of Schumpeter (e.g., 1934), economic and organizational researchers have also displayed an active scholarly interest in the introduction of new routines and ideas within the context of formal organizations (Hage 1999). Like the diffusion literature, much of this research has not been devoted to the initial appearance of innovations per se but, rather, to the adoption of innovations or the patent protection and marketing of *viable* innovations. Empirical attention has emphasized the effect of a variety of contextual variables, including firm age (Sørensen and Stuart 2000), firm size (Damanpour 1992), interorganizational networks (Powell et al. 1996; Ahuja 2000), patent precedents (Podolny and Stuart 1995), and technological regimes (Malerba and Orsenigo 1996).

The existing evidence on the organizational adoption of innovation leaves two key questions unanswered. First, how does the micro-level context of groups—seen in both relational and demographic terms—contribute to a tendency to deviate from established ways of thinking or doing things and lead to the introduction of new innovations? In contrast to much of the extant body of research, this question focuses attention on the initial appearance of innovations, seeking to avoid the retrospective bias of studying only successful ideas and practices.[2] Second, how are innovations tied to the emergence of startup businesses? More specifically, what leads sets of individuals to establish organizations that employ radically new routines as opposed to organizations that simply reproduce established ways of doing things (Aldrich and Ruef 2006)? This emphasis breaks with the majority of organizational research, which examines in-

novation within established structures, to address how those structures themselves evolve with entrepreneurial innovation.

In this chapter, these questions are explored using the framework of relational demography. Adapting existing ideas on the embeddedness of economic action (Granovetter 1985; see also Uzzi and Spiro 2005), the propensity among entrepreneurs toward innovation as opposed to the reproduction of existing ideas is seen to be a function of the types of social relationships that those entrepreneurs are embedded within. Given that much of the existing evidence on social network effects focuses on dynamics of information diffusion and social influence (e.g., Granovetter 1973; Bian 1997; Burt 2004), an analysis predicting *creative* action requires that the conventional view of embeddedness be amended. The theoretical framework introduced below pays greater attention to the role of relational demography in inducing conformity and sustaining trust, as well as spreading novel ideas.

Relational Demography and Innovation

Table 8.1 summarizes a basic model of organizational innovation. It links creative action to three underlying mechanisms, including the ability of entrepreneurs to access diverse sources of information, to avoid pressures for conformity, and to sustain trust with others who are told about a potential innovation. Within this framework, the propensity of entrepreneurs to break with convention is *both* encouraged by social relations—which may bring disparate ideas, routines, or technologies to an entrepreneur's attention—*and* discouraged by social relations—which may introduce pressures for conformity or concerns about trust. To use Giddens's (1984) terminology, social structure is seen as both enabling and constraining. The balance of tensions toward and away from innovation is largely determined by aspects of an individual's relational context: the size of their entrepreneurial group, the strength and content of network ties within the group, and the sociodemographic diversity represented in group composition. These tensions are not seen as reflections simply of the present structural embeddedness of entrepreneurs, but also of their cultural embeddedness, reflecting a past history of work and leisure relationships.

The Strength of Weak Ties Revisited

Granovetter (1973: 1361) defined the concept of a strong interpersonal tie in terms of the time and emotions invested in a relationship, as well as the reciprocity involved between participating actors (see also Marsden and Campbell 1984). Typical examples of strong ties include marital and

Table 8.1.
Predictors and Underlying Mechanisms of Entrepreneurial Innovation

	Mechanisms			*Predicted Effect on Innovation*
	Information Flow	*Conformity*	*Trust*	
Structural Predictors				
Strong ties	0	+	+	Negligible or Negative
Weak ties	+	0	0	Positive
Network diversity	+	0	+	Positive
Group size	+	0	0	Positive
Cultural Predictors				
Demographic diversity	+	+	–	Negative
Functional diversity	+	–	0	Positive
Industry experience	?	?	n / a	?
Specific work experiences	0	+	–	Negative

Source: Adapted from Ruef, Martin. 2002. "Strong Ties, Weak Ties, and Islands: Structural and Cultural Predictors of Organizational Innovation." *Industrial and Corporate Change* 11(3):427–449. Used by permission of Oxford University Press.

familial relationships. Weak ties, by contrast, entail more limited investments of time and intimacy, subsuming an array of social acquaintances. Granovetter's (1973, 1995) influential "strength-of-weak-ties" thesis maintains that weak ties are often more important in spreading information or resources because they tend to serve as bridges between otherwise disconnected social groups. Strong ties lead to less efficient transmission processes because a large number of actors in the strong tie network know each other, as well as knowing the focal actor. While other network analysts have pointed out that strong ties can also serve as bridges (Burt 1992: 27–30), their tendency to be redundant sources of information remains a widely accepted tenet of structural theory.

To clarify the relevance of tie strength for innovation, rather than simple diffusion, it will be useful to consider two underlying dimensions of social relationships: information and influence. Schumpeter (1934) described innovative action as the novel combination of existing ideas and routines. Innovation thus requires, first and foremost, that entrepreneurs have access to information on disparate ideas and routines from which elements can be combined. Consistent with the strength-of-weak-ties thesis, both the transmission rate and availability of such disparate information will be higher for individuals relying on weak rather than strong network ties.

The impact of relational influence on innovative propensity is more complex. Recent research on job searches has suggested that social influence may explain why strong ties can be more important for status attainment purposes than weak ties (Bian 1997). The dynamics of influence are quite different, however, when the outcome of interest involves innovation. The most pertinent influence affecting innovation is not that directed from a focal entrepreneur to a set of others, but, rather, that directed from other actors in a network to the focal entrepreneur. Although the former influence is relevant to the diffusion and (perceived) success of an innovation, the latter is crucial to the initial departure from established conventions. Strong ties impose greater demands for conformity on an entrepreneur. Spouses or family members who are consulted regarding new business ideas may be insulted when other elements are introduced that deviate or clash with their own way of doing things. The affective content of these relationships strengthens the role of their influence, since entrepreneurs are expected to heed the advice of intimate contacts. Weak tie relationships, on the other hand, allow for more experimentation in selectively combining ideas from one source with those of another, imposing few concerns regarding social conformity. The combined effect of information diffusion and influence thus yields the hypothesis that individuals who rely on spousal or kinship ties within entrepreneurial groups are less likely to be innovative than individuals who rely on weaker network ties.

Network Diversity

Entrepreneurs depending exclusively on one type of relationship or another—particularly, strong versus weak ties—can be rank-ordered in terms of their propensity toward innovation. However, many entrepreneurs derive their ideas from multiple sources, often involving a mixture of family members, friends, acquaintances, or individuals and firms with whom they have had no prior contact. Studies of business startups among nascent entrepreneurs suggest that such diversity can have beneficial effects above and beyond the cumulative effect of network ties considered individually (Renzulli et al. 2000). Network diversity can be seen as an impetus to creative action insofar as the relative advantages of each type of tie (with respect to information, influence, or trust) tend to offset the disadvantages of other ties.

Communication flows from the discourse of experts and strangers generally have the most favorable structural properties for information diffusion, considering the lack of emotional involvement and consequent fidelity of the information received. At the same time, such communication flows often lack any mechanism for iterative feedback with respect to a potential innovation. This means that entrepreneurs relying *exclusively*

on such contacts will tend to adapt ideas to their own circumstances and needs without engaging in more fundamental modification. Those entrepreneurs who are *also* embedded in weak or strong tie networks, on the other hand, may subject new ideas to further combination, as they receive feedback from family, friends, and co-workers. This is especially true of strong tie networks, in which entrepreneurs are able to place trust in others and have some confidence that novel ideas will not be pilfered.

The drawbacks of conformity in strong tie networks can likewise be ameliorated by diversity. The influence of family members is strongest when an entrepreneur has relatively limited access to other sources of ideas. Pressures toward conformity are offset to some extent when an entrepreneur is also able to gather insights from co-workers and more casual acquaintances. More generally, as Burt (1992: 195) points out, individuals who enjoy greater heterogeneity in their role relationships can "be less concerned about getting [their own] role 'right'." Consequently, we anticipate that entrepreneurs who are embedded in a diverse set of network ties are more likely to be innovative than entrepreneurs relying on homogeneous ties.

Group Size and Composition

In the last chapter, I reviewed the evidence for a collective action problem in entrepreneurial groups, possibly resulting from increasing opportunism or externalities as these groups expand. The logic of this argument assumed that entrepreneurs offer divisible and individually quantifiable contributions to their group. For innovation, a less individualistic perspective is called for, since ideas are often produced in collaborative discussion or activity among sets of entrepreneurs, rather than through independent startup activities. New combinations of ideas are especially likely when several entrepreneurs choose to work together and apply multiple perspectives to a problem. Solo entrepreneurs, by contrast, are more likely to reproduce familiar routines from their own life experiences. As a result, large entrepreneurial groups tend to be more innovative than small teams or solo business founders.[3]

Beyond group size, the demographic and functional diversity represented within the entrepreneurial group is likely to have a marked impact on creativity. A team composed of members with accounting, marketing, and engineering expertise, for instance, is more likely to produce new combinations of ideas than a team composed only of accountants. By the same token, entrepreneurs inhabiting different gender, ethnic, or class categories will draw on distinctive life experiences as these individuals work together in startup activities. Burt (1992: 18–20) suggests that the lack of role equivalence among entrepreneurs is often as important in

obtaining nonredundant information as the avoidance of strong network ties. The multiplicity of roles and identities that entrepreneurial groups can invoke may therefore contribute substantially to deviations from established ways of doing things.

Information flows aside, there are some important analytical distinctions between demographic diversity and functional role diversity within groups. Functional roles represent delimited bundles of organizational routines that are assigned to some group members rather than others. Considering Wendy Finch's business, for instance, one partner has assumed responsibility for accounting tasks, another has taken on logistics, and a third has the operational responsibility for producing modular partition panels. Because the allocation of these functional roles is typically performed explicitly as part of the decision-making process in the entrepreneurial group, role inhabitants should display a reasonable level of trust toward each other in executing their role requirements. Moreover, the short-lived nature of these roles in emergent organizations affords their inhabitants a considerable amount of flexibility. Before the passage of time has led to role accretion (Lounsbury 2001; Stinchcombe 1983: 183), conformity to role requirements is likely to be low and entrepreneurs may find themselves dabbling in the task responsibilities of their business partners. As a result, we can predict that functional role diversity within entrepreneurial groups is associated with low levels of conformity and little adverse impact on interpersonal trust.

The implications for group dynamics are more complex in the case of sociodemographic diversity. Gender, ethnic, and class identities are not assigned in a group *ex nihilo*, but convey a variety of status expectations and stigma from other social situations. Even though overt features of appearance and general socialization often have little bearing on task performance within entrepreneurial groups, participants bear the burden of proof in demonstrating that these diffuse status characteristics are, in fact, substantively irrelevant (Fisek et al. 1991). As a result, participants may feel *more* constrained by their identity in heterogeneous than in homogeneous groups. Studying the process of gender role entrapment in decision-making groups, for instance, Johnson and Schulman (1989) found that both men and women tended to conform more closely to role expectations when they were in mixed-gender rather than single-gender groups (especially, in the role of numerical minorities). This helps to explain "the observation that in many mixed-gender settings, women have lower rates of task activity than men have, are less influential, and are less often perceived as making valuable contributions than are men" (ibid.: 356). More generally, given such devaluation, we would anticipate that there is less opportunity for low-status individuals to be creative in diverse groups or to be recognized for their novel ideas. With respect to

innovation, the debilitating effects of role entrapment may thus offset the benefits produced by distinct experiences and perspectives in demographically heterogeneous groups.

There is one further drawback to demographic diversity that limits the innovative potential of partnerships which cut across ethnic, gender, or class lines. The production of innovation within these partnerships requires that participants believe that their ideas will not be stolen by or credited to others. Interpersonal trust among those with similar demographic characteristics serves as an important hedge against this possibility. As Avner Greif (2006) documents in his work on Jewish Maghribi traders, such trust results partially from the anticipation that the probability of future interaction is higher within a category defined by commonalities in ethnicity, gender, religion, and/or class. In addition, as I noted in chapter 4, entrepreneurs tend to believe that others with similar status characteristics will think and behave as they do. This assumption of interpersonal understanding and trust among status-similars may contribute to the greater generation of jointly produced goods (e.g., innovations) in entrepreneurial groups that are homophilous than those that are demographically diverse.

Cultural Embeddedness

Cultural embeddedness reflects the amount of experience that entrepreneurs have in a particular task domain, the extent to which they consciously draw ideas from that experience, and whether the experience involved conventional routines and competencies or attempts to deviate from conventions. In the abstract, both work and industry experiences can offer rich fodder for innovative ideas. The problem that many entrepreneurs encounter is an over-reliance on ideas from specific work activities. As Aldrich and Kenworthy (1999: 20) point out, it is an "indifference to industry routines and norms [that] gives an outsider the freedom to break free of the cognitive constraints on incumbents." Moreover, when ideas for a startup are inspired too closely by previous work activities, the transfer of intellectual property from a "parent" firm to its "offspring" can raise legal questions (particularly when an entrepreneur has signed noncompete agreements in the past). Even assuming that entrepreneurs have little intention to employ ideas directly from previous or current workplaces, they may be reluctant to discuss their experiences openly with their business partners, owing to concerns about confidentiality. An entrepreneurial reliance on specific work experiences can therefore limit information flow, induce conformity owing to legal constraints, and raise questions of interpersonal trust among business partners.

Controlling for such reliance on specific work experiences, the evidence for the impact of industry tenure on innovation is somewhat mixed. On

the one hand, the performance of experienced industry participants tends to become increasingly predictable and reliable. These features of performance are generally valued by society (Hannan and Freeman 1984), but they can also inhibit entrepreneurial exploration (March 1991) and promote inertia around a set of standard operating routines (Nelson and Winter 1982). In a study of business entrepreneurs with MBA degrees, I found that industry tenure decreased their likelihood of submitting patents or trademarks for their ideas, as well as decreasing their own perception of the innovativeness of their startup effort (Ruef 2002a). On the other hand, there is a growing body of evidence suggesting that entrepreneurial experience with closely related technologies can spur innovation in new businesses. Thus, Klepper and Simons (2000) found that TV manufacturers who had a prior history in the production of radios had a significantly higher annual rate of product and process innovations than those lacking such experience. To reconcile these findings, we should recognize that they will tend to be highly sensitive to the definition of "industry experience" (how broadly or narrowly industries are bounded), the extent to which innovation is equated with success, and the representativeness of the entrepreneurs who are sampled. Because few studies have examined the effect of industry experience for a general sample of entrepreneurs—irrespective of industry or educational background—I will pursue this question on an exploratory basis below.

Forms of Innovation

Our discussion to this point begs a more elementary question: what is innovation and how can we recognize it? Schumpeter (1934: 66) suggested that innovation is often embodied in the creation of new formal organizations, a viewpoint that has been echoed in studies of organizational demography (Carroll and Hannan 2000). Still, it remains remarkably difficult to define when startups are engaged in the introduction of novel routines or organizational structures, rather than the replication of existing ones. Part of the problem involves deciding who is best suited to perceive innovation: entrepreneurs (an "egocentric" definition), peers and outside experts (an "altercentric" definition), or independent analysts who have systematic data on an industry (a "holistic" definition) (Aldrich and Ruef 2006: chapter 2). Another issue is what counts as innovative: for example, is it the strategy employed by entrepreneurs, the novelty of their products or services, or the extent to which they develop and protect the intellectual property of their startup organization? Given the multidimensional nature of innovation, I employ several distinct measures in this chapter—some highlighting subjective perceptions of innovation and others emphasizing objective behaviors or intentions on the part of entrepreneurs.

Subjective perspectives on innovation consider the opinions of participants in a startup industry, including experts and entrepreneurs. While the opinions of experts seem a likely candidate for judging innovation, they suffer from one major shortcoming: the attention of many experts—such as industry specialists, stock market watchers, or academics—is directed at *successful* instances of creative action. As a result, there is a considerable risk that their assessments of innovation or novelty may be conflated with assessments of success. Moreover, expert evaluations are not publicly available for large numbers of unsuccessful innovations.

An alternative conceptualization of subjective innovation focuses on the perspective of entrepreneurs themselves—to what extent are they *attempting* to combine disparate ideas or routines, independently of the success of those combinations? How do they perceive the novelty of the products or services they are introducing into the market? Table 8.2 summarizes the opinions of U.S. entrepreneurs for two subjective measures of innovation. The first ("innovation index") addresses categories of innovation that these entrepreneurs believe are very important to their ability to compete successfully. Elaborating on Schumpeter's (1934) widely used approach, these categories include efforts to: (a) be the first to market a new product or service; (b) introduce new methods of production; (c) of distribution; or (d) of marketing; (e) serve an unexploited market niche; (f) offer more contemporary products; or (g) develop the intellectual property of the startup business. As shown in the table, nearly half of the nascent entrepreneurs in the United States recognize the importance of identifying customers in underserved markets and deploying improved methods of marketing or promotion to reach those customers. A third tout the strategic importance of having better methods of distribution than their competitors, and a quarter argue that it is very important for them to be the first to market a particular product or service. Although relatively few representative startups match the common academic definition of "innovative" businesses (which simply equates innovation with the development and protection of intellectual property), many have adopted strategies that pursue innovation in a broader sense.[4]

A second subjective measure addresses the perception that entrepreneurs have of the novelty of their product or service in the marketplace ("novelty" index). In contrast to the first measure, this index is primarily concerned with the anticipated reception of a startup's output by customers and the extent to which they have been exposed to similar goods or services in the past. As seen in table 8.2, many business startups score low in product novelty, offering products that are widely recognized by most (if not all) of their targeted customers and which have been available for a long period of time. Less than 8 percent of the startups seek to introduce products into the market for which the technology or process re-

Table 8.2.
Innovation, Novelty, and Intellectual Property in U.S. Business Startups, 2005–06

	Weighted % of Startups	*Sample Size*
Innovation Index[a]		
First to market new product / service	24.8	1213
Developing new product / process technology for creating goods / services	21.8	1213
Improved distribution (superior location or customer convenience)	32.6	1213
Improved marketing and promotion	45.0	1214
Serving customers missed by others	46.1	1213
More contemporary / attractive products	27.7	1213
Developing intellectual property	17.4	1211
Product Novelty Index[b]		
Not available more than one year ago	7.5	1207
Available between one and five years ago	14.9	
Available more than five years ago (but remains unfamiliar to some customers)	34.8	
Available more than five years ago (and familiar to virtually all customers)	42.8	
Proprietary Technology, Process, or Procedure		
Has been developed	6.0	1197
Will be developed	14.9	
Application for Patent, Copyright, or Trademark		
Has been submitted	4.7	1203
Will be submitted	26.3	

Source: *Panel Study of Entrepreneurial Dynamics* II, Wave A (with inverse size weighting)

[a]Statistics reflect percentage of entrepreneurs who strongly agree with the statement that it is important for them to engage in a particular type of innovation in order to compete effectively. Percentages need not total to 100% since innovation strategies are not mutually exclusive.

[b]Statistics reflect percentage of entrepreneurs who believe that the technology or procedures required to generate their startup's product or service became available at a given time point.

quired to produce them has been available for less than one year.[5] The tension for many startups between a need for product familiarity in their audience and an underlying strategy of innovation has been recognized as a crucial paradox among entrepreneurship scholars. As Hargadon and Douglas (2001: 476) put it succinctly, "to be accepted, entrepreneurs must locate their ideas within the set of existing understandings and actions that constitute the institutional environment yet set their innovations apart from what already exists."[6]

"Objective" measures of innovation consider the behaviors of entrepreneurs with respect to the intellectual property of their business startup. Following previous studies of innovation, a common behavioral benchmark involves patent, trademark, or copyright applications advanced by entrepreneurs during the creation of a new organization. The decision to sample *applications*, rather than patents or trademarks issued, hinges on the potential success bias among startups that manage to legally protect their ideas or routines. Patent protection may be as much a function of the resources and stakeholders that are backing a startup as the actual creativity of ideas involved.[7] At the same time, the input of legal and management counsel during the patent/trademark application process renders this indicator less subjective than individual perceptions of novelty or innovation strategy. Interviews with nascent entrepreneurs in the United States suggest that few ($<5\%$) have submitted applications for intellectual property protection, but another quarter expect to do so as their startup activities proceed (table 8.2).

A final behavioral measure of innovation is whether startup owners consider the technology or routines of their firm to involve proprietary elements that no other business can use and, therefore, seek to protect it using noncompete, nondisclosure, or other restrictive covenants. While this measure exhibits a fairly high correlation with applications for the formal protection of intellectual property ($r \approx 0.37$), the two kinds of behavior clearly do not overlap completely. An entrepreneurial group may develop proprietary knowledge that is difficult or impossible to protect by means of patents, for instance. Or it may seek to obtain a patent on a product or process, with little intention of excluding other businesses from using that knowledge in the long run (at least, with the appropriate remunerative arrangements). At an early stage, the development of proprietary technologies, processes, or procedures is slightly more common in business startups than applications for the legal protection of intellectual property. But, in the long run, a relatively small proportion of entrepreneurs anticipate that their business will develop firm-specific knowledge that should not be applied in other contexts. Among owner-managers, at least, this may reflect the risks associated with the hold-up problem (chapter 7), not just for their own career prospects but for the prospects of the entrepreneurial group as a whole.

Innovation across Industries

Considering the operational measures of innovation—both subjective and behavioral—a concern that arises for relational demography is that much of the propensity toward creative action or the development of intellectual property is dictated by the industry in which a startup seeks to

compete, not the microstructure of entrepreneurial groups. According to this argument, an entrepreneur starting a construction business may be less likely to seek legal protection for their ideas than the founder of a dot-com Internet site. More generally, some economists have suggested that rates of innovation are lower (or lead to few increases in productivity) in service sectors than in manufacturing sectors (cf. Sundbo 1998: 99–102). If much of this variance is accounted for by industry, then group structure may explain few of the attitudes or behaviors that entrepreneurs manifest toward innovation.

Table 8.3 explores the impact of startup industry on two of the measures of innovation, distinguishing among ten industry categories organized broadly by Standard Industrial Classification (SIC) codes. The lowest level of product novelty is evidenced in the extractive sector (agriculture and mining) and financial services (finance, insurance, and real estate), while the highest can be seen in business consulting and wholesale distributorships. Statistics for the percentage of startup businesses applying for patents, trademarks, or copyrights are similar, suggesting that there is broad convergence of these measures on the issue of cross-industry variation.

Although there is a considerable range of mean innovation scores across industrial sectors (roughly, 13–38% for novelty and 16–42% for the legal protection of intellectual property), there is no sector in which innovation is very rare and there is also no sector in which the majority (>50%) of startup businesses would qualify as innovators—at least as operationalized in these terms. The amount of variance explained exclusively by industry categories is also limited. About 2 percent of the total variance in the product novelty index and 2 percent of the total variance in patent, trademark, or copyright applications can be accounted for on this basis. The lack of explanatory power at the industry level allows for the possibility that group microstructures may play an important part in the innovation process.

The Effect of Relational Demography on Different Forms of Innovation

Subjective Perceptions of Innovation

Table 8.4 considers entrepreneurs' own perceptions of innovation and novelty, analyzing the full PSED II sample that includes both teams of owner-managers and solo entrepreneurs. The reference category for all comparisons is a simple caricature of *Homo economicus*—an isolated entrepreneur, with no prior enculturation in an industry; no co-owners who are spouses, family, or co-workers; and no exposure to relevant business ideas from past work or leisure activities.

Table 8.3.
Salience of Novelty and Intellectual Property by Startup Industry

Industry	*Standard Industrial Classification*	*Number of Startups*	*Percent with Novel Product Technology (>5 years)*	*Percent Applying for Patent, Trademark, Copyright*
Agriculture and mining	Divisions A and B	58	13.2	22.4
Construction	Division C	82	19.6	19.0
Manufacturing	Division D	67	15.2	36.9
Transportation, utilities, and communications	Division E	56	27.0	31.5
Wholesale distributors	Division F	53	28.8	42.0
Retail stores and restaurants	Division G	200	24.2	36.6
Finance, insurance, and real estate	Division H	93	13.5	16.3
Health services	Division I, Major Group 80	85	26.1	31.0
Business consulting	Division I, Major Group 87	95	38.0	36.3
Other services	Division I (remainder)	423	20.9	31.6

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A (with inverse size weighting).

Cultural embeddedness has a substantial impact on the perception of innovation and novelty among these entrepreneurs. Business owners who draw ideas directly from other work contexts are only half as likely to introduce what they consider to be fresh ideas in their business startups. One interpretation of this finding is that it reflects the lack of creativity inherent in the process of copying ideas from a past or present employer. As individuals become socialized in a work domain, they are less likely to change organizational methods they view as either appropriate or effective. An alternative perspective is that these entrepreneurs are simply more jaded. Their experience in a related work domain leads them to downplay the novelty of their products and the extent to which their startup must be innovative in order to compete effectively. While plausible, the effect of industry tenure—which is positive for the innovation index—seems to warn against the latter interpretation. More generally, these findings suggest that firm-specific competencies will tend to dampen

Table 8.4.
Effect of Experience, Networks, and Group Size on Subjective Perceptions of Innovation and Novelty

Variable[b]	*Index of Innovation (N = 1,179)*[a]		*Novelty of Product or Service (N = 1,172)*[a]	
	Odds Ratio	*Statistically Significant?*	*Odds Ratio*	*Statistically Significant?*
Human Capital				
Years of industry experience (mean)	1.017	$p < .05$	0.997	No
Age (mean)	0.983	$p < .001$	0.997	No
Basis of Business Idea[c]				
Work activity	0.501	$p < .01$	0.472	$p < .01$
Leisure activity	0.586	$p < .05$	0.553	$p < .05$
Other (idea from family, friends, co-owners, or self-generated)	0.658	No	0.538	$p < .05$
Networks within Group				
Spouse / live-in partner	0.654	$p < .01$	0.678	$p < .05$
Nonspouse family	1.067	No	1.020	No
Co-worker	0.770	No	0.781	No
Other Group Attributes				
Size (number of owners)[d]	1.328	$p \approx .06$	1.411	$p < .05$

[a] Both outcomes are modeled using ordered logistic regressions. The index of innovation identifies whether an entrepreneur seeks to: (a) be the first to market a new product or service; (b) serve an unexploited market niche; (c) introduce new methods of production; (d) of distribution; or (e) of marketing; (f) introduce more contemporary products; or (g) develop the intellectual property of the startup firm. The measure of novelty identifies how recently the technology / procedures required to generate the startup's product have become available: (a) within the last year; (b) between one and five years ago; (c) more than five years ago, but the product remains unfamiliar to at least some customers; or (d) more than five years ago and virtually all customers are familiar with the product.

[b] Analysis includes controls for startup location, lag time since inception, and industry fixed effects.

[c] Reference category includes ideas generated via academic, scientific, or applied research.

[d] Variable subject to logarithmic transformation.

entrepreneurial reliance on an innovation strategy, while generic industry tenure may help entrepreneurs develop more flexible strategies for their startups.[8]

Consistent with the strength-of-weak-ties hypothesis, entrepreneurs who rely on information from acquaintances and strangers are more likely

to engage in what they see as innovative and novel activity than those who rely heavily on information from spouses or live-in partners (odds ratio ≈ 2/3). The reduction of information redundancy and conformity in weak-tie networks creates a milieu where attempts at creative action are more likely than in contexts involving intimate business partners. Notably, however, there is no significant difference between entrepreneurs relying on kinship ties and those relying on networks of weaker affiliations. With respect to innovation, this suggests that the disadvantages of strong ties (especially with respect to conformity) may be most pronounced when the intimate bonds of marital or other romantic relationships are projected onto business partnerships.

Since the data analyzed in table 8.4 include both solo entrepreneurs and entrepreneurial groups, only one feature of group composition can be addressed for the full sample. As predicted, innovative propensity increases with the size of owner teams. When larger numbers of entrepreneurs are brought together, new combinations of ideas or routines become more likely. This assessment of the effect of group size occurs at the aggregate level and reconciling it with the phenomenon of free riding among individual entrepreneurs requires some attention to the functional form of the correlation between size and innovation. Figure 8.1 (top panel) shows that the best-fitting function linking these variables is increasing, but nonlinear, with a declining marginal contribution from each group member in more expansive entrepreneurial teams. Thus, the probability that a startup will pursue a business strategy that focuses largely on innovation increases from 0.097 in solo efforts to 0.116 in two-person partnerships. The increase from adding a third entrepreneur is more modest (to 0.128) and further gains to innovation from the addition of more partners are attenuated progressively. Given this decline in marginal contributions, the findings for the subjective measure of innovation are consistent with Olson's formulation of the collective action problem as it affects the contributions of individual entrepreneurs (see chapter 7).

Intellectual Property

Results for behavioral indicators of innovative propensity—including the development and legal protection of intellectual property—suggest a number of parallels with subjective perceptions of innovation (see table 8.5). When specific work experiences form the basis of a startup idea, this tends to dampen both the prospects for the development of intellectual property and applications for patents, trademarks, and copyrights (possibly owing to legal constraints from past or present employers). Consistent with the strength-of-weak-ties thesis, the presence of spouses or live-in partners within the group also decreases innovation behaviors markedly,

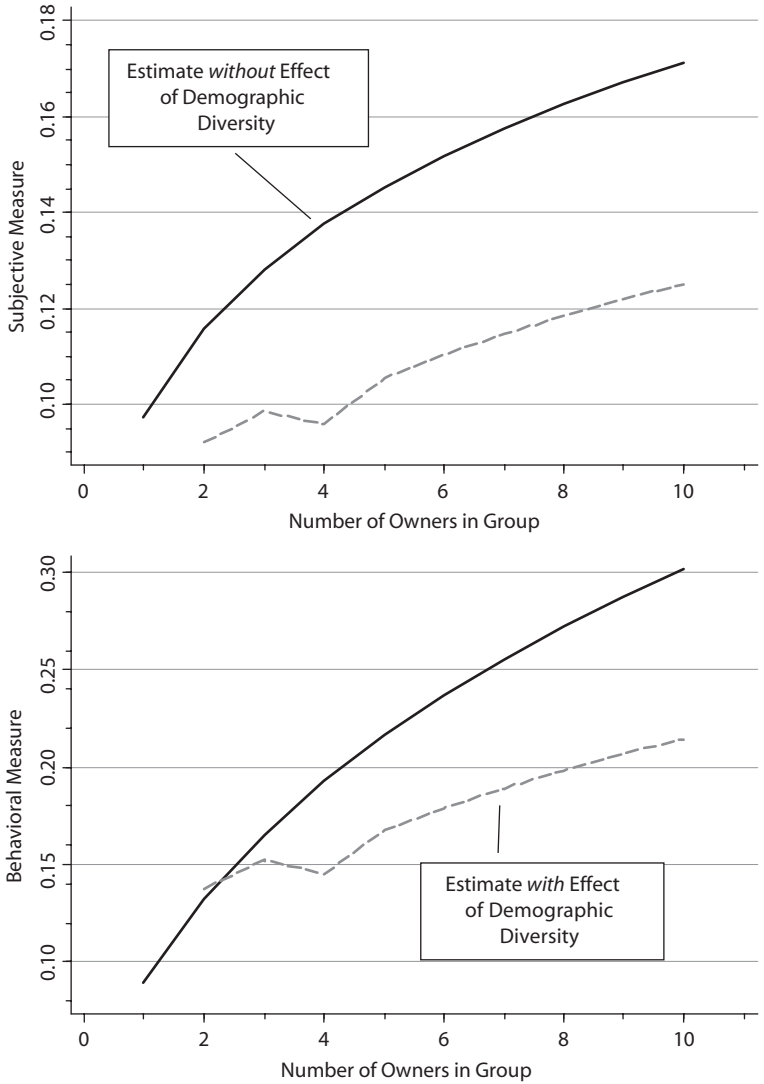

Figure 8.1. Variation in Entrepreneurial Innovation by Group Size and Diversity. *Note*: Estimates are derived from the models shown in tables 8.4–8.6, holding all variables aside from the number of owners at their means. Diversity is calculated as conditional mean for a particular group size.

For subjective measure, estimates reflect probability that entrepreneurs perceive their own strategy as being highly innovative on a 7-point index. For behavioral measure, estimates reflect probability that entrepreneurs have developed a proprietary technology, process, or procedure that no other firm can use.

Table 8.5.
Effect of Experience, Networks, and Group Size on Likelihood of Producing Proprietary Business Ideas

	Development of Proprietary Technology, Process, or Procedure (N = 1,164)[a]		*Application for Patent, Copyright, or Trademark (N = 1,169)*[a]	
Variable[b]	*Odds Ratio*	*Statistically Significant?*	*Odds Ratio*	*Statistically Significant?*
Human Capital				
Years of industry experience (mean)	1.003	No	1.019	$p < .05$
Age (mean)	1.000	No	0.973	$p < .001$
Basis of Business Idea[c]				
Work activity	0.417	$p < .01$	0.491	$p < .001$
Leisure activity	0.328	$p < .001$	0.804	No
Other (idea from family, friends, co-owners, or self-generated)	0.489	$p < .05$	0.914	No
Networks within Group				
Spouse / live-in partner	0.534	$p < .01$	0.491	$p < .001$
Nonspouse family	1.004	No	0.804	No
Co-worker	0.731	No	0.914	No
Other Group Attributes				
Size (number of owners)[d]	1.907	$p < .001$	1.944	$p < .001$

[a] Both outcomes are modeled using ordered logistic regressions. The response categories indicate whether a business: (a) has already developed the intellectual property in question; (b) has not yet developed the intellectual property, but plans to do so in the future; or (c) has no plans to develop the intellectual property.

[b] Analysis includes controls for startup location, lag time since inception, and industry fixed effects.

[c] Reference category includes ideas generated via academic, scientific, or applied research.

[d] Variable subject to logarithmic transformation.

reducing the likelihood that entrepreneurs will develop proprietary ideas by about half.

Attempts to develop or protect intellectual property rise predictably with the size of the entrepreneurial group, subject to the decreasing marginal returns noted for subjective measures of innovation (see bottom panel of figure 8.1). The probability that solo entrepreneurs have developed proprietary business knowledge at the time of the interview, for example, is less than 0.10; this predicted probability increases threefold in an entrepreneurial group with ten business partners. Larger groups of

entrepreneurs encourage distinctive "communities of practice" to emerge, giving rise to problem-solving techniques and schemata that are kept out of the hands of competitors (Aldrich and Ruef 2006: chapter 6).[9] Perhaps the only notable difference between the subjective and behavioral measures of innovation lies in the steepness of the group size effect, which reveals larger gains to additional group members when the outcome involves actions rather than attitudes.

Group Composition

Table 8.6 considers the impact of group composition in greater detail. Because the data being analyzed are selective—comprising startup efforts involving at least two entrepreneurs—only some parameter estimates are shown. The most striking result is the effect of demographic diversity within entrepreneurial groups, which tends to decrease the propensity toward innovation significantly across most of the measures. With the exception of product novelty, groups that exhibit a high level of diversity in ethnicity, gender, and occupational class are only 20–40 percent as likely to exhibit innovative behaviors or strategies as those with no demographic diversity. Since diversity tends to increase slightly with group size, this finding also means that the benefits that accrue to larger groups are almost completely counter-acted by the diversity in the majority of startups that include fewer than five owners (figure 8.1).

If entrepreneurs with diverse demographic identities have access to distinct communities and life experiences, why are they less likely to be innovative in the context of entrepreneurial groups? Though subtle, the operational differences in the measures of innovation provide some clues. The subjective measure of innovation assesses how important entrepreneurs believe innovation is to their ability to compete effectively. Since this subjective measure is substantially lower in groups that are demographically diverse than in those that are homophilous, we know that diversity decreases the *salience* that entrepreneurs attach to innovation, apart from their *ability* to develop new ideas or routines. The decline in subjective salience also dovetails with our theory of entrepreneurial innovation, which notes the increase in role entrapment and decrease in interpersonal trust that frequently arises in diverse groups.

In theory, the inhibitive effect of demographic diversity can be reduced when (a) demographic diversity is positively correlated with diversity in functional roles or networks; and (b) functional or network diversity serves as a catalyst for innovation. Although the first condition appears to hold true for many of the entrepreneurial groups sampled in the PSED II (the pairwise correlations of demographic diversity with functional and network diversity are 0.17 and 0.24, respectively), there is only limited

Table 8.6.
Effect of Entrepreneurial Group Size and Diversity on Innovation, Novelty, and the Development of Intellectual Property

	Odds Ratios			
Variable[a]	*Innovation*	*Novelty*	*Proprietary Intellectual Property*	*Application for Patent, etc.*
Size (number of owners)[b]	1.323	1.319	1.552	2.219
Demographic diversity[c]	0.393	1.076	0.218	0.358
Functional role diversity[c]	1.993	1.064	0.676	1.444
Network diversity[c]	0.665	0.856	1.424	1.466
Age diversity (sd)	1.016	0.996	1.042	0.981
Number of cases	538	535	531	533

Note: Cells shaded in light gray are significantly different from 1.0 at the $p < .05$ level.

[a]Analysis is limited to multi-owner startups. It includes controls for startup location, lag time since inception, industry fixed effects, and all variables shown in tables 8.4 and 8.5 (substituting network diversity for other measures of network composition). All outcomes are modeled using ordered logistic regressions.

[b]Variable subject to logarithmic transformation.

[c]Indices of qualitative variation. Calculated over three nominal dimensions (gender, ethnicity, and occupation) for demographic diversity, five functional roles (sales, finance, technical, operations, and HR management) for role diversity, and fives types of relationships (spouses, kin, co-workers, friends, and strangers) for network diversity.

evidence in these data for the second condition.[10] As shown in table 8.6, the effect of network diversity fluctuates considerably across different innovation outcomes and never achieves statistical significance. Functional diversity only has a substantial bearing on innovation for a single measure—the entrepreneurs' subjective orientation toward the importance of innovation. When several functional roles are present within an entrepreneurial team, this can give rise to different perspectives in group discussions and the possibility of role conflict, contributing to the modification of conventional scripts. At the same time, it is not apparent that such entrepreneurial groups are more effective in taking concrete steps toward protecting the intellectual property that they develop within their business startups.

The results also indicate that the significance of group size is attenuated slightly once attention is restricted to multi-owner startup teams. Partially, this can be attributed to the smaller sample sizes that result with the exclusion of solo entrepreneurs and the consequent reduction in statistical power. It is also possible that the clearest benefit of team size—in terms of encouraging creative action—occurs primarily as one moves

from solo entrepreneurship to entrepreneurial dyads, with smaller marginal benefits accruing to the addition of group members beyond that point. This interpretation is consistent with the functional form of the effect for group size, as displayed in figure 8.1.

Conclusion

A capacity for business innovation is both enabled and constrained by the social structure of entrepreneurial groups. While traditional treatments of innovation and discovery have suggested that new ideas be treated *sui generis* as largely random occurrences among isolated actors (e.g., Popper 1959), such undersocialized conceptions ignore the importance of social embeddedness in triggering combinations of ideas. Embeddedness is crucial to the flow of non-redundant information to entrepreneurs, particularly those who are able to draw on weak ties and large teams of business co-owners. At the same time, a propensity for innovation requires that entrepreneurs not fall prey to the conformity that might be encouraged by social embeddedness. As a long-standing research tradition on interpersonal expectations has emphasized (e.g., Blanck 1993), deference to the opinions of others can serve as a significant constraint on creative experimentation. The results in this chapter suggest that entrepreneurs can avoid the pitfalls of conformity by not drawing their ideas too narrowly from past work experiences and by avoiding a strong reliance on spouses or other intimate partners within the startup team.

Not all features of relational demography have equal bearing on the process of organizational innovation. Contrary to theoretical expectations, network diversity within groups of startup owners has little effect on their propensity to develop intellectual property or adopt strategies of innovation. Partially, this may be due to a failure among entrepreneurs to realize the complementary features of strong ties, weak ties, and contacts with strangers. As a result, the benefits of each type of tie may not be additive, but countervailing. The modest effect of internal network diversity probably also results from the reconstruction of tie strength once entrepreneurial groups are formed. Even if business partners only have limited familiarity with one another at first, frequent interaction during startup formation tends to foster group integration. Consequently, pressures for conformity may grow and largely obscure the initial benefit that interpersonal anonymity holds for creative action.

As in any analysis of organizational outcomes, it is important that we not fetishize the concept of innovation within business startups. Much that passes for "innovation" from the standpoint of an entrepreneur will seem like little more than a flight of fancy (or madness) from the standpoint of

his or her contemporaries. Indeed, the majority of business innovations seem doomed to fates of failure or cultural amnesia. Nor can we equate successful innovations—particularly those that come to be recognized by actors outside the social sphere of the innovator—with other metrics of startup performance. The fact that, "among entrepreneurs and the new ventures they create, we mostly find mundane replications of organizational forms," may be beneficial to entrepreneurs themselves, as well as society at large (Aldrich and Kenworthy 1999). An appreciation of innovation must be tempered by an understanding of the goals that entrepreneurs have in creating their business startup, as well as the small group dynamics that result as a consequence.

CHAPTER NINE

Goals and Group Dynamics

Studies of group processes have long been bifurcated into those that emphasize the goals and interests that contribute to group formation versus those that emphasize the social interactions that produce groups apart from individual interests. In their text on the *Social Psychology of Groups*, Thibaut and Kelley (1959) trace this division to the beginning of the twentieth century, when some social scientists, such as William McDougall (1908), sought to develop elaborate taxonomies of social motives, while others, such as the sociologist Edward A. Ross, focused more resolutely on the "uniformities in feeling, belief, or volition . . . which are due to the interaction of human beings" (1908: 1). Echoes of this division can be found throughout contemporary social science. Fields such as economics and rational choice sociology place individual goals at the forefront of any effort to understand the emergence of formal groups and organizations. Other fields, such as structural sociology, highlight the social constraints and biases that limit our patterns of organizational involvement.[1] Although there are ample efforts to integrate these perspectives (e.g., Simon 1964; Coleman 1990), these efforts themselves tend to originate from theoretical pre-suppositions that favor either interests or interactions. As a consequence, many social science perspectives reduce one component or another to a set of untested assumptions, rather than a domain of empirical inquiry.

The literature on interests reveals a second division concerning the motives that lead individuals to start new organizations. For business startups, we tend to view these motivations as ones of self-sufficiency and pecuniary interest. The field of economics is perhaps the most explicit on this point, offering a general model of entrepreneurial activity based on risk-tolerant, profit-maximizing agents (Kihlstrom and Laffont 1979; see also Heaton and Lucas 2000). For nonprofits and voluntary associations, there is a countervailing propensity to highlight nonpecuniary motives, such as altruism or the desire among entrepreneurs to build a community of like-minded souls. Such intuitions are most commonly deployed under the label of "social entrepreneurship" to describe "those individuals who establish enterprises primarily to meet social objectives rather than generate personal financial profit," often within a utopian rubric (Shaw and Carter 2007: 419). As the example of Wendy Finch in the last chapter

suggests, the distinction between pecuniary and nonpecuniary motives—like the dichotomy between interests and interactions—appears overly simplified and invites a more textured interpretation of the goals that guide entrepreneurial activity.

In this chapter, I introduce goals into my analysis of interactions within entrepreneurial groups, but seek to do so on an explicitly empirical basis. The popular image of the business entrepreneur has often been that of a profit-maximizing agent. Owing to the high rate of failure among business enterprises and expected income *loss* that results from entry into entrepreneurial activity (Hamilton 2000), sustaining this image has required that we adopt other—often dubious—assumptions into our interpretation of entrepreneurial processes. These ancillary assumptions include a characterization of entrepreneurs as risk-taking gamblers, as overconfident fools, or as dupes who have been lured into business founding activities by others (see Xu and Ruef 2004 for a critique).[2] While it is tempting to attribute such cognitive heuristics and biases to many entrepreneurial ventures, I will suggest that a more satisfying explanation requires that we also investigate the nonpecuniary features of entrepreneurial decision-making.

Entrepreneurial Goals

A conceptualization of goals is central to many analyses of organizing activities (Aldrich and Ruef 2006; Scott and Davis 2006). Identifying the appropriate unit of analysis for such goals, however, remains a complex exercise. For established businesses, nonprofits, and government agencies, it is common to attribute goals to organizations as a whole, though this attribution carries some risk of highlighting the "rational" goals expressed by an organization's leadership, of ignoring goal conflict within organizations, and even of anthropomorphism. Nevertheless, organizational scholars generally view organizations as "purposive systems in which members behave as if their organizations have goals, although individual participants might personally feel indifferent toward those goals or even alienated from them" (Aldrich and Ruef 2006: 5).

An alternative conception, found in many studies of entrepreneurs, is to attribute goals only to individual participants. This conception largely coincides with the classic economic theory of the firm, "where no distinction is made between an organization and a single entrepreneur[:] the organization's goal—the goal of the firm—is simply identical with the goal of the real or hypothetical entrepreneur" (Simon 1964: 2). Although this conflation simplifies the measurement of goal orientation in some respects, it becomes increasingly implausible when a startup organization expands beyond the sphere of an individual entrepreneur, adding new

owner-managers, consultants, investors, employees, and other helpers. As Herbert Simon has emphasized, the "goals that actually underlie the decisions made in an [established] organization do not coincide with the goals of the owners, or of top management, but have been modified by managers and employees at all echelons" (ibid.). Within startup firms, it is possible, then, that individual entrepreneurial goals have a clear relationship with individual attributes, but less to do with the structure of entrepreneurial groups as a whole, particularly as the social scope of those groups goes beyond a handful of participants.

To test this proposition in an exploratory fashion, this section will begin with an empirical overview of the principal career goals that were identified by entrepreneurs in the PSED I and II. I then address how these goals are correlated with individual sociodemographic characteristics and whether they are predictive of the entrepreneurial group composition, more generally.

Goal Typology

Although numerous typologies of individual goals have been identified in the organizational literature, one of the most influential remains Clark and Wilson's (1961) tripartite scheme, which divides the incentives that can be offered to organizational participants into material, solidary, and purposive rewards. Material incentives involve tangible rewards in the form of salary, benefits, owner equity, and the like. Solidary incentives are intangible and derive from the act of associating itself. They subsume the positive benefits of sociability, the avoidance of negative constraints on sociability that would result in other contexts, and the status that comes with organizational membership. These solidary incentives are diverse, but they share the common feature of motivating participants in a manner that is somewhat independent from the precise goals of an organization as a whole. Finally, purposive incentives are intangible and entail an orientation toward the stated ends of an organization, rather than the mere act of association. Within entrepreneurial startups, these incentives may manifest themselves as a love of creativity or innovation, for its own sake, or a view that equates the startup effort with a process of self-realization.

In table 9.1, I enumerate a more fine-grained typology of these motives, tailored to the entrepreneurial context, along with the wording of survey items that have been used to capture some of these distinctions in the *Panel Study of Entrepreneurial Dynamics*. A goal orientation toward *material well-being* entails a concern with the financial security that will be offered by a startup enterprise, as well as the income and wealth accumulation that will be generated by it in the long run. The solidary rewards noted by Clark and Wilson can be differentiated into three types

Table 9.1.
Typology of Entrepreneurial Goals and Associated Survey Questions

Type of Goal	*Conceptual Definition*	*Survey Items ("To what extent was it important to")*
Material well-being	Increasing (or reducing the variance in) household wealth or income.	(a) Give myself, spouse, and children financial security (b) Earn a larger income (c) Have a chance to build great wealth or a very high income
Embeddedness	Activation of *positive* network ties, including the development of familial cohesion, friendship ties, and respect from community leaders.	(d) Continue a family tradition (e) Build business children can inherit (f) Be respected by my friends (g) Follow the example of a person I admire
Autonomy	Avoidance of *negative* network ties, subsuming relationships that restrict an individual's actions in professional and personal life.	(h) Have freedom to adapt my own approach to work (i) Have greater flexibility for my personal and family life
Social status	Achieving a higher position or greater power in society, considered apart from an actor's social *networks* (cf. embeddedness) or *material* status (cf. material well-being).	(j) Achieve a higher position for myself in society (k) Lead and motivate others[a] (l) Have the power to greatly influence an organization
Identity fulfillment	Developing and challenging self, including the fulfillment of non-pecuniary personal goals.	(m) Fulfill a personal vision (n) Grow as a person[a] (o) Challenge myself[a]
Creativity	Development of innovative products, services, or other ideas.	(p) Be innovative and in the forefront of new technology[a] (q) Develop idea for a product (r) Achieve something and get recognition for it

[a]Survey item available in PSED I only.

of entrepreneurial goals. They include social *embeddedness* in familial, friendship, and community networks; *autonomy* from the constraints imposed by conventional employment; and the *social status* gained from entrepreneurial association. Purposive goals include ones where entrepreneurs seek *identity fulfillment* from startup activities or display an inherent interest in *creativity* and the new products or services that a business startup can introduce to a market.

In the PSED surveys, startup owners were asked to rate the importance that they placed on various reasons for establishing a new business. The means of these responses—coded on a Likert scale ranging from '1' (important to "no extent") to '5' (important to "a very great extent")—are shown in table 9.2 and sorted by declining importance on overall scale means. As evident in the table, many of the motivations that individuals have for founding new businesses are nonpecuniary in nature. Particularly salient are goals surrounding identity fulfillment, which capture the need that entrepreneurs express to develop and challenge themselves and to create an enduring personal legacy. In the 1998–2000 data, identity fulfillment ranks as the most important entrepreneurial goal on average, while it ranks in second place in the 2005–2006 data.[3] Another nonpecuniary goal that appears to be especially salient is autonomy, the avoidance of obligations that restrict an individual's actions in professional and personal life. Consistent with interpretations of entrepreneurial behavior found in recent economic treatments (e.g., Hamilton 2000; Moskowitz and Vissing-Jørgensen 2002), the desire for autonomy tends to outweigh the importance of profit-seeking goals in startup activity.

Rounding out the list, material well-being, creativity, status attainment, and embeddedness appear in order of declining importance for both survey years, suggesting that the hierarchy of entrepreneurial goals is fairly stable across time. Given the relatively limited importance ascribed to inheriting or passing on a family business, the kinds of nonpecuniary goals emphasized by American entrepreneurs are quite distinct from those found in other entrepreneurial cultures, such as among the *Mittelstand* businesses of Germany. The motives of identity fulfillment and autonomy continue to reflect a broader ideology of individualism, but shift its focus from an economic to a social psychological dimension. Pairwise comparisons of scale means (not shown in the table) reveal that differences among all of the major types of entrepreneurial goal-orientation are statistically significant at the $p < .05$ level.[4]

Relationship of Goals to Individual and Group Characteristics

Further analysis of the correlates of goal adoption can proceed by distinguishing those entrepreneurs who have one goal that clearly dominates in

Table 9.2.
Reasons Given by U.S. Entrepreneurs for Starting New Businesses

	PSED I			*PSED II*		
Reason	*Item Mean*	*Scale Mean*	*Scale Reliability*	*Item Mean*	*Scale Mean*	*Scale Reliability*
Identity Fulfillment		4.12	0.72		3.65	—
Fulfilling personal vision	4.00			3.65		
Growth as a person	4.19			—		
Challenging self	4.19			—		
Autonomy		4.09	0.68		3.88	0.63
Freedom to adapt own approach to work	4.04			3.94		
Greater flexibility in personal and family life	4.15			3.82		
Material Well-Being		3.88	0.80		3.53	0.79
Financial security	4.22			3.85		
Larger personal income	4.09			3.68		
Building great wealth or very high income	3.31			3.07		
Creativity		2.80	0.63		2.52	0.55
Being innovative	2.81			—		
Developing idea for product	2.58			2.35		
Achieving something and getting recognized for it	3.02			2.69		
Social Status		2.73	0.72		2.20	0.59
Higher position in society	2.52			2.13		
Leading others	3.21			—		
Power to influence an organization	2.46			2.26		
Embeddedness		2.13	0.66		2.18	0.71
Continuing a family tradition	1.62			1.79		
Building business children can inherit	2.71			2.71		
Respect from friends	2.09			1.94		
Following example of admired person	2.11			2.26		

Sources: Wave A of PSED I and II. Sample size is 533 and 1,214 entrepreneurs, respectively.

the decision to start a new business (about two-thirds of the sample in the PSED II) and those who evidence a mixture of motives. Table 9.3 summarizes individual and group characteristics by subsamples of the PSED II data, with each subsample defined by the greater importance attributed to one set of scale items (i.e., a higher mean score) than to others.

Considering the characteristics of individual entrepreneurs, demographic and human capital variables generally have a strong relationship with goal orientation. Mentions of material motives are significantly less common among white entrepreneurs than mentions of identity fulfillment and autonomy. To some extent, this may reflect the prevalence of "survivalist" entrepreneurship among ethnic minorities, a process in which labor market disadvantage leads to a desperate need to secure an independent livelihood (Boyd 2000).[5] An emphasis on material well-being is also slightly less pronounced among female entrepreneurs compared to their male counterparts.[6] Professional socialization tends to encourage the centrality of identity fulfillment as an entrepreneurial goal, as opposed to autonomy or profit maximization. This is consistent with studies of human resource models in startup enterprises, where professional systems of control (akin to those found in universities, medical groups, architectural firms, and the like) are often coupled with an emphasis on purposive rewards (Baron et al. 1999).

Lifecourse processes also have an impact on the relative salience ascribed to different entrepreneurial goals. Older entrepreneurs and those with more experience in an industry tend to emphasize identity fulfillment over the autonomy and (potential) material gains associated with a business startup. The only characteristic at the individual level that does not explain much variation in goal orientation is startup experience, suggesting that there is no consistent shift in motives for serial entrepreneurs.

At the level of the entrepreneurial team, there tends to be some decoupling of group-level characteristics and individual goals. Theoretical intuition suggests, for instance, that entrepreneurs who favor autonomy ought to recruit smaller numbers of co-owners and other participants to assist them in their startup endeavors. Still, the total number of partners does not vary significantly by dominant career goal; and while the number of co-owners does vary, the difference between autonomy-craving and other entrepreneurs is relatively modest. Similarly, we might anticipate that entrepreneurs who view their business startups as exercises in identity fulfillment would recruit participants with an eye toward homogeneity along demographic lines (if not along functional and network dimensions as well). While the sampled mean for demographic diversity is slightly lower among these entrepreneurs, there is no evidence of a statistically significant difference from entrepreneurs who devote themselves to other goals.

TABLE 9.3.
Means for Individual and Group Characteristics by Entrepreneurial Goals

	Dominant Goal[a]					*Significant*
Characteristic	*Identity Fulfillment*	*Autonomy*	*Material Benefit*	*Other*	*Mixed Motive*	*Sample Diff.*[b]
Individual Demography						
Ethnicity (1 = white)	0.75	0.79	0.62	0.57	0.65	$p < .001$
Gender (1 = female)	0.36	0.43	0.30	0.20	0.38	$p < .01$
Occupation (1 = professional)	0.29	0.19	0.20	0.18	0.16	$p < .01$
Age (years)	41.47	39.41	38.38	36.20	37.99	$p < .01$
Human Capital						
Industry experience	9.61	7.23	6.18	8.89	8.12	$p < .01$
Startup experience	0.88	0.80	1.06	0.76	0.76	No
Networks within Group						
Spouse / live-in partner	0.38	0.63	0.48	0.16	0.55	$p < .001$
Nonspouse family	0.21	0.15	0.22	0.27	0.21	No
Co-worker	0.20	0.14	0.18	0.16	0.15	No
Other Group Attributes						
# of participants[c]	3.05	2.81	2.91	3.03	2.74	No
# of owners[c]	1.56	1.49	1.67	1.83	1.50	$p < .05$
Demographic diversity	0.39	0.45	0.47	0.38	0.43	No
Functional diversity	0.13	0.16	0.19	0.21	0.19	No
Network diversity	0.13	0.14	0.07	0.08	0.11	No
Number of Cases	260	351	149	33	421	

Source: PSED II, Wave A. Sample sizes reported for each column are unweighted and reflect the upper bound on cases available for the analysis of each row variable (pending further listwise deletion for missing or inapplicable cases).

[a]For a given entrepreneur, a goal is defined as dominant if the mean of its component Likert-scale items is greater than that of all other goals. "Other" category includes creativity, social status, and embeddedness. "Mixed motive" indicates that no goal is clearly dominant.

[b]Statistical significance evaluated based on F-tests for a one-way analysis of variance.

[c]Logarithmic transformation applied for F-test. Reported means are transformed back to unlogged equivalent.

Considering networks within entrepreneurial groups, the only type of tie that differs substantially across the subsamples involves the presence of spouses or cohabiting partners. Interestingly, entrepreneurs who favor autonomy are especially likely to incorporate their intimate relationships into the team of co-owners, suggesting that these partners are not *viewed* as sources of constraint or conservatism (cf. chapter 8). Goals of identity fulfillment are generally downplayed among entrepreneurs who involve spouses in their startup businesses.

On the whole, these descriptive results underscore Herbert Simon's principal concern in the definition of an organizational goal. There are clear and sensible correlations between the goals maintained by individual entrepreneurs, their demographic attributes, and their length of industry tenure. But once we move to the composition of multimember partnerships, it is far less clear that entrepreneurs can readily align group structure with their interests. Social interactions, one might argue, have a life of their own and may support goals that are quite distinct from those of individual startup owners. In the next section, I consider how interests and interactions combine to affect the evolution of entrepreneurial groups.

The Evolution of Entrepreneurial Groups

To this point, many of the analyses of group behavior in this book have been pursued within a static framework. With the exception of the network sequences shown in chapter 3 little attention has been given to the particular sequencing or timing of events within the startup firm. This leads to two inferential problems. Considering the correlation of entrepreneurial group composition with a variety of outcomes (e.g., exchange behaviors, resource contributions, and innovation), it remains unclear whether these relationships are causal in nature, owing to an inability to establish *temporal precedence*. For instance, does the formation of a group of startup owners generally precede the legal formalization of an enterprise, as discussed in chapter 5? I will examine this issue in greater detail in the next chapter. Second, even assuming temporal precedence, it is plausible that entrepreneurial goals lead startup owners to recruit other business partners in a particular social configuration, which—in turn—then supports the attainment of those goals. Thus, an entrepreneur with an interest in financial security may be more inclined to put together a startup involving business partners of the same gender and ethnicity, presuming that such homophily will then encourage egalitarianism in the allocation of ownership shares. Investigating this issue of *intentionality* requires that we consider the impact of motives on the dynamics of entrepreneurial groups.

Time Taken to Organize the Group

In the absence of more direct access to the subjective orientations of startup founders, detailed data on the timing of group-changing events (e.g., participant recruitment, participant exit, and group dissolution) provide some of the best means for unpacking entrepreneurial intentionality. Viewed as static outcomes, for example, homophilous affiliation and

strong tie constraint may result from very different motives in group formation. In one scenario, entrepreneurs minimize the energy that they put into the recruitment of startup participants and select partners who inhabit their close social networks or who resemble them on visible status characteristics. This scenario implies that a reliance on homophily and strong ties will compress the amount of time required to create an entrepreneurial group. In another scenario, entrepreneurs diligently seek to find a set of partners with diverse business skills who will ensure the success of a startup effort in the long run. These entrepreneurs only fall back on homophilous and strong tie relationships once they have been rejected by a number of other potential business partners. The alternative scenario thus implies that these mechanisms are associated with lengthier periods of entrepreneurial group formation.

Table 9.4 offers a descriptive summary of how much time entrepreneurs in multi-owner startups need to organize themselves, based on the lag time between the date of initial owner involvement and the date of the last owner's recruitment. To minimize sample attrition, attention is limited to the first wave of the PSED II. The number of cases where new owners are recruited to (or leave) these business startups in subsequent waves is relatively small.[7] Moreover, the overall median lag time for multi-owner team formation in wave B of the PSED II is identical to that observed in wave A (2 months).

The results in the table suggest several differences in the median organizing times, depending on owner team composition. Predictably, the duration of team formation rises monotonically with the number of owners, from just a single month (on average) for two-owner teams to nearly a year for teams with five or more owners. There is also some indication that the involvement of institutional owners adds to this phase of the startup process, with the median lag time for new ventures with institutional owners being triple that of ventures without institutional involvement. Notably, this difference is observed even though the majority of institutional owners already have an existing business or personal relationship with these nascent entrepreneurs, rather than being contacted via formal applications, referrals, or other means.

A demographic analysis reveals some variation in the duration of owner team formation. All-female owner teams appear to take slightly less time to become organized than mixed-gender teams, which, in turn, take slightly less time than all-male teams. These differences are not statistically significant. More pronounced is the gap between homogeneous ethnic groups, which average two months for team formation, and heterogeneous ethnic groups, which average half a year. The reasons for this gap are difficult to infer from simple bivariate associations. Respondents in the PSED II report that the amount of time they have known co-ethnic

Table 9.4.
Median Time Required to Recruit All Owners (from Date of Initial Owner Involvement): Panel Study of Entrepreneurial Dynamics II (2005–2006), Wave A

Variable	*Sub-Category*	*Median (months)*	*Significant Difference?*
(Overall Sample)		2	—
Size	Two owners	1	$p < .001$
	Three owners	3	
	Four owners	7	
	Five + owners	11	
Institutional owners	None	2	$p < .05$
	Some	6	
Gender composition	Mixed gender	2	No
	All male	3	
	All female	1	
Ethnic composition	Single ethnicity	2	$p < .01$
	Multiple ethnicities	6	
Occupational composition	Single occupational class	2	No
	Multiple occupational classes	2	
Relational composition[a]	Without spouses / live-in partners	3	$p < .05$
	With nonspouse family member	6	$p < .001$
	With business associates	1	No
	With other friends / associates	4	$p < .05$
Dominant goal	Identity fulfillment	1	No
	Autonomy	2	
	Material benefit	2	
	Other / mixed motive	3	
Sample size		N = 555	

Source: Adapted from Ruef, Bonikowski, and Aldrich 2009.

Note: All statistics exclude single-owner firms. Statistical significance of timing differences is evaluated over sub-categories within variables using non-parametric tests (Mann-Whitney test for two categories, Kruskal-Wallis test for three or more).

[a] Tests of timing differences are conducted with respect to a reference category in which a particular relationship is absent (spouses / live-in partners) or present (all other relations).

partners (mean of 18.9 years) is substantially higher than the amount of time they have known partners who do not share their ethnic identity (10.1 years, $t = 5.22$, $p < .001$). One plausible explanation, then, is that co-ethnic owners require less time to develop the trust needed to secure mutual involvement in a business venture, owing to higher levels of a priori familiarity. Alternatively, one might posit that the increased lag time in heterogeneous teams reflects an in-group bias, in which entrepreneurs first approach potential co-ethnic partners for their business ventures and,

when faced with a lack of enthusiasm among co-ethnics, only later turn to business partners that do not match their ethnic background.

The table also offers estimates of the effect of social network characteristics on the duration of owner team formation. The involvement of spouses or cohabiting partners appears to accelerate the process of team formation slightly (two-month median duration versus three months for owner teams without this relational tie). However, this cannot be taken to imply that the existence of intimate ties within the owner teams is generally correlated with rapid recruitment. Teams involving kinship relations appear to require relatively long to form, while those among former co-workers emerge quickly. The duration of team formation among owners with ties of friendship or acquaintanceship outside the workplace lies between these two extremes.

There is little descriptive evidence to suggest that entrepreneurial goal orientation has an effect on the time required to build founding teams. Entrepreneurs with a purposive orientation toward their startups (thus, emphasizing identity fulfillment) have a median organizing time that is slightly lower than those who identify with autonomy or material well-being as their dominant career goal; and, not surprisingly, those who mention clear career priorities are quicker to organize than those who suggest a mixture of motives in their decision to establish a new business startup. But none of these differences appear to be statistically significant.

Some caution should be employed in interpreting these descriptive statistics. The calculated duration of owner team formation is sensitive to the problem of *right-censoring*—that is, the possibility that more owners could be recruited to any given startup after the interview date and that the "end" of team formation is not truly observed in these cases. In addition, none of the statistics reported in table 9.4 control for other variables and should therefore not be taken as a basis for causal inferences.[8] Finally, one might argue that the duration of owner recruitment is a crude measure of the dynamics affecting entrepreneurial group formation. Considering the centrality of specific mechanisms in relational demography—such as homophilous affiliation and strong tie constraint—a more thorough investigation must address the impact of interests and interactions on the propensity to recruit business partners by these means.

Rate of Business Partner Recruitment through Selected Mechanisms

Employing data from the 2005–2006 PSED survey, table 9.5 summarizes how group composition and entrepreneurial goal orientation affect the rate with which new business partners are recruited, considering instances where (a) the spouse or cohabiting partner of an existing member joins a startup effort as an owner (307 events); or (b) a demographically homo-

Table 9.5.
Effect of Group Composition and Entrepreneurial Goal Orientation on the Rate of Business Partner Recruitment

	Recruitment of Spouses / Co-Habiting Partners (N = 307 events)[a]		*Recruitment of Similar Partners (N = 357 events)*[a]	
Variable[b]	*Hazard Ratio*	*Statistically Significant?*	*Hazard Ratio*	*Statistically Significant?*
Human Capital				
Years of industry experience (mean)	0.985	$p < .05$	0.988	No
Previous startups (mean)	1.015	No	1.024	No
Opportunity Structure				
Married (% of owners)	5.342	$p < .001$	1.161	No
Working outside startup (% of owners)	1.164	No	1.145	No
Networks within Group				
Spouse / live-in partner	—		0.616	$p < .05$
Nonspouse family	12.336	$p < .001$	1.501	No
Co-worker	6.036	$p < .05$	0.768	No
Other Group Attributes				
Size (number of owners)	0.226	$p < .05$	2.660	$p < .001$
Mixed gender	0.547	No	—	
Mixed ethnicity	1.574	No	—	
Goal Orientation[c]				
Identity fulfillment	0.841	No	1.013	No
Autonomy	0.984	No	1.099	No
Material well-being	1.025	No	1.239	No
Other goal	0.099	No	1.277	No

[a] Estimates are based on semi-parametric Cox survival models. "Similar" partners refer to those who are the same as existing members of the founding team with respect to gender and ethnicity and are not spouses or cohabiting partners of existing members.

[b] Analysis includes controls for startup location and participant demography (mean age, % male, % white).

[c] Omitted category includes entrepreneurs with mixed motives (i.e., no goal is clearly dominant).

philous partner (a nonspouse who matches existing members on ethnicity and gender) joins in the same capacity (357 events).

Consistent with the tenets of relational demography, the recruitment of business partners via intimate ties is influenced to a considerable degree by the existing size and composition of entrepreneurial groups, but is affected little by entrepreneurial goals. As the number of partners in a

startup effort increases, the rate of recruitment for intimates declines. To some extent, this may reflect a propensity among entrepreneurs to recruit spouses into "mom-and-pop" businesses primarily when there are few other business partners available. This conclusion should be tempered, however, by attention to the impact of group network composition on intimate involvement. Spouses or cohabiting partners are recruited at much higher rates when other family members are already involved in a startup effort and, to a lesser extent, when co-workers become involved. In this regard, the activation of an entrepreneur's strongest network ties can be viewed as contingent on the previous activation of kinship and work associations. The recruitment of intimates also varies predictably with the opportunity structure of entrepreneurs (i.e., whether they are married) and their level of experience within a startup industry.

Recruitment via homophily is likewise affected by group size and composition, but not entrepreneurial interests. The impact of group size is opposite that found for intimate ties, as owner-managers rely increasingly on the principle of homophily when the number of partners extends beyond a minimal scope. For growing ventures, this may reflect an inability among existing owner-managers to perform a full evaluation of new business partners and a tendency to fall back on in-group bias as a response to this cognitive constraint. On the other hand, the rate of homophilous partner selection is lowered to some extent when spouses or cohabiting partners are already members of an entrepreneurial group. Partially, this process tends to proceed along gender lines, as intimates encourage their mates to make some out-group choices in the selection of additional business partners. For instance, the wife in a mom-and-pop startup effort may encourage her husband to bring their daughter into the business as an active owner-manager.[9]

In short, the effect of interests and interactions on the process of owner-manager recruitment can be summarized in terms of three empirical generalizations. First, career goals have little impact on the prevalence of strong ties or homophilous associations within entrepreneurial groups. While we might expect that entrepreneurs with a penchant for identity fulfillment would be more inclined to recruit partners with similar demographic characteristics, or that those seeking autonomy would avoid the involvement of spouses in their businesses, we find no evidence of such effects. Second, there is a shift in the relative salience of strong tie constraint and homophily as entrepreneurial groups grow in size. When the scope of startup businesses is very small, entrepreneurs are most likely to involve their intimate partners, but groups with larger numbers of owner-managers are inclined to recruit nonspouse partners on the basis of ethnic and gender similarity. Finally, the extant social network ties within an

entrepreneurial group generate powerful constraints on the kinds of recruitment mechanisms that can be deployed for owner-managers in the future.

Rate of Group Disbanding

Although the addition of business partners offers one window onto the dynamics of entrepreneurial groups, it is equally common for such groups to be disbanded, often in short order after startup activities have been initiated in earnest. For the cohort of business startups observed between October 2005 and February 2006, PSED estimates suggest that 22 percent had terminated one year later and 65 percent remained in a startup phase, with net revenues and sales remaining lower than business expenses.[10] The prognosis is only slightly more hopeful for ventures involving multiple owners, with 20 percent terminating by the one year follow-up and 66 percent remaining in a startup phase. Like their ill-fated solo counterparts, it is far more common for startups initiated by teams of entrepreneurs to fail over the course of a year than to transition to the status of operational business enterprise.

A slightly more complex image emerges when we plot the hazard rate of failure for a business startup cohort over a roughly two-year time horizon (figure 9.1). The figure suggests a seasonal ebb and flow of business activity that leads to high rates of failure during the summer months, especially for the retail stores and consumer service businesses that comprise a large proportion of average startups. The "dog days of summer" may be especially problematic for businesses that rely on walk-in traffic or that are primarily dependent on the revenue boost from holiday sales in November and December. Underlying this seasonal trend, there seems to be a more general pattern to the risk of disbanding, with an especially large wave of startup terminations during the first year and a far more muted version of this wave in the second. This pattern may be consistent with either a "liability of newness"—in which disbanding risk decreases monotonically as a startup develops standard operating procedures and participants are socialized into new organizational roles (Stinchcombe 1965)—or a "liability of adolescence"—in which disbanding rate increases initially, as ventures exhaust a stock of endowments that includes financial resources and the trust of participants, before renewed resource mobilization reverses the disbanding risk (Fichman and Levinthal 1991).[11]

What kinds of entrepreneurial groups were able to avoid the fate of disbanding throughout this early period of their development? To what extent did the same factors that ensured survival during the first wave of terminations during 2006 also inoculate these business startups during the second wave in 2007? Exploratory analyses suggest that both interests

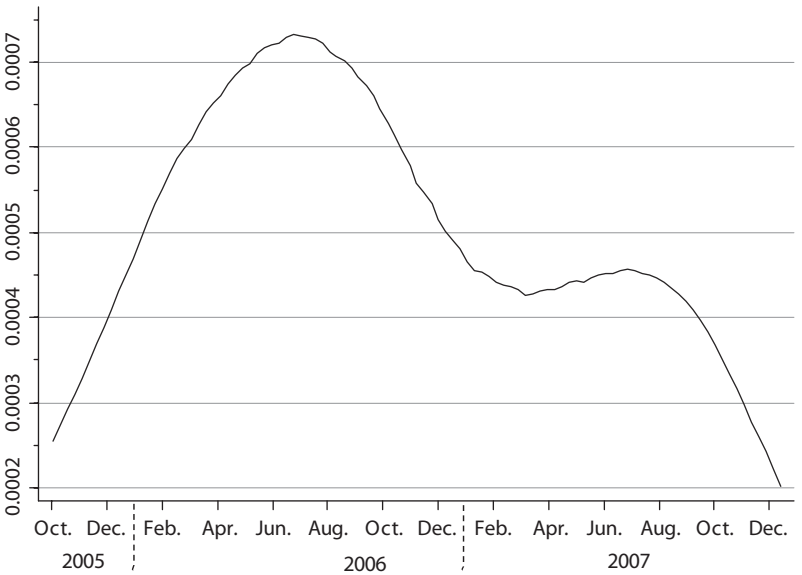

Figure 9.1. Hazard Rate of Business Startup Termination, 2005–2006 Cohort. *Source*: PSED II, Waves A-C (with inverse size weighting). Statistics reflect smoothed estimates of daily rate of startup termination by two-year follow up. The sample size of business startups observed toward the beginning of the period is 1058, with 330 failures by the end.

and relational demography played a part in entrepreneurial persistence during this difficult phase of startup activity (figure 9.2).

Plotting survival curves based on the goals mentioned by entrepreneurs during their initial interview, we can see that those who regarded material motives as their dominant goal were far more likely to disband than those who emphasized other or mixed motives.[12] Two years after the interview, only 45 percent of the startup businesses initiated by entrepreneurs with strong pecuniary interests were predicted to remain afloat, compared with over 60 percent of the businesses initiated by those with other motives. The result dovetails with an analysis of entrepreneurial persistence by Javier Gimeno and colleagues (1997). Following a sample of 1,547 startup firms over two years, they found that the owners who were more intrinsically motivated were also "more likely to accept a lower level of economic performance to remain in business" (ibid.: 771). Paradoxically, then, it is the entrepreneurs who are *not* profit-maximizing who are most likely to persist in their organizing efforts, at least when the first few years of startup activity are considered.

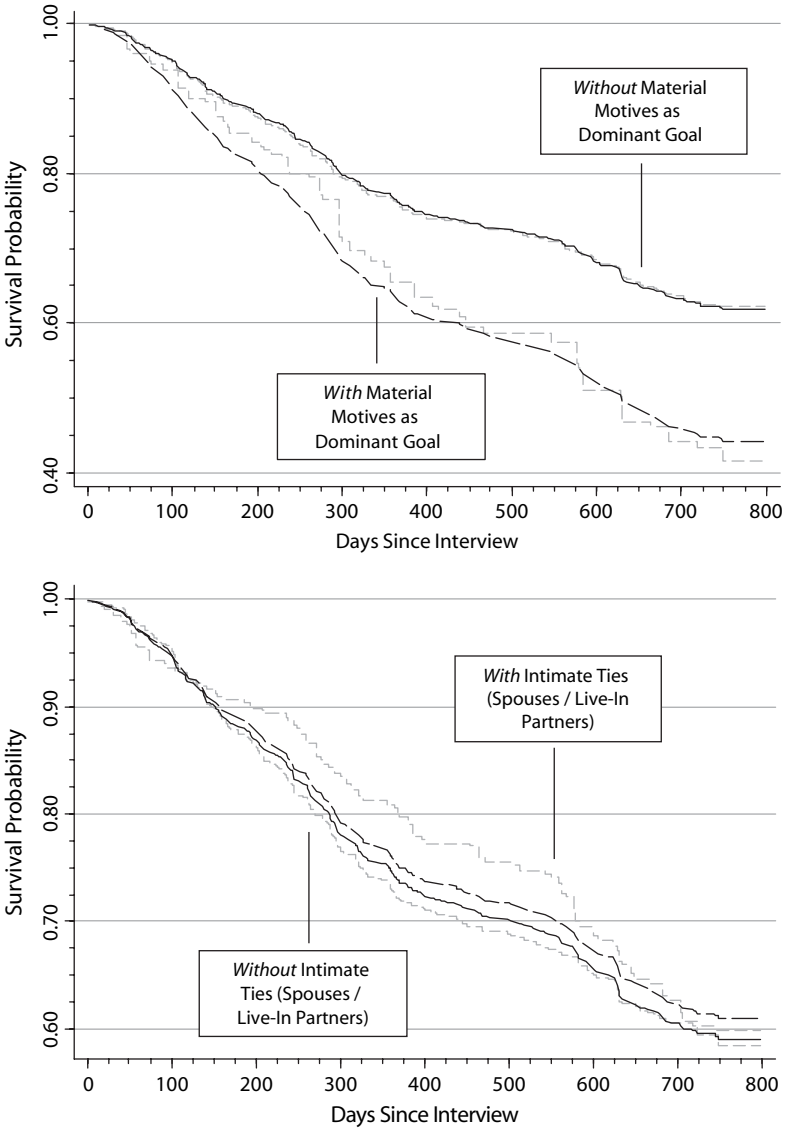

Figure 9.2. Survival Curves for Business Startups, Stratified by Goals and Intimate Ties. *Note*: Dark lines indicate predictions, while dashed lines indicate observed survival rates.

There is also a marked difference in survival between business partnerships involving couples (married or unmarried) and those startup efforts that do not include these strong ties (figure 9.2). Between 150 and 550 days after the entrepreneurs were initially interviewed, we find that observed survival rates were much higher for mom-and-pop ventures than for business startups based on other kinds of social relationships. Notably, though, this difference narrows rapidly by the two year follow-up and there is no substantive difference in the *estimated* survival curves based on the presence or absence of intimate ties. A more thorough investigation of the impact of relational demography on group survival can be pursued through a multivariate analysis.

Table 9.6 displays estimates for the impact of group composition and goals on the rate of group disbanding, limiting the sample to startup ventures that include multiple owners. As suggested by the exploratory analysis, entrepreneurs whose dominant goals involve material well-being are far more likely to disband their startup efforts (at roughly twice the rate) than those who embrace nonpecuniary goals. Differences between ventures motivated by other goals (not shown in the table) are statistically insignificant. Considering the pattern of aging, the estimates also point to a liability of newness, as disbanding rates decline abruptly with the time that has elapsed since a member of an entrepreneurial group first started working on a venture. For instance, a startup effort that has been under way for 400 days is expected to have roughly one-quarter of the disbanding risk of a startup that one or more owners have only been working on for 150 days, net of seasonal variation in business terminations.

The effect of other features of entrepreneurial groups appears to be somewhat contingent on the timing of startup activities. Demographic diversity (along gender and/or ethnic lines) generally poses a risk to survival, but this risk is especially acute during the first year of observation for the business startups, when the disbanding rate for completely heterogeneous groups is estimated to be eight times that of completely homogeneous groups. At an early stage of organizational development, deviations from homophily are most likely to erupt into instances of interpersonal conflict, a risk that subsides somewhat as participants develop common identities related to a startup (Brewer 2000). Assuming that conditions within an entrepreneurial group are characterized by equal-status, cooperative, and personalized relations, the declining impact from group diversity may also be taken as evidence for the *contact hypothesis* (Allport 1954), which posits that prolonged interaction among occupants of distinct social identities generally decreases prejudice and promotes interpersonal understanding.

Considering the social network ties within entrepreneurial groups, the difference over time is even more stark. Consistent with the survival

Table 9.6.
Effect of Group Composition and Entrepreneurial Goal Orientation on the Survival of Multi-Owner Business Startups

	Termination by One Year Follow-Up (N = 446)[a]		*Termination by Two Year Follow-Up (N = 472)*[a]	
Variable[b]	*Hazard Ratio*	*Statistically Significant?*	*Hazard Ratio*	*Statistically Significant?*
Lag Time since Inception (days)[c]	0.261	$p < .001$	0.175	$p < .001$
Resource Configuration				
Total seed funding ($1,000s)[c]	0.975	No	0.954	$p < .05$
Equality in ownership shares[c]	0.377	No	0.430	No
Human Capital				
Years of industry experience (mean)	0.962	No	0.988	No
Previous startups (mean)	0.929	No	0.997	No
Networks within Group				
Spouse / live-in partner	0.412	$p < .05$	0.893	No
Nonspouse family	1.129	No	0.850	No
Co-worker	0.433	No	0.554	$p = .06$
Other Group Attributes				
Size (owners and non-owners)[c]	0.899	No	1.228	No
Demographic diversity[d]	7.850	$p < .001$	2.677	$p < .05$
Occupational diversity[d]	0.598	No	0.830	No
Goal Orientation				
Material well-being	2.264	$p < .01$	1.976	$p < .01$

[a] Estimates are based on semi-parametric Cox survival models. "Surviving" organizations refer to either active startups or operational businesses involving at least one of the original owners. Sample of firms at two-year follow-up (PSED II, Wave C) includes some startups that could not be contacted at one-year follow-up.

[b] Analysis includes controls for startup location, participant demography (mean age, % male, % white, % professional), and industry fixed effects.

[c] Variables subject to logarithmic transformation, using Theil's (1967) index for equality in ownership shares.

[d] Indices of qualitative variation. Calculated over two nominal dimensions (gender and ethnicity) for demographic diversity.

curves plotted previously, mom-and-pop ventures enjoy a survival advantage early in the process of startup development (with a hazard rate of disbanding less than half that of comparable ventures without intimate ties), but this advantage quickly dissipates after the first year of startup activity. For more mature startups, there is increasingly a benefit to weaker, co-worker ties rather than to the intimate ties which draw on marriage or romantic cohabitation. To some extent, this may reflect underlying differences in the kinds of networks that entrepreneurs require

at different stages of the startup process. At an early stage, relationships within the entrepreneurial group are expected to yield solidarity, emotional support, and a trusted forum in which to discuss new business ideas. At a later stage, these ties tend to be associated more with instrumental advantages, such as access to new information, physical resources, or business contacts.

These intuitions regarding the salience of distinctive network ties and resources during phases of the entrepreneurial process extend to startup financing. Seed funding does little to protect startup enterprises from disbanding risk during the initial year of startup activity. Thereafter, survival advantages begin to accrue to entrepreneurial groups that have been able to muster large amounts of financing from personal savings, family or commercial loans, and credit card debt. For example, during the second year of follow-up, a startup with over $20,000 in seed funding has a disbanding risk that is roughly 5 percent less than a comparable startup with only $8,000 in funding. Arguably, the magnitude of this benefit is fairly meager when compared with the impact of entrepreneurial goal orientation or group composition.[13]

Conclusion

Many entrepreneurs initiate their business startups for reasons other than pecuniary gains. In the United States, the dominant entrepreneurial goals remain individualistic in nature, but emphasize rewards such as identity fulfillment and autonomy rather than material well-being. Conceptualized in this individualist fashion, goals do little to explain the composition of entrepreneurial groups. Typical structural features of these groups, such as homophilous affiliation and the presence of strong intimate relationships, are dynamic consequences of existing social networks among entrepreneurs, their group size, and their opportunity structure, not of entrepreneurial interests. On the other hand, the survival of entrepreneurial groups is dictated to a considerable extent by the goals that individual entrepreneurs bring to the process of group formation and, in particular, their willingness to entertain motives aside from pecuniary gain.

The analysis of dynamics within entrepreneurial groups begins to introduce some clarity into the question of causality among mechanisms such as homophily and strong tie constraint. Groups that are homogeneous with respect to ethnicity or that contain spouses or cohabiting partners tend to form more quickly than other business partnerships. This result supports the assertion that the prevalence of these mechanisms reflects a process of "restricted" search for business partners, given constraints on the time, energy, and even cognitive processing of indi-

viduals who are trying to start a new business. There is little evidence to support the idea that entrepreneurs typically approach a diverse set of business partners initially and only fall back on homophilous and intimate associations when they are rejected by other potential partners. Given the limited explanatory power attributable to interests, there is also little support for the idea that entrepreneurs plan homophilous and intimate associations as a means intended to achieve longer term business goals.

What do these findings tell us more generally about the performance of business startups? The heterogeneity of goals mentioned by entrepreneurs cautions against efforts to impose a unitary metric on solo entrepreneurs and entrepreneurial groups. Findings for organizational survival—the most generic measure of performance—suggest that a crucial factor contributing to ongoing startup activity may be a low threshold for entrepreneurial persistence. As long as entrepreneurs have few expectations concerning the income or profits to be generated and enjoy the support of intimate partners or other participants with similar gender and ethnic characteristics, their startup businesses will tend to survive their early, uncertain days.

CHAPTER TEN

Implications and Extensions

An era of entrepreneurship ended in the fall of 2008, at least as perceived by the American popular press. The previous decade had witnessed a tremendous amount of rhetoric around the ideas of an "ownership society," a "new economy," the "dot-com" era, and, more generally, a culture of entrepreneurial capitalism.[1] Despite a lack of concrete evidence that rates of entrepreneurship—or even, self-employment—were actually on the rise (see critique in Shane 2008), many commentators had come to assume that business trends increasingly favored small startups and flexible work arrangements, rather than the corporate bureaucracies that had dominated the organizational landscape for much of the last century. Academic discussions echoed some of these claims, as scholars debated what organizational form the twenty-first-century firm would assume vis-à-vis its earlier, and now outdated, incarnations (DiMaggio 2001). While social scientists had rightly pointed to the importance of the small business sector as an arena of employment and organizing activity within the broader economy (Granovetter 1984; Aldrich and Ruef 2006), there was also a considerable risk that some narratives being penned in academic circles had come to resemble the hagiographies of the business media, rather than offering critical inquiries into entrepreneurial activity.

The hagiographies grew more timid after the dot-com bubble burst in 2000 and became more timid still after the NBER (National Bureau of Economic Research) declared that the United States had been in a recession since December 2007. With the onset of a full-blown financial crisis, media dispatches have turned bleak on the prospects of entrepreneurship. From Silicon Valley, we are told that the "American dream [is] at risk," as walk-in business slows down, banks and suppliers lock down on credit, and nascent entrepreneurs are unwilling to take their chances on new startup activity. Interviews with entrepreneurs on proverbial "Main Street" suggest that "rarely has the future been so uncertain for millions of current and would-be owners of small businesses." Meanwhile, other media reports have continued to tout the resilience of entrepreneurs, whose ability to "defy the gloom" of the downturn is placed in stark contrast to the bailout requests of large financial and manufacturing concerns. In proposing his own plan to help small businesses amid the credit crunch, President Barack Obama reiterated that these organizations were "the heart of the American economy."[2]

Viewed historically, the most recent rise and fall of an entrepreneurial ideology is hardly unique. As Reinhardt Bendix (1956) wrote in his comparative analysis of industrialization, entrepreneurial ideologies were critical to the construction of managerial authority in both eighteenth-century England and nineteenth-century Russia. British entrepreneurs sought to overcome the resistance to new industry among guilds and artisans, the reactionary prejudice of the aristocracy, and the unwillingness of peasants to subject themselves to wage slavery in distant factories. In Tsarist Russia, entrepreneurs mustered a new ideology to confront a legacy of unspecialized trade, in which "people from all ranks of Russian society, from the Tsar himself down to the humblest peasant" (1956: 125), had been engaged in small-scale commerce. The United States had witnessed its own earlier phase of entrepreneurial boosterism after the Civil War, an era that promised new opportunities for business development in the South and West, as well as new targets for satire by the critics of the Gilded Age (e.g., Twain and Warner 1873).[3] Capitalist societies have evidenced a recurrent capacity to develop belief systems that regard entrepreneurship as a convenient pathway for upward mobility among individuals and for industrial advancement among nation-states, only to have those views tempered by economic or political crises.

What *is* new about the entrepreneurial ideology that originated in the United States around the mid-1990s is that it spawned an unprecedented effort in social scientific analysis regarding the activities of average entrepreneurs. While earlier efforts to identify entrepreneurs relied on imperfect data sources such as telephone directories, credit rating agencies, unemployment insurance records, and physical enumeration (Aldrich et al. 1989), newer sampling efforts deployed large-scale screening surveys and follow-up interviews to develop a more systematic portrait of the individuals starting businesses in the United States and abroad (Sternberg and Wennekers 2005; Reynolds 2007; Reynolds and Curtin 2008). As a consequence, business and public policy regarding entrepreneurs need no longer fall prey to either the Scylla of unvarnished hero worship or the Charybdis of Mark Twain's satire regarding business "speculators."

In lieu of an earlier, heroic vision of entrepreneurs, the contemporary social science view is one of mundane individuals undertaking fairly mundane business activities. Rather than initiating high-tech enterprises, average entrepreneurs are most commonly involved in creating construction firms, restaurants, realties, car repair shops, direct sales organizations, and the like (chapter 2). The resumes of average entrepreneurs are not terribly impressive. The individuals who seek to become the owners and managers of new businesses typically have seven or eight years of experience in the same industry as their venture, some college courses but no four-year diploma, and a history of a single previous startup effort

(chapter 4). Their capitalization is also modest. The median amount of funding for a new business in the United States is around $3,000, much of it drawn from personal savings, secondary mortgage debt, and small loans from family members and banks (chapter 6). Very few entrepreneurs can rely on the venture capital that has been studied so extensively in the academic literature.

Despite (or, perhaps, because of) their modest means, entrepreneurs seem to be defined by their intention to organize activities whose social scope extends beyond themselves. As I have argued throughout this book, several mechanisms appear central to the process of entrepreneurial group formation and persistence. Business partnerships are extraordinarily homogeneous on dimensions such as ethnicity, gender, occupation, and age. They involve couples (married or unmarried) more so than kin, friends, or co-workers; and kin, friends, or co-workers more so than strangers. At an early stage, entrepreneurs tend to meet and operate in homes and virtual spaces, rather than commercial properties. And their goal orientation tends to be influenced by social psychological individualism more so than economic individualism, by motives of autonomy and self-realization more so than material well-being.

Given the centrality of these mechanisms in the formation of business partnerships, how should these findings inform our business and public policy toward average entrepreneurs? To what extent should policy be contingent on the broader business and cultural cycles that affect the fortunes of small business in America? In this concluding chapter, I offer some modest policy proposals based on the insights of a relational demography perspective. The first part of the chapter summarizes what we have learned concerning the association between relational demography and outcomes within entrepreneurial groups. It also addresses the extent to which these associations can be regarded as being causal and generalizable, crucial questions for the effectiveness of any policy intervention. The second half of the chapter considers the policy instruments that have most commonly been deployed to affect entrepreneurial activity in the United States, emphasizing tax policy, small business regulation, and the programs of the Small Business Administration (SBA). After addressing some of the shortcomings in existing policy instruments, I suggest how they might be modified or supplemented in order to take account of the impact of relational demography within entrepreneurial groups.

The Mechanisms of Group Formation Revisited

For those of us who associate entrepreneurial groups with mom-and-pop businesses and other average startups, the role of homophilous associa-

tion, strong tie constraint, and ecological constraint in group formation may seem unsurprising. Indeed, at an intuitive level, these mechanisms appear to be common-sense features of entrepreneurial networks, though it is important to document their scope and magnitude. Less intuitive is the idea that these mechanisms may actually be *beneficial* to group functioning within business startups. Thus, many entrepreneurship scholars and pundits would acknowledge a lack of demographic diversity, a propensity to pursue local collaborators and markets, and an over-reliance on intimate social ties (and even nepotism) in business partnerships. But few would recommend these mechanisms as a matter of preferred business policy to MBA students or readers of the business press. Yet the empirical evidence summarized in this book suggests that these mechanisms do offer selective benefits to entrepreneurial groups (see table 10.1 for a summary).

Homophilous Affiliation

The evidence is perhaps clearest on the question of demographic diversity. Whether the outcome to be considered involves interpersonal familiarity among entrepreneurs, the legal formalization of startup activities, equality in the allocation of ownership stakes and control, innovation, or short-term startup survival, a *lack* of diversity on salient demographic dimensions seems to help entrepreneurs reap some collective benefit. The degree of benefit, moreover, appears to vary in proportion to the magnitude of homophilous association along each dimension relative to a model of random mixing. The benefits of homophily are most pervasive for ethnicity, the sociodemographic dimension that also gives rise to the largest deviations from random mixing among entrepreneurs; they are only slightly less pronounced for gender, a dimension that, on average, displays the second-largest deviation; and the benefits are more muted for age and occupation, which evidence the smallest deviations from random mixing (cf. figure 4.3). The only outcome for which there appears to be no identifiable benefit from demographic homophily is entrepreneurial effort. As shown in chapter 7, entrepreneurial groups that exhibit diversity along such dimensions as gender, ethnicity, and occupation are more likely to elicit diverse contributions in ideas, training, social introductions, and the like. The dilemma faced by these heterogeneous groups is how to take the distinctive resources provided by their members and merge them into a collective product, while avoiding the problems of role conformity, stereotype threat, and conflict within the group.

The pitfalls of demographic diversity within entrepreneurial groups appear counter-intuitive when juxtaposed against some academic and popular media accounts that underscore the benefits of diversity. A long line of laboratory studies suggest that there is value in diversity for task

TABLE 10.1
Association between Relational Demography and Outcomes within Entrepreneurial Groups

	Group Formation		*Group Formalization*		*Group-Level Equality*		*Effort*		*Innovation*		*Survival*
	Owner Teams	*Owner/ Non-Owner Boundary*	*Interpersonal Familiarity*	*Legal Formality*	*Ownership Allocation*	*Control Allocation*	*Hours Worked*	*Added Funding*	*Subjective Index*	*Intellectual Property*	*(One-year follow-up)*
Homophily											
Ethnicity	+	+	+	+	+	+			+	+	+
Gender	+	+	+		+				+	+	+
Occupation	+	+		+					+	+	
Age	+	+	+	+		+					
Relationships											
Spouse / live-in partner	*	+	+	+		−	− / +	+	−	−	+
Kin	*		+	+							
Co-workers	*		+			+					
Ecology											
Residential	*	*	+	−			−				
Virtual	*	*	+	−			−				

Note: Cells shaded in dark gray indicate associations that are statistically significant at the $p < .001$ level and those shaded in light gray are significant at the $p < .05$ level (two-tailed tests). Unshaded entries (+ or −) are significant at the .05 level when applying a one-tailed test.

*Asterisks indicate that a variable has a significant interaction effect on the degree of homophily observed in entrepreneurial groups.

groups (see Williams and O'Reilly [1998] for a review and critique). Some journalists go so far as to argue that major business crises could have been avoided, if only organizations relied on a more heterogeneous pool of decision makers, drawing on groups with more ethnic or gender balance (e.g., Kristof 2009). But in empirical research on the topic, the benefits of demographic diversity apply only under certain scope conditions. Initial barriers to communication among group members with diverse identities need to be overcome (Watson et al. 1993); and members must develop consensus on the common interests to be achieved in a group, eschewing an individualist for a collectivist orientation (Chatman et al. 1999). Performance benefits accruing to gender or ethnic diversity have been identified in representative samples of organizations, but only on a cross-sectional basis and among established employers (Herring 2009). At the earliest stages of development, the scope conditions for the "value in diversity" thesis are often absent in startup organizations. The adverse effects of demographic diversity for startup businesses are reflected most directly in survival rates during their first year of existence. In our data, the rate of termination for businesses with owner teams who are heterogeneous on the dimensions of gender and ethnicity is *eight times* that of businesses with homogeneous founding teams (chapter 9).

For those business startups that do survive their initial months, lines of communication tend to become routinized and common interests tend to be clarified, even among demographically diverse founding teams. This process of evolution is not necessarily rapid. During their second year of follow-up, the PSED firms with demographic diversity in their owner teams continued to suffer adverse effects on survival, though the magnitude of this effect had become noticeably weaker over time. If internal conflict and selection pressures lead to the dissolution of many diverse entrepreneurial groups, then few may be around to reap the benefits resulting from the involvement of individuals with heterogeneous identities.

Network Constraint

Consistent with their conceptualization as a form of "constraint," intimate relationships introduce a mixture of benefits and costs into entrepreneurial partnerships. On the one hand, entrepreneurs may be drawn to these strong interpersonal relationships because (1) they have known their spouses or romantic cohabitants for a longer period of time than other potential partners; (2) they find it simple to develop a legal form for these ventures, given the templates that are readily available in the arena of family law; (3) the emotional bond and reciprocity that inheres in these relations encourages more effort (investments of time and money) than weaker network ties, especially as entrepreneurial groups become large;

and (4) couples are most likely to weather the lean times that characterize the early phase of startup activity. On the other hand, such mom-and-pop ventures also tend to suffer from low levels of innovation, inequality in managerial control, and, more generally, a greater level of conformity to traditional gender roles than has been found among dual-career couples (Marshack 1994).

While some researchers have noted that intimate ties have a pervasive effect on entrepreneurial activity and group formation (Aldrich and Cliff 2003), others have questioned the benefits of strong tie relationships. In the field of economic sociology, much has been made of the "strength of weak ties," considering both the information flows that are engendered by weak interpersonal relationships (Granovetter 1973) and opportunities for brokerage that are associated with an ability to connect otherwise separate social spheres (Burt 1992). These relationships tend to be especially important in particular activities, such as accessing novel information on potential jobs or developing ideas in a managerial workplace (Granovetter 1995; Burt 2004). But, as one of the key progenitors of this network theory emphasized, "strong ties can also have value . . . weak ties provide people with access to information and resources beyond those available in their own social circle; but strong ties have greater motivation to be of assistance and are typically more easily available" (Granovetter 1983: 209). The latter factors help to explain the dominant role of intimate partners in entrepreneurial groups. Faced with the difficulty of recruiting trusted collaborators into ventures that are often risky—if not foolhardy—entrepreneurs overwhelmingly turn to spouses and cohabiting partners.

Ecological Constraint

The benefits to the entrepreneurial group appear to be more limited in the case of ecological constraint. Organizing business partnerships outside of commercial spaces is a low-cost approach to startup activity that generally brings together individuals who have known each other for an extended period of time. This mechanism of group formation may therefore offer a number of *indirect* advantages to startup businesses, by encouraging strong tie constraint and demographic homogeneity. But it is also associated with limited legal formalization (which would serve to delineate the formal responsibilities and ownership of startup participants) and lower levels of time investment than business startups found in commercial locales.

A surprising regularity in the ecology of entrepreneurship is the similarity between partnerships that form in the homes of startup founders and those that form in "virtual" locales, connecting entrepreneurs through cell phones, Internet connections, meetings in coffee shops, and the like.

A priori, one might expect that the location-free startups would involve less interpersonal familiarity and more formalization to guide the collaboration of business partners. But, as economic sociologists such as Karin Knorr-Cetina and Urs Bruegger (2002) have pointed out, the virtual organization of economic activity is often grounded in microstructures that entail regular interaction and informal codes of honor. Despite advances in information and communication technology, newer forms of "e-entrepreneurship" are likely to build on—rather than replace—the traditional mechanisms of network constraint and homophily in entrepreneurial groups.

Identity Fulfillment

The final mechanism discussed in the book is the goal orientation of entrepreneurs—in particular, toward aims that are nonpecuniary in nature. The principal impact of nonpecuniary motives is that they assist in the persistence of entrepreneurial groups by drawing attention away from the financial performance of startup businesses, which tends to be lackluster on average. Entrepreneurs tolerate a lack of profitability as long as other career goals, such as identity fulfillment and autonomy, are achieved through their startup activities. The goal orientations of entrepreneurs (pecuniary or nonpecuniary) appear to have no effect on the process of group formation itself. Ancillary analyses also suggest that there is little impact of goal orientation on other outcomes within entrepreneurial groups, such as levels of formalization, effort, or innovation.[4]

Causality

Before judging the broader implications of these findings, it is necessary to address some epistemological questions. To what extent can the associations noted in table 10.1 be treated as the result of a causal effect of relational demography on group outcomes? A classic test of causality is difficult to obtain for entrepreneurial groups, since it calls for the random assignment of entrepreneurs to "treatment" and "control" conditions. Using an experimental ideal, for example, we would expect some entrepreneurs to be assigned to participate in demographically homogeneous groups and others to participate in heterogeneous groups. And some entrepreneurs would be assigned to work with their spouses, while others would be placed in business partnerships with complete strangers. Apart from the logistical hurdles in implementing such an experiment, it quickly becomes apparent that this research design also presents severe threats to the validity of any conclusions regarding the association between treatments and outcomes. If entrepreneurs know they are participating in an experiment,

they may treat their "ventures" with little of the seriousness that they would in starting a real business. Even in the absence of this knowledge, the experimental conditions remove one of the scope conditions that seems essential to many entrepreneurial partnerships: a belief in voluntary association.[5] Once entrepreneurs lack control over the kinds of partners that they bring into a startup business, many of the other norms governing group processes—such as those concerning group formalization or egalitarianism—may be suspended.[6]

In this book, a different standard for causal inference is applied to the link between relational demography and group outcomes. I have looked for distinctive compositional features of groups that (a) exhibit a strong correlation with group processes; (b) can be isolated from the effect of other characteristics of individuals and entrepreneurial organizations; (c) display a reasonably consistent impact across different measures of group outcomes; (d) are explicable in terms of general social mechanisms of group formation and functioning; and (e) exhibit time-order precedence between purported cause and effect (for a general overview of the issue of causation in demographic analysis, see Bhrolcháin and Dyson 2007). Because this and previous chapters have already dwelled on the first four of these criteria, I will primarily address the question of time-order precedence in the remainder of this section.

To argue that group composition has a causal effect on group outcomes is to argue *either* that the association of all of the core members of a group tends to precede those outcomes *or* that reasonably precise time stamps on the recruitment for each group member and occurrence of each outcome allow compositional characteristics to be updated dynamically. Since the latter strategy is applied whenever possible to analyses presented in this book (see chapter 9 for the most direct treatment), I will consider the evidence for the first question here. In particular, when does the recruitment of all owners in business startups precede crucial startup milestones, such as the formal legal establishment of the enterprise, the formal allocation of ownership, the full-time employment of an owner, the investment of financial resources, or applications for trademarks, patents, and the like?

As shown in table 10.2, owner-manager teams tend to be formed by the time that many of these startup activities are initiated. Temporal precedence is most clear for formal agreement on ownership shares, which occurs after or simultaneously with the completion of owner team formation in 89 percent of the reported cases.[7] Even in those cases where startup creation centers around a patent, trademark, or copyright idea—instances of organizational founding that are often associated with complex processes of co-founder recruitment—the completion of the owner-manager

Table 10.2.
Time Lag between the Completion of Group Formation and Startup Events

Startup Event	*Percentage of Cases Where Event Time ≥ Completion of Group Formation*	*Mean Lag (days)*	*Probability that Lag Is not > 0*[a]	*Number of Cases*[b]
Formal legal establishment	82.1	173	$p < .05$	192
Formal agreement on ownership shares	88.9	158	$p < .05$	106
Full-time employment of any owner	86.2	111	$p < .05$	215
Investment of money by any owner	78.7	52	NS	417
Application for a patent, trademark, or copyright	74.1	231	NS	30

Source: *Panel Study of Entrepreneurial Dynamics* (PSED) II, Wave A. Analysis is limited to business startups with more than one owner (with inverse size weighting).

[a] One-tailed t-test. "NS" indicates that a lag time is not significantly greater than zero.

[b] Cases are limited to those businesses in which a given startup event has occurred.

team tends to predate the application for the legal protection of such intellectual property (74% of reported cases). Although endogeneity cannot be ruled out in the remaining cases, this supports the intuition, advanced in chapter 8, that the demographic diversity and network composition of entrepreneurial groups may have a causal impact on innovation behaviors.

The lag time between the completion of group formation and the occurrence of other startup milestones is also instructive. When Bhrolcháin and Dyson (2007) review different criteria for causality in demographic research, they note that *contiguity*—the appearance of an effect shortly after a cause—serves as an important qualification on the criterion of time-order precedence. On average, the startup events enumerated in table 10.2 occur between seven weeks and seven months after the completion of group formation. The lag is sufficiently short that the process and interpersonal dynamics of group creation are likely to be fresh on the minds of the owner-managers for a given business. At the same time, the lags are unlikely to have occurred as a matter of random chance in three out of the five outcomes.[8] This suggests that there is some statistical regularity to the precedence of group formation before the legal formalization, ownership allocation, and full-time commitment of owners within startup enterprises.

The Entrepreneurial Group in Context

Another epistemological issue concerns our ability to extend these results beyond the context of a particular sample of U.S. entrepreneurs interviewed in particular survey years. What does an analysis of American startups tell us about entrepreneurs in a developing country, such as India, for instance? Or about business partnerships that existed in Europe prior to industrialization? While contemporary U.S. data do allow for some basic comparative analyses—for example, examining potential differences in the structure of entrepreneurial groups during and after the Internet boom of the late 1990s—they cannot be leveraged to address these broader substantive concerns. That said, one can argue that the entrepreneurial group is a durable social form, evident in a variety of societies and historical contexts. And, perhaps more provocatively, that the basic social mechanisms affecting the formation, structure, and persistence of entrepreneurial groups in the United States can (and should) be examined in other societies. In this section, I take up both of these points, first considering some of the international evidence that supports a focus on entrepreneurial groups.[9] I then address the possibility of generalizing the findings that obtain in contemporary America.

Entrepreneurial Groups around the World

Entrepreneurial groups are a prominent feature of developing economies around the world. Three organizational forms are especially widespread in this respect: (a) micro-credit borrowing groups, which allow "high risk" entrepreneurs to band together for purposes of raising capital from external sources; (b) rotating credit associations, which encourage entrepreneurs to pool their own capital; and (c) business groups, which entail durable linkages between entrepreneurs who run legally separate enterprises.

Experts in international entrepreneurship, such as Nobel Prize winner Muhammad Yunus, have emphasized the importance of groups in securing micro-credit and advancing entrepreneurial initiatives. Micro-credit *borrowing groups* involve small entrepreneurs who typically cannot get business loans individually through conventional channels.[10] The borrowing groups approve loans collectively and then distribute them to one of their members. If a member defaults, the credit rating of the entire group suffers—a disincentive that, proponents predict, will contribute to the creation of strong group norms and selection mechanisms that operate against delinquent repayment. While much media attention has focused on the presence of borrowing groups in developing countries, such as India, China, and Bangladesh, these groups have also existed in the

United States and other Western economies since the late 1980s (Anthony 1997, 2005).

Female entrepreneurs constitute roughly three-quarters of all participants in micro-credit lending programs (Fernando 1997). As a result, academic research on borrowing groups has often offered evaluations of the impact of gender composition and the relevance of these groups to the empowerment of female entrepreneurs. In the United States, female-dominated borrowing groups tend to have higher rates of repayment, though no association is evident between gender and *individual* repayment rates, underscoring the importance of group processes (Anthony and Horne 2003). Studies in Bangladesh have addressed outcomes such as household consumption and nonland assets, suggesting that participation in borrowing groups favors female entrepreneurs, even more so than male participants (Pitt and Khandker 1998). Still, while development discourse has often touted borrowing groups as a means for advancing the economic interests of female entrepreneurs, it is unclear whether group pressures for repayment ultimately increase or decrease female autonomy (Fernando 1997).

Rotating savings and credit associations (RoSCAs) share some similarities with micro-credit borrowing groups, but differ in that capital is not provided from external partners (e.g., banks or nongovernmental organizations). Instead, group participants pool their own capital resources, which are then allocated to one member, either on a random or bidding basis (Besley et al. 1993). While RoSCAs often serve the purpose of securing funds for consumption goods (e.g., weddings), they are also a crucial source of informal funding for entrepreneurial ventures. In Japan, for instance, commercial RoSCAs—called *mujin*—were started by entrepreneurs in the early twentieth century and continue to serve as an important source of financing for small- and medium-sized enterprises (Dekle and Hamada 2000). Data from garment producers in Kenya suggest that involvement in RoSCA groups can be a major determinant of profitability and growth in micro and small enterprise (Akoten et al. 2006).[11] Access to RoSCAs may be especially important for immigrants, who lack other means of capitalizing small businesses. In Light's (1972) influential theory of ethnic enterprise, Chinese and Japanese immigrants have tended to import institutions such as rotating credit associations into the United States, making it easier to distribute capital and create a system of mutual trust among entrepreneurs. By contrast, similar institutional traditions from Africa and the Caribbean (e.g., the West African *esusu*) "vanished from [the] cultural repertoire" (ibid.: 36) of American-born blacks during slavery and beyond, contributing to dampened entrepreneurial prospects.

When the relationships among entrepreneurs move beyond issues of startup financing, they contribute to more persistent entrepreneurial networks. Following Granovetter (2005: 429), we can refer to these social agglomerations as *business groups*, laying on a continuum between "sets of firms linked merely by short-term strategic alliances, and those legally consolidated into a single entity." Established business groups—such as the *chaebol* of Korea, the *keiretsu* of Japan, and the Tata family group of India—play a visible role in many economies around the world. Entrepreneurial business groups are harder to track, but represent the origins of such systems. In emerging economies and markets, business groups can offer infrastructural supports to entrepreneurs that are otherwise lacking, due to weak property rights, poor accounting standards, inadequate financial markets, and related market "failures" (Khanna and Rivkin 2001; cf. Guillén 2000).

Given the international prevalence of borrowing, rotating credit, and business groups, one can easily make the argument that these organizational forms are as important, if not *more* important, for global entrepreneurial activity than they are in the United States. Data limitations, however, prevent us from pursuing this claim systematically, as well as from drawing direct comparisons between entrepreneurial groups in the United States and abroad. The most extensive cross-national source of data on entrepreneurial activity, the Global Entrepreneurship Monitor (GEM), primarily assesses rates of new venture creation (e.g., Sternberg and Wennekers 2005), rather than the size and structure of entrepreneurial groups. Still, it is important to examine the plausibility of generalizing the evidence from the United States to other contexts.

Generalizability

For the time span covered by the *Panel Study of Entrepreneurial Dynamics*, the mechanisms of relational demography appear to be relatively stable features of entrepreneurial groups. Changes in the market and technological conditions confronting small business owners have been dramatic between the late 1990s and the present. Undoubtedly, these changes have affected entrepreneurship at the margins—for instance, there are fewer IT professionals involved in starting business now than there were a decade ago, while the number of entrepreneurs emerging from outside the labor force (i.e., the ranks of the unemployed, retirees, students, and homemakers) has grown (chapter 4). And the diffusion of mobile technologies (e.g., cell phones, wireless Internet access, handheld devices) has encouraged a move toward startups whose location is "virtual" rather than physical. Still, the prevalence of demographic homogeneity, strong network ties, noncommercial locales, and the dominance of

specific nonpecuniary goals (autonomy and identity fulfillment) in startup activity remains much the same over the time period.

Although data from other settings are not always as systematic, there is considerable evidence to suggest that these mechanisms are hardly unique to the "average" U.S. entrepreneurs sampled in the PSED surveys. Homophilous tendencies appear in business partnerships ranging from the eleventh-century Jewish Maghribi traders studied by Avner Greif (2006) to enterprises in ethnic enclaves (Portes and Sensenbrenner 1993), investment clubs (Harrington 2008), Silicon Valley startups (Beckman and Burton 2008), micro-credit lending groups (Anthony and Horne 2003), and British garment producers during the Victorian era (Nenadic 1998). A reliance on strong bonds of marriage or kinship has long been central to a continental European model of family capitalism (James 2006) and continues in many of that continent's *Mittelstand* businesses, as well as in Japan's small family firms (Goto 2006). Micro-enterprises in both the developing and developed worlds are overwhelmingly based in the homes of program participants (see Ehlers and Main 1998 for a critique). While chosen selectively, these patterns suggest that the mechanisms of homophily, strong tie constraint, and ecological constraint could be widespread—or, to be more provocative, even universal—features of entrepreneurial group formation.

At the same time, it must be acknowledged that some of the findings in this book reflect the distinctive context of small business creation in contemporary America. The debate over the functional benefits and costs of demographic diversity in small groups, for instance, is very much a reflection of the United States' "grand experiment in equal opportunity in employment" (Tsui and Gutek 1999: chapter 1). In many other historical and cultural contexts, it would simply not be sensible to consider the effect of demographic composition on group outcomes, partially because of the overwhelming homogeneity of business partnerships on salient demographic dimensions (and, thus, a lack of variance in the explanatory variable) and, partially, because some societies attribute so little benefit to demographic diversity that the failure of heterogeneous groups borders on being a self-fulfilling prophecy.

Details of the argument for the functional benefits of strong network ties are also likely to hinge on a contemporary American context. The business historian Alfred Chandler (1990) famously assailed the dysfunctions of "family capitalism" in nineteenth-century and early twentieth-century Britain, noting concerns about its lack of professionalization and potential for nepotism. While Chandler's conclusion has been debated extensively (see Colli 2003), and its extension to small startup firms would require considerable qualification, his argument does raise the question as to whether businesses founded on the basis of intimate ties would be equally effective in all cultural contexts. Given the conservatism and in-

equality in control found in mom-and-pop enterprises in a contemporary U.S. context, one would suspect that these problems would be exacerbated in societies that have witnessed less progressivism on gender issues. Moreover, while marriage has often served as the underpinning of business relationships, women have traditionally been viewed as a conduit to economic or political alliances, rather than as business partners in their own right.

Taken as a whole, these musings concerning generalizability suggest two desiderata for future empirical research. First, we should document the cross-cultural and historical prevalence of the mechanisms of entrepreneurial group formation in other societies, using comparable (large-scale) samples of new business startups. Second, we should continue to evaluate the impact of these features of group composition on entrepreneurial outcomes, while attending to scope conditions that limit their applicability in other societies. For the effect of demographic diversity and strong tie constraint, these scope conditions may include a culture that advocates progressivism with respect to ethnic, gender, and class relations.

The Politics and Policy of Entrepreneurial Groups

Entrepreneurs have become an important constituency in American electoral politics and in policy discussions. Seldom has this been as evident as the closing weeks of the 2008 election cycle, when the third debate between presidential nominees Barack Obama and John McCain centered on Samuel Joseph Wurzelbacher, an Ohio resident whose entrepreneurial intentions included taking over a small plumbing business. Although many of the details of Wurzelbacher's career—including his lack of a plumbing license, tax evasion, and apocryphal claims about a six-figure income—were subsequently placed under intense media scrutiny, he was also portrayed as a symbol of the entrepreneurial middle class.[12] Like numerous Horatio Alger myths that had come before, "Joe the Plumber" served as a stand-in for a classic narrative of average workers who sought the American Dream and were challenged in the process by tough economic times or purported impediments that were erected by government officials.

Why have average entrepreneurs entered the spotlight of American political discourse? One possibility is the legitimacy crisis faced by corporate capitalism. Amid accusations of market and regulatory failure that have been leveled against large firms, government agencies, and their employees, there has been a political propensity to place small entrepreneurs in the role of unlikely heroes. Another reason may be the size of entrepreneurs as a potential interest group. Media commentators have argued that small business owners are a "huge if sometimes neglected voting

bloc," comprising 23 million owners, 16 million who operate their business as a source of primary income, and 12 million who are in the process of starting a business (Bowers 2008; see also Reynolds 2007). While the demographic and economic diversity of entrepreneurs hardly assures consistent voting patterns, their sheer numbers as a percentage of registered voters—up to 15 percent based on an estimate of the National Federation of Independent Business (NFIB 2008; also quoted in Bowers)—has commanded the attention of politicians and policy makers.

Politicians have also seized on the putative importance of entrepreneurial activity for employment and economic growth. Historically, 40 percent to 50 percent of the private workforce of the United States has been located in firms with fewer than one hundred employees (Granovetter 1984), though more recent figures place that number at 36 percent in 2000, with substantial variation across industries (Aldrich and Ruef 2006: 15). Despite the long-term decline in small business employment, it has become fashionable among politicians and interest groups to highlight the contribution that small enterprises make to the U.S. economy, especially when compared with their larger and more established counterparts.[13]

While entrepreneurs have enjoyed renewed political salience, the policy instruments available to affect their prospects have remained remarkably crude. As Audretsch, Keilbach, and Lehman (2006: 176) point out, "entrepreneurship policy is a relatively new phenomenon," owing largely to the fact that policy instruments tend to promote the economic viability of existing organizations within a broad size class.[14] As a consequence, the United States and other industrialized countries tend to have "small business policy," but not entrepreneurship policy. Small business policy is directed at a well-established unit of analysis: the business organization. Policies regarding entrepreneurship may be directed at multiple and less established units of analysis, including incubators, networks of entrepreneurs, and entrepreneurial groups (ibid.: 177).

At a federal level in the United States, discussions of policy interventions for entrepreneurs have revolved primarily around three kinds of instruments: (a) *tax policy* (including that directed toward personal income, capital gains, and corporate income); (b) *business regulation* (particularly regulatory reform intended to encourage entrepreneurial entry); and (c) funding flows through the Small Business Administration (SBA) and set-aside programs for minority- and women-owned businesses.

Tax Policy

As witnessed in the 2008 presidential election cycle, debates around tax policy and its potentially negative impact on entrepreneurial activity have been especially vocal. The political and policy emphasis on taxation is curious, for a number of reasons. First, few entrepreneurs identify tax

issues as a major barrier to business entry. In the 2005–2006 PSED II survey, for example, only 2 percent of nascent entrepreneurs identified the cost of taxes as a major hurdle in creating a new startup business. Instead, the concerns of startup owners tended to emphasize capital constraints, problems in reaching customers, and dilemmas in personal time management. Second, few business startups become profitable, particularly within a short time span. Less than one in seven of the business startups initially sampled in the PSED II had become profitable within a year and only about one in five were profitable within two years. Third, many of the most active debates on taxation have involved capital gains and corporate income taxes, which exercise a modest impact on average business startups. Given the distribution of legal forms among U.S. startups (see table 5.5), only one in five of these enterprises are subject to corporate income tax (and only one in four of *established* small firms fall in that category). Moreover, the incentives generated by lowering capital gains taxes on entrepreneurs are potentially perverse, since capital gains are realized when business assets are sold off.

Considering the typical composition of entrepreneurial groups, one area where tax policy may have a substantial impact is mom-and-pop enterprises.[15] Because most of these businesses pass their profits and costs through to couples as personal income or losses, a natural point of policy intervention involves the Internal Revenue Service (IRS) rules governing tax filings for couples who own a business together. For instance, the Small Business and Work Opportunity Act, passed in 2007, allows couples to treat income from their business as either partnership or separate income for purposes of taxation (Myers and Descherer 2008: 31). While this act provides some flexibility to startups owned exclusively by spouses, its benefits do not extend to businesses that involve domestic partners or that include other kin or non-kin members, in addition to spouses. If legislators seek to encourage mom-and-pop startups, they may need to consider additional targeted incentives in the income tax code.

A second example of a policy that has supported mom-and-pop startups is the Small Business Job Protection Act (SBJPA) passed by Congress in 1996. The SBJPA extended a tax exemption that had been limited to general (C) corporations, a relatively rare legal form among business startups, to subchapter-S corporations, a more common arrangement (see Cantley 2005 for a detailed description). The act's benefits were especially pertinent for business partnerships among spouses, who register as a subchapter-S form at a much higher rate than a C form—by an estimated ratio of three-to-one in the PSED II sample. In 2001, however, the favorable tax treatment of these family businesses was largely eliminated, as the Economic Growth and Tax Relief Reconciliation Act required that most owners in eligible S corporations be totally unrelated to each other.

Despite efforts to get around the new IRS rules, "Congress and the [IRS] have been very effective at closing all the perceived loopholes" and have also "been extremely adept at dismantling the [tax-advantaged S corporation] as a viable planning vehicle for the average small family business" (Cantley 2005). Restoration of the original SBJPA provisions may therefore be another policy instrument to support entrepreneurial groups involving strong ties of marriage or kinship.

Business Regulation

Like taxes, business regulations are often mentioned in the popular media as an impediment to startup creation. And, in contrast to problems of taxation, a number of entrepreneurs agree with this assessment, including 9.5 percent of the nascent entrepreneurs in the PSED II survey who consider regulations to be a major barrier to entry. Sifting through these responses in a more nuanced fashion, however, we find that many of the concerns of startup owners involve local zoning laws, licensing, and registration requirements. Moreover, the relative lack of apprehension about federal regulation is unsurprising, given that few business startups have employees (and are thus exempt from employment regulations) and federal regulatory requirements in other domains (environment, safety, and health) have been eased by the Regulatory Flexibility Act (1980) and its descendents.[16] While trade associations continue to aver that small enterprises face "an ever-growing mountain of government regulation" and a disproportionate cost of federal regulatory compliance, especially when compared to larger firms (e.g., Faris 2005), the concerns of average startup owners are directed largely at local restrictions on trade.

The ecological distribution of entrepreneurial ventures provides some insight into the nature of these local regulatory hurdles. Many startup businesses in the United States are based in homes or virtual spaces, but zoning laws and licensing requirements have evolved little to accommodate the physical geography of new business activity. Cities and counties remain conservative about the kinds of businesses that can be operated outside of commercial and industrial districts, especially if those businesses introduce the possibility of increased traffic, noise, physical hazards, or other adverse effects. Even fairly innocuous features of business activity, such as the posting of signs, tend to be subject to strict local ordinances that regulate the aesthetics of a community's visual environment.

Zoning boards commonly reject location decisions for some kinds of businesses, though the empirical evidence remains shaky for their (purportedly) adverse neighborhood effects. For instance, zoning laws are often deployed to eliminate the presence of adult businesses (e.g., massage parlors, pornographic stores, erotic dance clubs) in or around residential

zones. Yet, as Daniel Linz and his colleagues (2004) demonstrate in a study of "gentlemen's clubs" in Charlotte, North Carolina, crime rates near such businesses may be no different—or even less—than those seen in demographically comparable neighborhoods. While policy prescriptions for new business locations call for attention to secondary effects, it is important to distinguish moral qualms among neighbors from effects on social disorder.

To preserve the social relationships and physical contiguity of participants within entrepreneurial groups, it may also be desirable to adopt local regulations that are less restrictive about the kinds of businesses that are interspersed in neighborhoods. Mixed-use zoning has long been advocated by urban activists as a means to develop communities and encourage the interaction of residents and business owners (e.g., Jacobs 1961). Entrepreneurs, such as sidewalk vendors, who operate in the public spaces of urban neighborhoods, can contribute to a vibrant street scene, while fostering an informal support structure amongst one other (Duneier 1999). As suggested by recent sociological accounts, small retail businesses in residential zones are also "public destinations that serve as possible sources of assistance in the face of adversity" (Browning et al. 2006: 665). Neighborhoods with predominately elderly or poor residents may welcome new businesses that would be rejected in middle- or upper-class suburbia. And residents are likely to be especially open to new business development when they themselves feel a sense of "partnership" with the entrepreneurial groups that create them, perhaps in the role of board members, investors, consultants, or even employees.

The Small Business Administration (SBA) and Set-Aside Programs

The Small Business Administration (SBA) represents a third policy lever that has commonly been invoked to affect entrepreneurial activity in the United States. The SBA was created as an independent federal agency in 1953 under the Eisenhower administration, with the principal purpose of helping Americans start, grow, and develop entrepreneurial firms. While the SBA's activities could be characterized as a form of "affirmative action" for small business, the veracity of this characterization hinges on how loosely one is willing to define "small." As Bean (2001) has documented, in the early years of the SBA, the class of "small" manufacturing firms included enterprises with as many as 1,000 employees. More recently, the SBA has lost a series of lawsuits launched by the American Small Business League (ASBL), which have successfully argued that the Bush administration "diverted billions of dollars in federal contracts earmarked for small businesses to Fortune 500 firms and their subsidiaries" (PRNewsWire 2008). Statistics on new companies confirm that very few

business startups receive loans guaranteed by the SBA. In the PSED II sample, for instance, only two out of 366 legally established startups had received SBA loans by the initial interview, and only three had received such loans by the one-year follow-up. Given the historical propensity toward the diversion of SBA loans and contracts, the impact of the agency on entrepreneurial activity appears to be minimal.

Assuming that the SBA's problems of fund diversion are resolved, some of its lending programs could bear directly on the composition of entrepreneurial groups. Since the 1960s, a prominent feature of the agency's mission has been to assist disadvantaged entrepreneurs, including women, minorities, and those from modest economic backgrounds. Set-aside programs in federal and state contracting offer similar targeted interventions, though sometimes with paradoxical effects (such as increased bidding effort on the part of underrepresented groups, accompanied by ongoing discrimination). The question remains whether the relational demography of entrepreneurial groups should affect how such targeted loans and set-asides ought to be implemented.

Consider the history of set-aside programs in the state of New Jersey. Following the example of an earlier program that had been in place between 1985 and 1989, executive order number 84 reinstated minority business set-asides in 1993 (Myers and Chan 1996).[17] Minority-owned businesses were defined as those with a majority ($\geq 51\%$) ownership by blacks, Hispanics, Asian Americans, American Indians, Alaskans, and/or Portuguese. The success of the 1993 program was mixed: the volume of state contracts going to minority-owned businesses increased following implementation, but the ratio of successful contract awards to bids did not (ibid.: 215). While there are a number of plausible explanations for the ambiguous benefits of the program, one that has not received attention is the variance regarding the kinds of firms that were eligible for participation—which included partially white-owned businesses with a majority of minority partners, demographically homogeneous businesses owned by individuals from one broad ethnic category, and heterogeneous businesses owned by individuals from several minority ethnic categories. All of these entrepreneurial groups were, in principle, eligible for minority contract set-asides, yet their demographic composition may have exercised differential effects on their rate of successful bids.

Given the generally beneficial impact of homophilous affiliation on entrepreneurial groups, a useful standard for delineating minority- and women-owned businesses may be to apply 100 percent rather than majoritarian rules for eligibility. Not only would this policy approach simplify the inclusion of startup businesses in set-aside and targeted loan programs, but it could also promote new businesses that appear to be more viable and egalitarian than those with more heterogeneous participation.

Conclusion

Entrepreneurship policy in the United States is characterized by a paradox. Few protagonists in the postindustrial economy receive as much attention or approbation from politicians and the mass media as do entrepreneurs. The celebration of an "entrepreneurial ideology" was especially vibrant during the startup boom of the late 1990s, but it continues in more muted form even as small businesses face challenging economic times. Despite this embrace of entrepreneurial business, federal, state, and local governments within the United States have few policy instruments at their disposal that permit them to effectively encourage or sustain new enterprises. Tax policy, regulation, and the "affirmative action" programs of the SBA and state agencies are well-suited to affect the incentives (or disincentives) of individuals and established business organizations. They are poorly situated to influence decision-making processes within nascent entrepreneurial ventures, particularly those that involve groups of entrepreneurs rather than solo participants.

Some may argue that the policy paradox is a natural consequence of Tocqueville's America: a country that combines a culture of economic individualism with entrenched habits of associationalism. In trying economic and political times, this liberal philosophy may admit to few public interventions for entrepreneurs, who are left—not to their own devices—but to the aid of their spouses, their co-ethnics, their neighbors, and the like. In this perspective, the networks forged by social identities and interpersonal relationships serve as durable substitutes for the activism of small business trade associations or the support of the state.[18]

Alternatively, others will argue that the absence of entrepreneurial policy reflects the immature state of our knowledge regarding "average" entrepreneurs. As we continue to grapple with the realities of startup activity—and dismantle the myths that have accumulated in the past—this perspective maintains that public policy will exercise a more viable role in the domain of small business creation. For advocates of public intervention, this role is especially critical when the fates of startup firms are not isolated to specific individuals, but are linked systematically with others through their shared participation in entrepreneurial groups.

APPENDIX A

Data Sources

The statistics reported in this book are drawn primarily from two nationally representative samples of nascent entrepreneurs: the *Panel Study of Entrepreneurial Dynamics* (PSED I), first conducted between 1998 and 2000, and its successor, the PSED II, first conducted between 2005 and 2006. Although full descriptions of these data sets are provided elsewhere by Reynolds (2007; Reynolds and Curtin 2008), this section briefly reviews the modules and variables that bear most directly on the analysis of entrepreneurial groups.

Between July 1998 and January 2000, a total of 64,622 individuals in the United States were first contacted by telephone using a random-digit dialing process to identify those in the process of starting a business ("nascent entrepreneurs"). The research design for the PSED I specified two phases of data collection. In the first phase, a marketing research firm telephoned households as part of a national survey, contacting 1,000 adults (500 females and 500 males, 18 years of age or older) each week. Multiple phone calls (at least three) were made to contact each person. When an adult was identified and agreed to respond to the survey, a phone interview was administered. Two items were randomly inserted at different points in the survey and were used to determine whether the respondent qualified as a nascent entrepreneur: (1) "Are you, alone or with others, now trying to start a business?" and (2) "Are you, alone or with others, now starting a new business or new venture for your employer?"[1] If the respondent answered yes to either of the questions, two additional queries were used to qualify whether the respondent was actively involved in the startup process, and whether he or she would share ownership in the business. Affirmative responses to both supplemental questions were necessary for individuals to be considered nascent entrepreneurs. Individuals who qualified were invited to participate in a national study conducted through the University of Wisconsin and were promised a cash payment in exchange for their participation.

In the second phase of the data collection for the PSED I, the names, telephone numbers, and basic sociodemographic information of individuals who met the screening criteria were forwarded to the University of Wisconsin Survey Research Laboratory (UWSRL), where a detailed phone interview was conducted, followed by a mailed questionnaire. At

this stage, respondents were first questioned about the characteristics of the people who were helping them to start the venture and the relationships among them (if applicable). During the UWSRL phone interview, respondents were asked, "How many people will legally own this new business—only you, only you and your spouse, or you and other people or businesses?" If a respondent indicated that others would share ownership in the venture, they were asked to identify up to five individuals who would have the highest level of ownership and the ownership percentage to be held by each group member.[2] The respondent was then asked to provide sociodemographic information about each cofounder and the nature of relationships among them. A second section of the phone interview asked respondents, "Are there other people, those that would *not* be on the startup team [of owners], who have been particularly helpful to you in getting the business started?" Respondents were then asked to identify the sociodemographic characteristics and contributions of up to five individuals who served in this role of non-owner startup participants. The final sample of PSED I respondents included 830 nascent entrepreneurs and corresponding reports on their entrepreneurial groups.

The basic research design of the PSED II was developed on a similar basis as that for the PSED I, with some methodological improvements (Reynolds and Curtin 2008). Between fall 2005 and spring 2006, a new representative cohort of 31,845 adults was screened for entrepreneurial business activity. This screening process resulted in the identification of 1,214 individuals who were in the process of creating a new business and provided detailed reports on their entrepreneurial efforts (wave A). Like the PSED I, the PSED II included follow-ups at twelve-month intervals; data from two of those follow-ups—wave B (completed spring 2007) and wave C (completed spring 2008)—are analyzed in some sections of this book.

Owner Teams

Survey items concerning the composition of startup owner teams can be found in the "Start-Up Team" module of the PSED I and sections G, H, J, and K of the PSED II. Table A.1 summarizes the items asked regarding owners in the first wave of both surveys with respect to owner demography, human capital, and interpersonal networks.

Three initial items that are not shown in the table—Q195 (PSED I) and AG1 and AG2 (PSED II)—addressed the overall size of the business owner teams. AG1 and Q195 asked whether a new business would only be owned

TABLE A.1.
Selected PSED Interview Items for Business Owners

	PSED I	*PSED II*	
Summary of Variable	*Any Owner*	*Respondent*	*Other Owners*
Type of owner (person, institution)	Q210e_*		AG5_*
Ownership share (%)	Q207_0*C	AG6_1	AG6_*
Gender	Q217_*	AH1_1	AH1_*
Age	Q218_*	AH2_1	AH2_*
Hispanic / Latino	(Q219_*)	AH3_1	AH3_*
Non-Hispanic ethnicity (white [x = 'a'], black [b], American Indian [d], Asian [e], Pacific Islander [f], other [z])	Q219_*	AH4x_1	AH4x_*
Marital status / living arrangements (married, living with partner, separated, divorced, widowed, never married)	[Q385]	AH5_1	AH5_*
Education (up to 8th grade, some HS, HS degree, technical degree, some college, community college, bachelors, some graduate, masters, doctoral)	[Q343]	AH6_1	AH6_*
Years they have known respondent			AH7_*
Relationship with respondent (spouse, cohabiting partner, cohabiting relative, other relative, co-worker, other acquaintance / friend, stranger, non-cohabiting partner)	Q233_1, Q236_1, Q237_1, Q238_1		AH8_*
Month and year they became involved		AA8	AH9_*
Occupation (3-digit code, 2000 census classification)	T1OCC_*	AH10_1	AH10_*
Years of experience (in same industry as startup)	Q213_*	AH11_1	AH11_*
Other businesses started (#)	Q214_*	AH12_1	AH12_*
Other businesses owned (#)		AH13_1	AH13_*
Relationship with other owner (non-respondent)	Q236_*, Q237_*, Q238_*		AJ2_**

Source: Adapted from Ruef, Bonikowski, and Aldrich 2009.

Note: '*' varies from 1 to 5, as needed, to accommodate all owners. For the PSED II, '**' varies from '23' to '45' to accommodate all possible (symmetrical) dyads among other owners. Items for ethnic identification are not mutually-exclusive in the PSED II. Items in square brackets apply to respondents only in the PSED I.

by the respondent, by the respondent and their spouse, or by the respondent and some other people or businesses. AG2 elicited the total number of people, businesses, or financial institutions that would share ownership of the new business. In wave A, subsequent items collected information for each respondent and up to four other owners within the nascent enterprise's founding team.

Questions Q210e and AG5 distinguish between individual persons and representatives of institutional owners. With the exception of ownership shares (Q207 and AG6), the remaining information in the table was collected only for those business owners acting on their own behalf.[3] In the PSED II, items AH1 through AH6 provide information on the gender, age, ethnicity, marital status, and education of the business owners. The next three items (AH7–AH9) were only asked for owners aside from the respondent. Questions AH7 and AH8 consider the duration and nature of the relationship of all other owners to the respondent. Question AH9 identifies the month and year that those owners became involved in the business venture (for the focal respondent, this can be inferred from an earlier question, AA8). Other items in section H apply to both respondents and other owners, identifying their occupation, industry tenure, number of startups, and number of other businesses owned (items AH10–AH13). The information on social relationships included in section H is limited to interpersonal networks involving the focal respondent. In section J, the respondents were also questioned about the relationship between all of the other owners they had identified. By combining these sets of items, a complete image of the social network within each nascent startup can be constructed.

Where available, matching questions in the PSED I are identified in the table. The items on owner demography, human capital, and networks were generally developed with an eye toward comparison between the PSED I and II instruments. In the descriptive statistics featured in the book (especially in chapter 4), I tabulate figures for the first wave of each panel study and note topics where differences in operationalization may lead to problems of comparability.

Other Startup Participants

Survey items concerning the involvement of non-owner participants can be found in the "Helpers and Assistance" module of the PSED I and sections M and N of the PSED II. Table A.2 summarizes the items asked regarding non-owners in the first wave of both surveys, again considering participant demography, human capital, and interpersonal networks.

Paralleling the survey design for owners, several questions were de-

Table A.2.
Selected PSED Interview Items for Non-Owner Participants

Summary of Variable	*PSED I*	*PSED II*
Type of owner (person, institution)		AG15_*, AG20_*
Gender	Q245_*	AM2_*, AN2_*
Age	Q246_*	AM3_*, AN3_*
Hispanic / Latino	(Q247_*)	AM4_*, AN4_*
Non-Hispanic ethnicity (white [x = 'a'], black [b], American Indian [d], Asian [e], Pacific Islander [f], other [z])	Q247_*	AM5x_*, AN5x_*
Marital status / living arrangements (married, living with partner, separated, divorced, widowed, never married)		AM6_*, AN6_*
Education (up to 8th grade, some HS, HS degree, technical degree, some college, community college, bachelors, some graduate, masters, doctoral)		AM7_*, AN7_*
Years they have known respondent	Q248_*	AM8_*, AN8_*
Relationship with respondent (spouse, cohabiting partner, cohabiting relative, other relative, co-worker, other acquaintance / friend, stranger, non-cohabiting partner)	Q262_*	AM9_*, AN9_*
Occupation (3-digit code, 2000 census classification)	OH1OCC_*	AM10_*, AN10_*
Years of experience (in same industry as startup)		AM11_*, AN11_*
Other businesses started (#)	Q261_*	AM12_*, AN12_*
Employee or exclusive subcontractor of business (Y/N)		AM14_*, AN14_*
Month and year they began to make a contribution		AM17_*

Note: In the PSED I, '*' varies from 1 to 5 to accommodate other startup participants; in the PSED II, it varies from 1 to 3 in sections M and N of the survey.

ployed to assess the size of the (non-owner) startup assistance network. In the PSED I instrument, Q242 identified the total number of people who had been helpful in getting a business started. In the PSED II instrument, AG13 and AG18 identified non-owners who offered either distinctive or regular contributions to the startup effort, respectively.[4] Subsequent sections of the surveys collected detailed information for up to five (PSED I) or six (PSED II) non-owners who had been active in the business startup process. As shown in table A.2, the content of these questions

was very similar to that collected for startup owners, with the notable exception that no effort was made to reconstruct the full social network of relationships among non-owner participants. Consequently, the network ties of non-owners are only available on an egocentric basis (with respect to a focal owner respondent).

APPENDIX B

Sampling of Groups

A METHODOLOGICAL DILEMMA in data collection on informal groups is that there is typically no available *sampling frame*, or systematic listing of units that could be sampled from a population of interest. Organizational researchers have employed a variety of sources—including industry directories, governmental registries, and listings of prominent organizations—for sampling from populations of established businesses and nonprofits (Carroll and Hannan 2000: chapter 8). Similarly, methods for sampling individuals are well-understood. But the systematic enumeration of informal groups, particularly those associated with emergent organizations, is more difficult. Considering entrepreneurial activity, for instance, there is no listing of groups and individuals that are trying to start businesses in the United States. These nascent entrepreneurial groups only attract public attention when they reach certain milestones in their development, such as when they establish a commercial site for their business, apply for credit, hire workers, or become legally registered with a government agency (Aldrich et al. 1989).[1]

In this book, I confront this dilemma by drawing on a sampling technique known as *hypernetwork sampling*. Hypernetwork sampling has previously been proposed in such contexts as the sampling of voluntary groups (McPherson 1982), groups of artists and musicians (McPherson 2001), and employers (Kalleberg et al. 1996). Using this approach, we first obtain a probability sample of individuals, then ask those respondents to identify the groups to which they belong, and finally ascertain the demographic and relational composition of the groups. In the *Panel Study of Entrepreneurial Dynamics* (PSED), this sampling approach is implemented through the screening calls that identify whether or not an individual is a nascent entrepreneur and subsequent interview questions that collect information on the owner teams and startup assistance networks of those individuals who are trying to initiate new businesses (see appendix A; Reynolds and Curtin 2008).

The resulting data in the PSED I and II are probability samples of entrepreneurial groups that are weighted by size. Larger groups are likely to be over-represented, since there is a higher probability that one of their members will have been contacted in the screening calls than a comparable member of a smaller group (or a solo entrepreneurial effort). As such, statistical inferences from the PSED are accurate for individual entrepreneurs, but size-biased for groups as a whole, at least in the absence

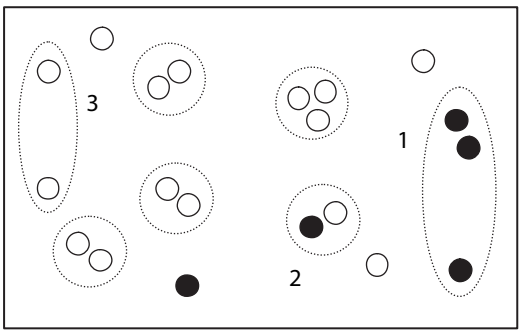

Figure B.1. Hypothetical System of Groups and Individuals

of corrective weights (Davidsson 2006). As an illustrative example, consider the system of groups shown in figure B.1. The figure displays twenty entrepreneurs that are spread across eleven groups (with multi-member groups enclosed in dashed ovals). If we treat the groups as our units of analysis, we observe that roughly two-thirds (seven out of eleven) of these entrepreneurial ventures involve more than one participant and that one out of the eleven involves a demographically mixed group (with both "white" and "black" participants). If we treat individuals as our units of analysis, these statistics change slightly. Sixteen out of the twenty entrepreneurs (80%) are involved in teams and two out of twenty (10%) are located in mixed groups. Consequently, under conditions of repeated sampling on the individuals, we would expect our estimates of group size and heterogeneity to be biased upward (see table B.1).[2]

By applying weights that correspond to the multiplicative inverse of group size ($1/x$), it is straightforward to obtain unbiased estimates of any group characteristic when a hypernetwork sampling strategy is employed.

Table B.1.
Hypothetical Distribution from Sampling on Groups and Individuals

	Sampling on Groups		*Sampling on Individuals*			*Weights*
Size (x)	*Frequency*	*Mixed Group*	*Frequency*	*Mixed Group*	*Frequency "White"*	$w(x) = 1/x$
1	4	n / a	4	n / a	3	1
2	5	1	10	2	9	1/2
3	2	0	6	0	3	1/3
Total	11		20			

For instance, the ten individuals sampled in entrepreneurial dyads in table B.1 each receive a weight of 1/2, thus reproducing the frequency observed in the size distribution when sampling on groups ($10 \times 1/2 = 5$). Similarly, the six individuals sampled in triads each receive a weight of 1/3 ($6 \times 1/3 = 2$). For the sake of consistency, individual-level analyses of entrepreneurs in this book employ the standard weights for stratified sampling in the PSED. Descriptive inferences at the group level rely on inverse size weighting (in addition to the standard weights) and are denoted explicitly as such. Since the PSED survey involved contacts with non-institutional owners of startup businesses, the "size" of each entrepreneurial group is calculated as the number of persons that have an ownership stake in a new venture.

APPENDIX C

Analysis of Groups

As Leo Goodman (1964) first noted in a path-breaking paper on systems of groups, proper estimation of size distributions and other mechanisms concerning group formation requires that an analyst consider all possible combinations of group members, not just those observed in a given sample. Drawing on Goodman's insight, I employ a methodology termed *structural event analysis* in chapter 4 to generate the distribution of possible entrepreneurial groups and compare chance expectations within that distribution to empirical counts of owner teams in the PSED I and II. The methodology entails three basic steps: (a) first, the risk set of potential groups is generated using *counting rules* drawn from combinatorial analysis; (b) next, a baseline *event probability* is calculated for each group in the risk set, under an assumption of random mixing; and (c) *event count models* are estimated to account for deviations from expectations of chance group membership, based on social mechanisms such as homophily, network constraint, and ecological constraint.[1]

Counting Rules

The risk set *s(H)* of a structural event analysis enumerates all possible group configurations over a set of identities (*N*), subject to group size (*r*) and restrictions on permissible identity combinations (Ruef 2002c). When identities within a group can be repeated indefinitely, the number of combinations for a multiset of *N* identities is calculated as:

$$s(H) = \sum_{r=1}^{r(H)} \binom{r + |N| - 1}{r} = \sum_{r=1}^{r(H)} \frac{(r + |N| - 1)!}{r!(|N| - 1)!} \qquad \text{(C.1)}$$

where *r* varies over all observed group sizes—including solos—up to *r(H)* members. Thus, a set of two gender identities $N = \{\text{male, female}\}$ allows for three discrete forms of gender composition in dyadic business partnerships ($r = 2$): male-male dyads, male-female dyads, and female-female dyads. Using the counting rule, these combinations are calculated as $(r + |N| - 1)$ choose $r = (2 + 2 - 1)$ choose $2 = 3!/2! = 3$. To obtain the possible arrangements for the two gender identities in groups not exceeding three persons in size $r(H) = 3$, one simply sums the respective number of

combinations for each possible size category: $s(H) = 2 + 3 + 4 = 9$ possible group configurations.

Given multiple dimensions of identity, the identity set should identify all possible combinations that may be held by any given group member. For two gender identities {[M]ale, [F]emale} and four occupational identities {[P]rofessional, [A]dministrative, [S]ervice, [O]perations}, there are eight unrestricted identity combinations for each individual: N = {MP, MA, MS, MO, FP, FA, FS, FO}. If there are a priori restrictions imposed on identity combinations (for instance, if women in a patriarchical society are not permitted to hold certain occupations), then the identity set should be reduced accordingly.[2]

Event Probability

Probability theory provides the rules for calculating the expected chance of occurrence for any observed group under an assumption of random mixing. We designate the identities (or identity combinations) in a set N as elementary events for purposes of statistical analysis and apply the rule of multiplication to determine the probability of joint events. Provided that the identities included in a particular group configuration are events in N occurring with probability $p(n_1)$, $p(n_2)$, . . . $p(n_k)$, the sampling distribution of groups is given by the multinomial formula:

$$p(E|r) = \frac{r!}{|n_1|!|n_2|! \ldots |n_k|!} \times [p(n_1)^{|n_1|} \times p(n_2)^{|n_2|} \times \ldots p(n_k)^{|n_k|}] \quad \text{(C.2)}$$

where $r = |n_1| + |n_2| + \ldots |n_k|$. It should be noted that the calculation of all joint event probabilities is conditional on groups being of a particular size, r. For instance, consider a structural analysis of founding teams formed among three occupations: manual workers (n_1), service workers (n_2), and professionals (n_3). If groups are drawn from a population of entrepreneurs that is 40 percent manual, 30 percent service, and 30 percent professional, then the expected probability of obtaining a three-member founding team with one manual worker and two service sector workers under an assumption of statistical independence is $p(E|3) = (3!/(2! \times 1!))\ (.40^1 \times .30^2) = .108$. The event probability reflects the fact that there are three different ways to draw the entrepreneurs. By comparison, the probability of obtaining a three-owner team that consists only of manual workers is $p(E|3) = (3!/\ 3!)\ (.40^3) = .064$.

For some analyses of group configurations, joint event probabilities are not only conditional on group size but on other parameters as well. In analyzing the gender composition of groups, for instance, it may be important to control for the presence of romantic relationships that serve to deflate

the observed level of gender homophily. Groups involving these relationships can be separated from other groups, and fixed effects can be introduced into models to control for the relationships present within each group-size category (see Ruef 2002c; Ruef et al. 2003 for additional details).

Event Count Models

Each potential group in the risk set *s(H)* is treated as a case for purposes of analysis, leading to a Poisson distribution of group counts (Goodman 1964). The simplest model for predicting these counts is the classic Poisson regression:

$$P[f(E_i) = y] = e^{-\lambda}(\lambda^y \mid y!) \tag{C.3}$$

where λ is defined in terms of the conditional probability for group occurrence $\lambda = f(p[\mathrm{E} \mid r], r)$, and r specifies the size of each group. The baseline probability for each event, under an assumption of random population mixing, is included as a fixed parameter in every Poisson regression. All other design parameters reflect deviations from random mixing.

The Poisson model assumes that the mean and variance of the event count distribution is approximately equal. Consequently, special steps have to be taken to handle instances of *overdispersion*, a violation of this assumption when a distribution's variance exceeds its mean (Greene 2003). In those instances, a negative binomial regression model was employed, introducing an overdispersion error term (ϕ) into the Poisson equation. This specification corresponds to the NEGBIN type II model discussed by Cameron and Trivedi (1998).

Because the number of possible teams grows exponentially for analyses involving multiple dimensions of identity, bootstrap techniques were also deployed to analyze large, sparse matrices. For the estimates in chapter 4, I constructed a sample by selecting all cells with a nonzero observed count of owner teams, all other cells involving solo entrepreneurs or dyads, and 1 percent of the cells with an expected team size of three or greater and no observed group counts. Structural zeros—those cells where a marginal frequency is zero—were removed from the sample. Maximum-likelihood techniques were used to derive all estimates.

Notes

Preface

1. These conceptions of individualism are offered by Isaac Kramnick (in Tocqueville 2003: xxxi–xxxii). For a landmark study of individualism in contemporary America, see Robert Bellah's (et al. 1985) *Habits of the Heart*.

2. One telling statistic in this regard concerns the percentage of business startups across countries that involve multiple entrepreneurs. In Sweden (a country with a constitutional monarchy), 56 percent to 58 percent of owners in nascent startups report working with other owners to start their businesses (Davidsson and Honig 2003). In the United States, the percentage of owners who are involved in teams is slightly lower, including around half of all nascent entrepreneurs (Ruef et al. 2003).

3. The fact that entrepreneurs derive a nonpecuniary utility from their activities also helps to explain another puzzle. The material payoffs to business startups are typically meager, often resulting in income loss and low earnings growth relative to the opportunities that entrepreneurs would enjoy in conventional employment (Hamilton 2000; Moskowitz and Vissing-Jørgensen 2002). Moreover, responses on investment vignettes suggest that entrepreneurs may be *less* financially tolerant of risk than the general population (Xu and Ruef 2004), while risk-taking differences observed in laboratory studies have not been conclusive (Miner and Raju 2004). Consequently, retaining a model of entrepreneurial entry under rational choice assumptions requires that scholars address nonpecuniary motivations.

4. As I discuss at greater length in chapter 5, over two-thirds of startup firms lack legal contracts governing even the most rudimentary details of ownership shares and liability.

5. Owing to a disciplinary division of labor, there has been a considerable amount of sociological research on status constraints (e.g., Podolny 2005) and a considerable amount of economic research on financial constraints (e.g., Holtz-Eakin et al. 1994), but very little effort to link these two literatures in studies of entrepreneurial activity.

6. One recent survey, the 2005–2006 *Panel Study of Entrepreneurial Dynamics* (PSED II), asked entrepreneurs to rate the local level of support for business startups, using clusters of survey questions for liberal (items P1 through P6) and communitarian (P7 through P9) conceptions of society. Descriptive statistics reveal a high pairwise correlation of responses within each cluster (0.45 on average) and a more modest correlation across clusters (0.25 on average).

Chapter One

1. Facts on AreYouGame.Com, University Games, and Bob Moog have been drawn from public media accounts. See *Business Wire* (1998), Scally (1998), and

PR Newswire (2001) on the founding of AreYouGame.Com; Banham (1997) on the international expansion of University Games; and Halstead (1985), Miller (1985), and the *Wall Street Journal* (1999a, 1999b) on Bob Moog's career trajectory. Spitzer and Arippol (2006) offer a detailed case study of the history and culture of University Games and AreYouGame.Com.

2. To ensure confidentiality, the names of "John" and "Emily Koslowski" are fictional and the specific kinship relationship to "Emily Koslowski's" mother is hypothetical. All other details in the case are drawn from phone interviews and mail surveys of the *Panel Study of Entrepreneurial Dynamics* (PSED) I.

3. For his part, Moog seemed to indicate that a principal barrier to his acceptance of the appointment lay in his inability to be entrepreneurial within the Toys 'R' Us bureaucracy. He advised his successor to "be fiercely independent and try not to get sucked into the Toys 'R' Us corporate culture" (*Financial Times* 1999).

4. I am reminded, in particular, of a spirited panel discussion on this issue at the first Cornell-McGill Conference on *Institutions and Entrepreneurship* (July 22–24, 2007), in which Heather Haveman suggested that the term "entrepreneurship" be dropped from the social science lexicon, largely owing to the tremendous variation in the way it has been operationalized by researchers.

5. Interestingly, this social property appears to be absent from many definitions of emergent organizations. Katz and Gartner (1988), for instance, emphasize features such as intentionality, resource deployment, boundary maintenance, and exchange processes (which may or may not involve someone else within the organization). Other definitions simply equate entrepreneurship with self-employment, a common practice in labor economics (e.g., Blanchflower and Oswald 1998) as well as studies of social stratification (Spener and Bean 1999; Boyd 2000). Parker (2004) warns that self-employment itself is a slippery concept, owing to the gray area between employment and self-employment, as well as cross-national variation in their definition.

6. This interpretation of Schumpeter has been critiqued by a few scholars, most notably the Italian economist Nicolò de Vecchi (1995). De Vecchi argues that the Schumpeterian entrepreneur is hardly as individualistic or heroic as the secondary literature would imply, instead serving as a mere vessel for the deployment of capital and credit by financial institutions.

7. Weber's own micro-macro analysis does not seem as individualistic as Coleman's. He clearly allows for the possibility that groups may be of some consequence in the entrepreneurial process, since calculative rationality "had to originate somewhere, and not in isolated individuals alone, but as a way of life common to whole groups of men" (1930: 55). A particular example he has in mind is the entrepreneurial group that was instrumental in the founding of the New England colonies, consisting of "preachers and seminary graduates with the help of small bourgeois, craftsmen, and yeomen" (55–56).

8. The PSED II data referenced in this paragraph and throughout the book are described at greater length in appendix A. During the first wave of the PSED II, roughly two-thirds of these data were collected in the last three months of 2005 and the remaining third were collected in the first two months of 2006. For ease of exposition in the text, I will sometimes simply refer to "2006" as the year of data collection, rather than the more cumbersome "2005–2006." Methodologi-

cal issues in drawing inferences from this data at multiple levels of analysis (individual or group level) are discussed in appendix B.

9. These statistics, like those in the previous paragraph, are based on the 2005–2006 *Panel Study of Entrepreneurial Dynamics*.

10. From the standpoint of social theory, this empirical pattern also underscores a shortcoming in early treatments of groups, such as that of Georg Simmel (1902), which focused too one-sidedly on the property of size. A more satisfying taxonomy of groups was later offered by Georges Gurvitch (1949), including consideration of the issue of access to a group (open, semi-closed, closed) as discussed here.

11. One can still argue, of course, that individuals learn how to operate in groups, based on internalized experiences from childhood and adolescence. This version of the "oversocialized" model of social action is not inherently at odds with the relational framework presented here, particularly if it rejects a purely individualistic image of entrepreneurs.

Chapter Two

1. Although the case method, as originally developed at Harvard Business School and subsequently adopted at the majority of business schools, was focused on practical business problems (Khurana 2007), irrespective of the prominence of the firms that were being studied, casual sampling of contemporary business school cases suggests that they usually do not involve "average" firms.

2. Both of these features apply to semiconductor manufacturing startups. Schoonhoven, Eisenhardt, and Lyman (1990: 183) emphasize that "new organizations in the semiconductor industry are especially capital-intensive, because sophisticated equipment is required during the research and development period, independent of costs associated with actual manufacturing." During the time period they analyze (1978–1985), about half of the semiconductor markets also experienced a growth phase ($100+ million in annual sales and annual growth rate of 20% or more) (Eisenhardt and Schoonhoven 1990).

3. Aldrich (2007) offers these estimates based on the work of Reynolds (2007), statistics from the National Venture Capital Association, and Angel Investor Market Trend reports from the Center for Venture Research (University of New Hampshire).

4. I collected the "GSB Alumni Sample" in 1999 using a systematic survey of entrepreneurs who had received MBA degrees from the Stanford Graduate School of Business (GSB).

5. These counties—including Santa Clara, San Mateo, and San Francisco—might be dubbed the "greater Silicon Valley." Calculations are based on the alumni records of the Stanford GSB and my surveys.

6. Max Weber offered one of the earliest, and most prescient, treatments of the historical origins of entrepreneurial groups. In his J.D. dissertation on the *History of Commercial Partnerships*, Weber (2003) compared the influence of Roman and Germanic commercial laws on partnerships among medieval entrepreneurs. He based his analysis on a systematic review of Italian and Spanish legal charters

and statutes from the eleventh through the sixteenth centuries, with detailed case studies of commercial law in Florence and Pisa's *Constitutum Usus*.

7. This lack of interdisciplinary contact can be appreciated through even a cursory review of recent literature on entrepreneurial groups. In proposing a "theory of entrepreneurial teams," the economist David Harper (2008) offers a game-theoretic treatment, with little attention to relevant sociological or psychological research on the topic. By the same token, sociological research (e.g., Ruef et al. 2003) adopts a more structural approach, ignoring the interests and strategies that animate economic perspectives. Interestingly, these disciplinary bodies of work are more likely to reference research in business management than to cite each other.

8. Formally, the team selection process is a more general version of the *ultimatum game* (UG), a bargaining situation where subjects (one lead and one follower) are instructed to split a divisible "pie," usually consisting of a cash payoff (Fehr and Gintis 2007). Under conditions of self-interest and anonymity, the lead entrepreneur in this scenario should offer the smallest possible (nonzero) share to their partner (see chapter 6).

9. Several recent working papers offer exceptions to the rule, addressing the interplay of economic and social factors when the *consequences* of equity allocation in entrepreneurial ventures are considered (Kotha and George 2006; Wasserman and Marx 2008).

10. Both Hellmann (1998) and Bai and colleagues (2004) build on the transaction cost economics (TCE) of Williamson (1981, 1985), which addresses the implications of opportunism, bounded rationality, and incomplete contracting on the allocation of control rights in business firms. Their approaches differ from TCE insofar as they consider features of entrepreneurial enterprise (e.g., founder replacement, revenue sharing) that tend to be ignored in Williamson's focus on mature businesses.

11. A systematic literature review indicates that these generalizations are not merely impressionistic. A JSTOR search reveals seventy-five articles in economics with references to "control rights" in their abstracts and forty-nine with references to "ownership rights." None of these articles, however, includes a reference to gender or ethnicity in their abstracts, and only one (the same one for control and ownership rights) includes a reference to kinship. Similarly, there are over 200 articles in sociology that refer to "group membership" in their abstracts. None address transaction costs as a major influence on membership decisions.

12. Studies of demographic diversity within organizations have arrived at a similar distinction between visible and nonvisible markers of identity, including "any characteristic that can serve as a basis for social categorization and self-identification" within this broad rubric (Tsui and Gutek 1999: 131). The nonvisible features of identity—including the preferences, qualifications, and strategies of organizational members—are usually only discovered gradually over time, in the process of interpersonal communication.

13. Unsurprisingly, this imposition of *homo economicus* has been questioned extensively by other social scientists—and not only in terms of the profit-maximizing goals, calculative strategy, or individualistic preferences of the entre-

preneur. More fundamentally, constructivists suggest that "goals and preference, being so changeable, are not causes, but rather they are spun after the fact as part of accounting for what has already happened" (White 1992: 8).

14. Some scholars now argue that a one-sided emphasis on interpersonal networks, to the neglect of formal hierarchical and lateral relationships within organizations, has gone too far in sociology (see Yakubovich and Shekshnia 2008 for a useful critique).

15. In an influential account of organizational decision-making, James G. March (1994) draws a similar distinction between a logic of action that is oriented toward extrinsic goals (a "logic of consequence") and one that is oriented toward intrinsic features of an identity or role ("a logic of appropriateness"). Using March's terminology, the mechanism proposed here thus presumes that a logic of appropriateness will trump a logic of consequence in many entrepreneurial decisions.

Chapter Three

1. Many authors have argued that a similar gap in meso-level analysis afflicts organizational studies more generally (e.g., Cappelli and Sherer 1991; House et al. 1995). To a considerable extent, this gap may have roots in a disciplinary division between the field often referred to as "organizational behavior" (OB), which is grounded in social psychology, and the field commonly known as "organizational and management theory" (OMT), which is grounded in sociology.

2. The empirical form of startup size distributions is not especially sensitive to sampling across industries or within industries. As an example, if we take U.S. business startups involved in construction (the most active sector for startup activity during the last ten years [see table 2.2]), then the distribution of entrepreneurial group size mirrors that found in startups more generally. In 2005–2006, about 22 percent of new construction businesses involved a solo entrepreneur, 25 percent involved dyads, 21 percent involved three business partners, and so forth. Thus, there is little evidence to suggest that startup size will be homogeneous within industries due to minimum efficient scale.

3. Two mechanisms that generate departures from a log-normal size distribution include *size-localized competition*, in which organizations compete intensively with other organizations of a similar size (Hannan and Freeman 1977), and *resource partitioning*, in which the concentration of generalist organizations at the center of a niche opens up opportunities for smaller specialist organizations at the periphery (Carroll 1985).

4. Consequently, entrepreneurial wealth cannot be attributed to revenue derived from the business startup, which would lead to a problem of reverse causation. The specific formula used to calculate net worth is: [current value of entrepreneur's home] − [amount owed on mortgage, if any] − [other household debt] + [value of household savings and investments] + [value of other real estate, vehicles, jewelry, etc.]. Results are robust for different net worth calculations (such as ones that exclude home equity and debt).

5. Based on the PSED II sample, the median net worth of nascent entrepreneurs in the United States was $150,000 in 2005–2006.

6. The choice of model specification used here is largely driven by a desire for consistency with Cabral and Mata's approach. This consideration informs both the functional form of the model (gamma distribution) and the inclusion of covariates in models 1 and 2 (limited to net worth, age, education, and industry controls). Naturally, one can envision the addition of other variables that might be linked to startup firm size.

7. To avoid sample attrition, these data are taken from the first wave of the PSED II, which identified the month during which each partner with an ownership stake joined a startup effort.

8. Some analysts may be tempted to infer that some of the impact of net worth on the size of business startups is therefore indirect, being mediated by the ability of an entrepreneur to support a large household. But the pairwise correlation of net worth with household size is very low ($r < .01$) and not statistically significant.

9. Moreover, Reynolds argued, age may have a strong interaction effect with other variables that impact entrepreneurial entry, such as household size (which was especially important for young adults in Reynolds' sample) and financial reserves (which were more salient for older entrepreneurs) (1997: 456–457).

10. Postsocialist economies, such as Hungary and Russia, display a similar curvilinear pattern of self-employment. However, the apex of the entrepreneurship curve tends to occur much earlier in these societies (in the twenties or thirties for nonprofessionals), compared to peak rates experienced by individuals in their forties in other countries.

11. The figure graphs the proportion of nascent entrepreneurs by age, where the status of "nascent entrepreneur" is defined via four criteria: (a) an individual is managing or trying to start a new business, either for themselves or an employer; (b) the individual has actively worked on the startup during the past twelve months; (c) the individual will own at least some part of the business; and (d) monthly revenue has not exceeded expenses (including owner wages) for more than half of the preceding twelve months.

12. The idea that these dimensions of entrepreneurial ability are hard to measure seems to be of some empirical importance to the argument. Many studies control for overt features of human capital, such as education or language proficiency, yet continue to find a curvilinear pattern of entrepreneurship by age (e.g., Sanders and Nee 1996). One can substitute physio-psychological characteristics such as "energy" or "motivation" for technical competency and reach similar conclusions.

13. With some additional assumptions, other mechanisms in relational demography could also be applied to account for the same outcome. For instance, if residential segregation tends to occur by age (with young adults living in hip urban neighborhoods and older adults residing in the suburbs or in "active living communities"), then ecological constraint will lead prospective entrepreneurs to affiliate with others of the same age. Similarly, if interpersonal networks (especially those involving marital or romantic relationships) are age-biased, then strong tie constraint will lead entrepreneurs to rely on intimate contacts who are in the same age category as they are.

Chapter Four

1. To ensure confidentiality, all names are fictional and the specific urban location of the enterprise ("Los Angeles") is hypothetical. All other details in the case are drawn from phone interviews of the *Panel Study of Entrepreneurial Dynamics* (PSED) II.

2. The placement of Sophia in the upper left-hand versus upper right-hand corner is largely a function of the nature and amount of contributions made to the startup. The majority of business startups in the United States do not hire employees (Aldrich and Ruef 2006), although they may still rely on regular contributions from family and friends who are not compensated through formal wage or equity arrangements. For purposes of the typology, these participants could be placed in the upper right-hand cell of the figure.

3. Applying a two sample *t*-test, these differences in the lag time until an individual joins an entrepreneurial group are statistically significant at the $p < .001$ level.

4. To ensure comparability between the PSED I and II data, the statistics discussed here consider any individual with an equity stake in a startup to be an "owner." In chapter 5, I add the further qualification that individuals also have made a substantial time investment in a startup, thus delineating the distinctive role of "owner-managers" (cf. table 4.1).

5. For one basis of comparison, see the *Statistical Abstract of the United States* (U.S. Department of Commerce 2009), tables 6, 55, 221, and 597.

6. All the sample comparisons presented here (and throughout the book) are based on two-tailed *t*-tests, unless otherwise noted. Caution should be observed in comparing the statistics for ethnicity in the PSED I and PSED II data sets. The former data rely on a mutually exclusive categorization of owners' ethnic identity, while the latter allow respondents to select as many categories as they feel are appropriate. Comparisons are sensitive to the treatment of multi-ethnic owners.

7. For purposes of calculating these statistics, "computing professionals" are defined as individuals with a three-digit occupational code ranging from 100 ("computer scientists and systems analysts") to 111 ("network systems and data communication analysts"), using the 2000 Census schema.

8. The PSED II data suggest that the proportion of startup owners with a high school education (or less) who are involved in Internet or direct selling is equal to that of owners with an education beyond the high school level (*z*-test statistic = 0.57, no significant difference).

9. A comparison of the PSED I statistics in table 4.4 with previously published descriptive findings (e.g., Ruef et al. 2003: table 2) may appear to indicate some minor discrepancies. These differences result entirely from three methodological considerations: (1) previously published results tend to use slightly more restrictive sampling criteria (e.g., removing cases in which legal entities will own more than 50% of a startup venture); (2) the number of cases reported within the tables in this chapter are always unweighted; and (3) descriptive statistics for teams of owners in this chapter are inverse weighted by group size.

10. Business startups in the extractive sector (agriculture and mining) are excluded from this analysis due to the small size of that subsample ($N = 58$).

11. All of these incidence ratios are statistically different from 1.0, with less than a .05 probability of occurring by chance.

12. I define an age cohort as the set of individuals falling within one standard deviation on the age distribution for entrepreneurs. In 1998–2000, this would delineate a group with an age difference of less than 11½ years as being in the same age cohort; in 2005–2006, a group with an age difference of less than 13 years would be in the same age cohort, by the same standard.

13. The confidence intervals shown in the figure are ±1.39 times the standard error for each characteristic. A lack of overlap in the intervals suggests that differences are significant at the 5 percent level, assuming normality and equal known standard errors (Goldstein and Healy 1995). Note that graphical inspection of the confidence intervals cannot substitute for formal hypothesis testing, since these assumptions are often violated in practice. For instance, the difference between occupational homophily with and without controls for co-workers is statistically significant ($p < .05$ level, $\chi^2 = 4.1$), although figure 4.4 suggests a more modest difference.

14. For the sake of interpretability, these estimates exclude entrepreneurs who were out of the labor force (OLF) prior to initiating startup activity. The OLF category is extremely heterogeneous, subsuming students, the unemployed, and homemakers.

Chapter Five

1. Explanations of the boundary formation process can be roughly categorized into two types: one that highlights more rigid and instrumentally defined boundaries (i.e., "rational" system perspectives) and another that highlights the blurred nature of organizational boundaries ("natural" system perspectives) (see Scott and Davis 2006).

2. Note that the distinction between persons and representatives of institutions can only be made meaningfully for the PSED II data. The PSED I did not collect specific information on institutional representatives who were members of the startup assistance network.

3. Complicating the simple model of age dependence in entrepreneurial entry introduced in chapter 3, this suggests that an alternative option exercised by many older individuals with an interest in startup activity is involvement in assistance networks—for example, as investors or consultants—rather than direct involvement as business owner-managers.

4. David and Han's (2004) systematic assessment of empirical TCE research suggests that asset specificity has been the most frequently considered independent variable and has fared the best in predicting firm boundary decisions. Uncertainty, another important transaction attribute, is expected to affect these decisions only in the presence of asset specificity (Williamson 1985).

5. Whether the relationship between asset specificity and startup role is causal cannot be determined with the data at hand. For instance, a given startup participant may become an owner-manager because they are able to introduce other members of the entrepreneurial group to crucial business contacts. Or they may

develop their networks with those contacts because they function in the role of an owner-manager.

6. Despite this fluidity in boundaries, there is also clear empirical evidence that the resources contributed by startup participants in each role are distinctive. For each type of resource contribution, there is a statistically significant difference in the proportion offered across the startup roles. As in the case of sociodemographic attributes (cf. table 5.2), combining these roles into a generic category of "entrepreneur" would miss much of the meaningful heterogeneity in the contributions offered by members of the entrepreneurial group.

7. This argument is not inherently at odds with the logic of transaction cost economics, especially given the importance that TCE places on "calculative trust" (Williamson 1993). However, the empirical TCE literature contains virtually no discussion of interpersonal network ties.

8. As Allan Silver has suggested, in an essay on the role of friendships within commercial society, social theory has often "posit[ed] an incompatibility between personal and impersonal behavior at the level of persons and small groups" (1990: 1475).

9. There is some empirical evidence for a lack of economic sophistication among nascent entrepreneurs during the 1990s—for instance, 26.5 percent of respondents in the PSED I failed to ignore sunk costs, a common benchmark of managerial rationality (Morgan 2004). Since the requisite survey questions have not been replicated in a subsequent national sample, it is not clear whether today's entrepreneurs are more sophisticated than those who started their businesses during that economic boom period.

Chapter Six

1. This vignette draws from information on owner demography, contributions, and startup activities in the PSED II. Other details—including names, specific business location, and subjective attitudes—are hypothetical in order to preserve anonymity.

2. To be more precise, Ekeh distinguishes between individual-focused generalized exchange, group-focused generalized exchange, and what Sahlins (1965) termed "pooling." The first involves transfers from groups to members, the second involves transfers from members to groups, and the third involves some combination of the other two. The latter category of "pooling" most adequately describes the balance of contributions and inducements in entrepreneurial groups.

3. The norms correspond to those identified by Eckhoff (1974) and Cook and Hegtvedt (1983). I do not consider a fifth norm of distributive justice from this literature—referred to as "equality of opportunity"— due to its conceptual complexity and variation in its institutional antecedents (Cook and Hegtvedt 1983: 221).

4. The Theil index is computed as $T = \sum_{i=1}^{n} x_i \frac{\ln x_i}{\ln n}$ where x_i is the proportion of ownership held by entrepreneur i and n is the number of owners in the group.

By reversing the index as $-1 \times T$, we obtain a measure that varies continuously from 0 (perfect inequality) to 1 (perfect equality).

5. Naturally, the status hierarchy may differ considerably in other cultures.

6. Given n members in an entrepreneurial group and an ownership share of x, the outcome variable for each entrepreneur i is calculated as $E_i = \ln\left(\frac{x_i}{1/n}\right)$ where $E_i = 0$ indicates an equal ownership share, $E_i < 0$ indicates a share that is lower than expected on the basis of objective equality, and $E_i > 0$ indicates a share that is greater than expected under this standard.

7. Indeed, the median level of funding for business startups from *all* owners is only $3,000, a statistic that reflects the substantial number of enterprises that begin with no financial investment at all.

8. A shortcoming in generalizing from these experiments to exchange processes in real entrepreneurial groups is that the experimental protocols generally impose a condition of anonymity, where each subject is only aware of their own ascriptive characteristics and lacks any prior relationship to other subjects. The latter constraint, in particular, is the object of manipulation in network analyses of self-interested exchange.

9. Note that these samples are not mutually exclusive. They necessarily exclude cases where managerial control is shared equally among business partners or where startup activities are initiated concurrently.

10. As expected, the shares in the third sample are not statistically different from those predicted by a standard of objective equality (1/2, 1/3, etc.), subject to sampling error. This also suggests that the reporting of ownership shares is not unduly affected by measurement bias, particularly a possible tendency among respondents to overstate their own shares in the startup business.

11. This finding is in marked contrast to studies of ownership shares using the PSED I, which did not identify such systematic variation (Ruef 2009). One likely cause is measurement error—lacking information on managerial control or temporal precedence among startup owners, the only way to identify "lead" entrepreneur in the earlier survey was to equate them with the group member who holds the largest ownership share.

12. Arguably, another relevant feature of self-interest is whether an entrepreneur seeks to maximize their pecuniary gain from a business venture or has other goals in mind, such as autonomy or personal fulfillment. Supplementary analyses suggest that an orientation toward material goals does not affect the size of ownership shares that entrepreneurs are able to secure. Chapter 9 will address the impact of entrepreneurial goals in greater detail.

13. Formally, this chapter operationalizes brokerage within an entrepreneurial team as a situation where: (a) there are at least three team members; and (b) the strength of the network ties of one member of a triad (C2) to two other members (C1 and C3) is stronger than the network ties between those other two members. Network ties are classified into three conventional categories: strong ties (spouses, cohabiting partners, kin); weaker ties (colleagues, coworkers, friends); and no ties (strangers).

14. Modern management teams often claim leadership competency in a range of these areas. One of their most common rituals for doing so involves the adop-

tion of specialized titles among team members—chief operating officer (COO), chief financial officer (CFO), chief information officer (CIO), vice president for human resources (VP-HR), etc.—that signal compliance with institutionalized expectations for functional diversity. Nevertheless, the small size of most entrepreneurial groups means that general management still predominates as a functional role in multi-owner startups (table 6.5).

15. Notably, a factor that seems to have little bearing on the allocation of control in entrepreneurial groups is the ecology of startup activity. There is no evidence, for instance, that control of a business is more likely to be shared in a residential business, where monitoring of business partners may be simplified through physical proximity. In this regard, there is no support for the intuition that ecological constraint impinges on formal role relations among startup participants (cf. table 2.4).

Chapter Seven

1. The importance of emotional energy—a sense of enthusiasm and exhilaration in interpersonal activity—has been emphasized in particular by Randall Collins (2004).

2. The idea of the free rider problem, per se, did not originate with Olson, but enjoys a long scholarly pedigree extending back to Hume, Hobbes, and Rousseau, among others (see Frohlich and Oppenheimer 1970: 104–106). Paul Samuelson first formulated the problem in economic terms.

3. Salisbury's formulation owes an obvious (and acknowledged) debt to two previous intellectual traditions in the social sciences, one being the exchange theory framework in sociology, as advanced by George Homans (1961) and Peter Blau (1964); the other being the theory of incentives in organizations, first put forward by Chester Barnard (1938) and subsequently advanced by Clark and Wilson (1961). What appears novel about Salisbury's treatment is that he explicitly ties exchange theory and the balance of incentives among members to the creation of new organizations, rather than the survival of existing ones.

4. This appears to coincide with the welcoming reception accorded to Olson's theory of collective action among political scientists and comparatively lukewarm reaction in contemporary economic theories of organizations.

5. In a meta-analytic review published in the early 1990s, Karau and Williams (1993) identify 166 studies that compared the effort of individuals working by themselves and those working in a group. While the studies were classified under the rubric of "social loafing." this concept in social psychology is closely related to Olson's "free rider" problem. Over 85 percent of the studies were conducted in a laboratory and all of the studies relied on experimental manipulation of the task situation.

6. Within an entrepreneurial group, these costs would necessarily include the difficulty in observing whether one's own actions have contributed to the performance of the startup business, as well as the difficulty in assessing the same for other startup participants.

7. Positive interdependence in the supply of labor time may result when an

hour devoted by a business partner to a startup would be spent more productively when other partners also devote an hour to the startup. Even when an entrepreneur toils in isolation, the effect of a learning curve may be such that the marginal benefit from an hour spent on the startup increases with the total accumulation of time invested.

8. It is also unclear whether outside employment presents a constraint on the amount of time that an entrepreneur devotes to their business, or whether it is endogenous to the level of effort that they are willing to exert. In short, highly committed entrepreneurs are more likely to abandon other employment opportunities, even when it is imprudent to do so.

9. Even assuming that these correlations were in the expected direction (i.e., positive between flexible time preferences and group size, negative between low-cost opportunities and group size), they do not tell us anything about the ability of entrepreneurs to correctly predict the *actual* time and resource requirements of the business once startup activities are under way.

10. Chapter 9 probes the relationship between group composition and entrepreneurial goals in more detail. Its descriptive analyses suggest that the presence of spouses and intimate partners is related to entrepreneurial goals, though not simply as a matter of dampening the dominance of material motivations.

11. This measure is based on Jasso's (1980) justice formula, introduced in chapter 6 for the analysis of individual ownership shares.

12. Some caution should be observed in attributing too much substantive import to the increase in entrepreneurial effort in the left-hand side of the figure. Owing to the egalitarianism of these groups (see chapter 6), there are only 33 cases in the PSED II where an owner has a sufficiently small share as to fall below the inflection point where effort again begins to rise.

13. In the case of both employers and employees, hold-up problems may result "because turnover costs and specific investments generate rents to continued employment" (Malcomson 1997: 1918). For employers, such costs may include severance packages and the overhead associated with recruiting and training new employees. They are also incurred through the organizational knowledge that the employee takes with them. For employees, costs are generated by the need for job search, the potential loss of benefits that are yet to be vested (e.g., stock options, matching funds for retirement, etc.), and the loss of social contacts from their old firm. When the employees have developed organization-specific competencies, they may also find that these do not transfer to a new workplace.

14. Notably, the share of an existing owner never increased when one or more new owners joined a startup effort.

15. The model controls for the amount of generic entrepreneurial effort (i.e., time and pecuniary investments), as discussed previously in this chapter. Consequently, what is captured here is primarily the *type* of effort being invested by the entrepreneur.

16. This intuition seems to hold true even when the opportunity cost of the transaction is held constant. As a result, it is normative to expect that a stranger will spend a few minutes giving us directions or telling us about a favorite restaurant, but it is certainly not normative to expect that they would offer us the equivalent amount (gratis) in labor time or in property equal to the value of their opportunity cost.

17. For the sake of model parsimony, demographic diversity is measured simultaneously across these dimensions using an index of qualitative variation (IQV). The IQV is calculated based on a distribution of startup owners across 50 ($2 \times 5 \times 5$) possible combinations of gender, ethnicity, and occupation, using the formula: $IQV_i = \frac{n}{n-1}\left(1 - \sum_{i=1}^{n} (p_i)^2\right)$, where n is the number of possible combinations and p_i is the proportion of owners matching a particular combination of demographic attributes.

Chapter Eight

1. The case study of Wendy Finch is drawn from wave A of the PSED II. As in all other cases, names and specific business ideas and locations are hypothetical in order to preserve anonymity.

2. Herminia Ibarra's (1993) study of network characteristics and innovation roles is one important exception to the general lack of quantitative micro-level analyses of innovation. However, it predicts an individual's role in an innovation process, rather than the occurrence of innovation itself. Another exception is the work of Jill Perry-Smith on the social aspects of creativity (Perry-Smith and Shalley 2003; Perry-Smith 2006), linking the creativity of workers to their network position within an organization.

3. Note that the thesis that the production of a jointly produced good (such as innovation) increases with group size does not contradict the thesis that the contribution of an individual good (such as time) decreases with group size. These claims are consistent with one another if the *marginal* contribution of each group member to the production of a joint good declines with group size—for instance, if the probability of innovation increases to a greater extent when a solo entrepreneur recruits a business partner than when two business partners recruit a third co-founder. The *functional form* of the group size effect is thus critical and is analyzed in some detail later in this chapter.

4. Implicitly, the two business strategies that would *not* be labeled as innovative using this index are ones where an entrepreneurial group believes it is important to: (a) offer their goods or services at lower prices than competitors, even in the absence of process or technology improvements for producing them; or (b) offer their goods or services at higher quality than competitors, again in the absence of process or technology improvements. Both of these strategies tend to be pursued at a lower marginal rate of return, owing to price decreases in the first case and cost increases in the second.

5. There may appear to be an inconsistency in the statistics for the novelty index and those for the first element of the innovation index ("being first to market a new product or service" is important for this business to be an effective competitor), given that the latter subset includes about three times the number of entrepreneurs. This is largely due to the different wording used to elicit the two items, with the innovation index referring to the importance of a business strategy (whether or not a given startup was able to pursue it) and the novelty index referring to the anticipated familiarity of the startup's actual product.

6. The empirical consequence of this tension is that the indices for innovation strategy and novelty have a statistically significant, though moderate, level of correlation ($r \approx 0.19$), as each subjective measure taps into a somewhat distinct aspect of innovation.

7. For an embedded theory of innovation, one of the principal issues with the conflation of innovation and success is that it becomes very difficult to disentangle the effects of information and resource flows. Thus, research on successful organizational patent introductions (e.g., Ahuja 2000) is forced to jointly consider knowledge spillover and resource sharing among firms.

8. The findings for average entrepreneurs are quite different than those for business professionals in this regard. Owing partially to a norm of "industry-hopping," for instance, the perception of innovation can be quite low among those entrepreneurs with MBA degrees and an extended amount of experience in an industry related to their startup (Ruef 2002a).

9. Knowledge developed in these communities of practice may be proprietary in several senses. Organizational routines may become sufficiently firm-specific that entrepreneurs are discouraged from disseminating them to other businesses. Alternatively, the larger number of entrepreneurs involved may contribute to more active "policing" of the routines that are developed, apart from their firm-specificity. Finally, there may be a tendency to develop more distributed, tacit routines in bigger entrepreneurial groups, which lends itself to less dissemination than declarative (verbalized) knowledge maintained by individual entrepreneurs.

10. Both functional and network diversity are calculated using the same index of qualitative variation that I apply to demographic diversity (see chapter 7, especially note 17). For network diversity, the index distinguishes among five categories of social ties within the group of business owners, identifying individuals who were (a) spouses/intimate partners; (b) kin; (c) co-workers; (d) friends or acquaintances; and (e) strangers before the startup was initiated. For functional diversity, the index distinguishes among five categories of roles, including (a) sales/marketing; (b) finance/accounting; (c) technical / R&D / engineering; (d) operations; and (e) administration or HR management.

Chapter Nine

1. Many social scientists will detect strains of the modern structure-agency debate in the early literature on the social psychology of groups. It is important, however, not to overstate the division between older perspectives that highlight interests and those that highlight interactions. For instance, in his text on social psychology, Edward Ross acknowledged the importance of explanations that hinged on both "social ascendancy" and "individual ascendancy," while questioning purely individualistic accounts (1908: chapter 1).

2. As Xu and Ruef (2004) show, these ancillary assumptions can generally be split into strategic and nonstrategic mechanisms that yield an observed risk tolerance among entrepreneurs. In strategic risk tolerance, entrepreneurs actively prefer low-probability, high-payoff outcomes. This assumption has been disputed on the basis of experiments (Brockhaus 1980), meta-analyses (Miner and Raju 2004), and investment vignettes applied in large-scale surveys of entrepreneurs (Xu and

Ruef 2004). For nonstrategic risk tolerance, entrepreneurs *appear* to prefer low-probability, high-payoff outcomes because their information on the distribution of outcomes is significantly biased (owing to self-enhancing biases, for instance). Although there is ample evidence that decision-makers tend to overestimate their own capabilities and pay insufficient attention to the risks that exist in a situation (Bazerman and Moore 2008; Kahneman and Tversky 1972), there is little to suggest that entrepreneurs are any more susceptible to such biases than the general population.

3. To some extent, the lower ranking of this scale in the PSED II seems to be an artifact of data collection, since the two component items with higher mean responses ("growth as a person" and "challenging self") were dropped after the PSED I survey.

4. Moreover, a separate analysis of career goals in a comparison group of non-entrepreneurs suggests that the differentiation of pecuniary and nonpecuniary motives is much weaker than it is among nascent entrepreneurs (Xu and Ruef 2004: 349).

5. As Boyd (2000) points out, "survivalist" entrepreneurship may be especially pronounced during economic depressions or recessions, periods when the discrimination that may be suffered by ethnic minorities is compounded by tight labor markets for all job seekers.

6. Despite the statistical significance of the F-test for gender, pairwise comparisons of scale means (conducted via a Scheffe post hoc test) do not reveal any *specific* differences in the salience that female entrepreneurs attribute to some goals rather than others. The literature on gender differences in entrepreneurial goals has also not yielded many consistent findings, beyond the general conclusion that "there appear to be significant differences in the motivations that impel women and men to pursue entrepreneurial careers" (Carter et al. 2004: 146).

7. Between waves A and B of the PSED II, we only observe fifty-seven instances where owners were dropped from a team and twenty-nine where they were added.

8. From a sampling perspective, it is also not possible to apply inverse size weighting to these statistics, since group size varies dynamically over the course of group formation (cf. appendix B).

9. One important finding not displayed in the table is that entrepreneurs who are part of numerical minorities (particularly women, blacks, and Hispanics) are significantly *less* likely to recruit business partners with the same ascriptive characteristics. This matches the intuition of Blau's (1977) structural theory, which posits that a population representing the numerical minority along some sociodemographic characteristic will be forced into greater levels of association with a population representing the numerical majority, particularly as the minority population becomes proportionately smaller.

10. In 13 percent of the cases, a startup had transitioned to the status of an operating business at the one-year follow-up. In the remainder of the sample, there were two cases where a business had been sold off to new owners and one where a key informant was no longer involved and did not know the current status of the business.

11. For a more in-depth discussion of these general processes of startup disbanding and an effort to adjudicate among them empirically, see Ruef (2002b). Since temporal heterogeneity in disbanding rates is not of primary theoretical

interest in this chapter, I treat the effect of time as a historical "nuisance" function and employ a semi-parametric (Cox) modeling strategy in all multivariate specifications.

12. The examination of the survival curves is based on conventional Kaplan-Meier estimates for the observed curves (dashed lines) and estimates from a Cox model (dark lines). The Breslow method is used to resolve tied startup termination times.

13. A semi-parametric model of business terminations assumes that the hazards accruing to different types of startups are proportional over time. Considering the observed variation in the effects of a number of variables between survey waves, statisticians may question whether this central assumption holds for entrepreneurial groups that are observed for any extended duration. Analyzing the Schoenfeld residuals from the estimates shown in table 9.6, a global test suggest that the proportional hazards assumption cannot be rejected through either the first or second year follow-up. Nevertheless, the increasing lack of proportionality in particular variables suggests that the assumption may be untenable for studies that cover longer periods.

Chapter Ten

1. Numerous content analyses have investigated the discursive framing that has accompanied the rise of an entrepreneurial ideology in the 1990s, both in the United States and elsewhere (e.g., Gadrey 2003; De Cock et al. 2005).

2. For selected media reports, see Dickson (2008), Cassidy (2008), Browning (2008), and Moules (2008). On Obama's package of financial assistance for small business, see Elliot (2009).

3. The development of an entrepreneurial ideology, which typically penetrates multiple institutional spheres (including politics, literature, and science, as well as economics), should be distinguished from the more common occurrence of a speculative bubble, which emphasizes the overvaluation of a particular product, technology, or enterprise (Kindleberger 1996). Speculative bubbles may occur in the absence of expectations that average citizens enjoy opportunities to create their own businesses, as the early example of the South Sea bubble (involving a monopolistic enterprise) demonstrates. Moreover, speculative bubbles tend to be far more narrow in the scope of industries that they infect.

4. Additional quantitative analyses were conducted to consider the association between an entrepreneurial orientation toward material well-being and all of the outcomes discussed in table 10.1. The partial correlations generally proved to be statistically insignificant and are therefore not reported in this book. One notable exception is the degree of equality in an owner team's managerial control, which was found to decline substantially (odds ratio = 0.22) when entrepreneurs had a dominant interest in their material well-being. This may reflect the tendency of some co-owners to adopt the mind-set of passive investors who are primarily interested in making money from a business enterprise and who cede responsibility for this outcome to a focal entrepreneur.

5. Considering the importance of strong tie and ecological constraint in entrepreneurial group formation, it is not at all clear that most business startup part-

nerships should, in fact, be considered to be instances of voluntary association. Still, entrepreneurs, particularly those in the United States, tend to espouse a liberal belief in an ideology of voluntary association.

6. The use of so-called natural experiments (Angrist and Krueger 2001)—in which treatment and control conditions arise from the flow of natural historical events rather than experimenter manipulation—only partially mitigate these concerns. Threats to external validity continue to arise if the events are fairly unusual for an entrepreneurial population. For instance, Lindh and Ohlsson (1996) sought to investigate the effect of liquidity constraints on individuals' decisions to become entrepreneurs. Because family assets and inheritances are often correlated with other (potentially unmeasured) entrepreneurial characteristics, they investigate whether there is a positive effect on self-employment resulting from windfall earnings for Swedish lottery winners (a purportedly random "treatment" condition). The problem with the natural experiment is that: (a) there may still be some self-selection into the treatment group, owing in this case to the distinctive risk-taking profiles of lottery and non-lottery players; and (b) the occurrence of the treatment event (e.g., winning a lottery) may produce a decision-making process that is not comparable to that observed under conventional conditions of financial liquidity (e.g., having amassed enough money to start a business through hard work or family ties). Stated another way, some natural experiments may tell us more about entrepreneurial behavior under unusual circumstances, rather than provide a suitable research design for causal inference to a broader population.

7. Establishing a clear time stamp on ownership allocation usually requires an event in which participating co-owners agree to a formal division of shares. Since many entrepreneurs eschew such agreements at an early stage—instead, favoring verbal agreements or "back of the cocktail napkin" calculations—we can only put a time stamp on ownership allocation for a relatively small number of the multi-owner firms ($N = 106$).

8. Although the lag time is substantial, the sample size of startup firms in which entrepreneurs have filed an application for the protection of a patent, trademark, or copyright is too small to permit inferences regarding time-order precedence. For investment events, it is clear that many owners have already put money into a venture when others are still being recruited as business partners. This affects the modeling strategy in chapter 7, which considers the probability that owners will contribute additional funds—*beyond those available at the stage of seed financing*—as a function of entrepreneurial group composition.

9. This section emphasizes modern forms of entrepreneurial groups from an international perspective. For a selective review of the historical evidence on entrepreneurial groups in Europe and the Far East, see Ruef (in press).

10. The "entrepreneurs" that comprise a borrowing group may themselves be entrepreneurial groups, such as non-kin partnerships or small family enterprises.

11. The Kenyan and Japanese examples are merely illustrative. RoSCAs are so ubiquitous that they have been widely documented in early work on economic anthropology. Nearly fifty years ago, Clifford Geertz (1962: 242) noted that RoSCAs could be found in a "broad band of underdeveloped or semi-developed countries stretching from Japan on the East through Southeast Asia and India to Africa on the West."

12. See Curl (2008) on the invocation of "Joe the Plumber" during the presidential

debate and Rohter (2008) on subsequent media scrutiny directed at Joe Wurzelbacher.

13. For instance, a leading trade association, the NFIB, suggests that "small businesses are creating the bulk of the new jobs in this country" and that these enterprises produce "roughly half of the private Gross Domestic Product" (Stottlemyer 2008).

14. The application of small business policy to entrepreneurs is complicated by the fact that the upper employment threshold for the definition of "small" enterprises may be as many as 500 workers (Audretsch et al. 2006).

15. In a more progressive political environment, the same conclusions would follow for mom-and-mom and pop-and-pop enterprises, assuming that the tax benefits of marriage were extended to same-sex partners. For the remainder of this discussion, I will use the term mom-and-pop business as a terminological stand-in for these other forms of family business, with the understanding that my policy conclusions are essentially identical for all of them.

16. Another reflection of the limited concern directed toward regulation is that only 43 percent of nascent entrepreneurs in the 2005–2006 survey had made an effort to determine the regulatory requirements of their businesses—with respect to operating licenses, permits, health and safety regulations, and the like—when first interviewed. Another 24 percent of respondents not only had made no inquiries into regulatory rules, but believed it would not be necessary to do so.

17. Like many local and state set-aside programs across the country, the earlier New Jersey program was stopped after the U.S. Supreme Court's decision in *City of Richmond versus Croson* (1989) questioned the constitutionality of set-asides in the absence of carefully documented discrimination against women or minorities.

18. For an early perspective that is diametrically opposed to this liberal entrepreneurial philosophy, see Eugen Schwiedland's *Zur Sociologie des Unternehmertums* (1933), a policy tract by an Austrian political economist favoring organized support for entrepreneurship under the auspices of central state authority.

Appendix A

1. Business startups sponsored by employers (sometimes referred to as "spinoffs") represent only a small proportion of new business foundings in the United States. For the late 1990s, the PSED I suggests that slightly less than 7 percent of sampled startups were sponsored by existing business. This percentage remains largely unchanged in the PSED II sample.

2. Although this data collection procedure may limit the information available on owners in larger entrepreneurial groups, less than 1 percent of the owner teams in the PSED I sample involved more than five members (Reynolds 2002, personal communication).

3. For the PSED II survey, institutional owners were addressed separately in section K ("Legal Entity Owners").

4. The PSED II survey was designed to distinguish between non-owner participants (a) who had "made a *distinctive* contribution to the founding of [a] new business"; and (b) those who had "provided significant support, advice, or guid-

ance on a *regular* basis." Although these definitions are associated with separate sections of the survey for key non-owners (section M) and helpers (section N), respectively, I could not identify a compelling theoretical or empirical reason for maintaining the distinction based on the subjective opinions of respondents (who were put in the position of intuiting what "distinctive" and "regular" meant). Consequently, these two groups of non-owners are either pooled for purposes of analysis or sorted into new roles within the entrepreneurial group, using the typology shown in table 4.1.

Appendix B

1. Many studies have employed one or more of these milestones as criteria for defining a sampling frame of entrepreneurial ventures. In the process, however, they impose a certain amount of "success bias," since organizing activities among entrepreneurial groups and solos often do not reach these milestones before disbanding (or continuing in a perpetual startup mode).

2. Note also that the estimate of heterogeneity will be sensitive to the treatment of solos. If the solos are excluded from the denominator, then the estimated rate of group heterogeneity when we sample on individuals (two in sixteen) is actually biased *downward*.

Appendix C

1. Canonical treatments of group formation can be found in the extensive literature on naturally occurring small groups. During the 1950s and 1960s, social scientists offered comparative studies of group dynamics (e.g., Homans 1950), formal models of group formation, recruitment, and turnover (Coleman and James 1961; White 1962), and empirical observations of group distributions (James 1951, 1953). These insights continue today in research on the formation and development of small groups (see Arrow et al. 2000 for one review).

2. Relational and group-level characteristics—and the restrictions imposed on them—can also be considered in generating the risk set of structural events. For instance, analyzing a set of two gender identities {M, F} and the presence or absence of a spousal/domestic partner relationship (indicated by parentheses) yields six unrestricted combinations for a dyad: MM, FF, MF, (MM), (FF), (MF).

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References

Acs, Zoltan and Catherine Armington. 2006. *Entrepreneurship, Geography, and American Economic Growth*. Cambridge: Cambridge University Press.

Aghion, Philippe and Patrick Bolton. 1992. "An Incomplete Contracts Approach to Financial Contracting." *Review of Economic Studies* 59: 473–494.

Ahuja, Gautam. 2000. "Collaboration Networks, Structural Holes, and Innovation: A Longitudinal Study." *Administrative Science Quarterly* 45: 425–455.

Ainsworth, Scott and Itai Sened. 1993. "The Role of Lobbyists: Entrepreneurs with Two Audiences." *American Journal of Political Science* 37: 834–866.

Akoten, John, Yasuyuki Sawada, and Keijiro Otsuka. 2006. "The Determinants of Credit Access and Its Impacts on Micro and Small Enterprises: The Case of Garment Producers in Kenya." *Economic Development and Cultural Change* 54: 927–944.

Alchian, Armen and Harold Demsetz. 1972. "Production, Information Costs, and Economic Organization." *American Economic Review* 62: 777–795.

Aldrich, Howard. 2007. "Keynote Address." *Cornell-McGill Conference on Institutions and Entrepreneurship*, July 23, Ithaca, NY.

Aldrich, Howard and Ted Baker. 2001. "Learning and Legitimacy: Entrepreneurial Responses to Constraints on the Emergence of New Populations and Organizations." In *The Entrepreneurial Dynamic: Origins of Entrepreneurship and the Evolution of Industries*, ed. C. B. Schoonhoven and E. Romanelli, 207–235. Stanford, CA: Stanford University Press.

Aldrich, Howard and Jennifer Cliff. 2003. "The Pervasive Effects of Family on Entrepreneurship: Toward a Family Embeddedness Perspective." *Journal of Business Venturing* 18: 573–596.

Aldrich, Howard, Amanda Elam, and Pat Ray Reese. 1996. "Strong Ties, Weak Ties, and Strangers: Do Women Business Owners Differ from Men in Their Use of Networking to Obtain Assistance?" In *Entrepreneurship in a Global Context*, ed. S. Birley and I. MacMillan, 1–25. London: Routledge.

Aldrich, Howard and C. Marlene Fiol. 1994. "Fools Rush In? The Institutional Context of Industry Creation." *Academy of Management Review* 19: 645–670.

Aldrich, Howard, Arne Kalleberg, Peter Marsden, and James Cassell. 1989. "In Pursuit of Evidence: Strategies for Locating New Businesses." *Journal of Business Venturing* 4: 367–386.

Aldrich, Howard and Amy Kenworthy. 1999. "The Accidental Entrepreneur: Campbellian Antinomies and Organizational Foundings." In *Variations in Organization Science: In Honor of Donald T. Campbell*, ed. J. Baum and B. McKelvey, 19–33. Newbury Park, CA: Sage.

Aldrich, Howard and Phillip Kim. 2007a. "A Life Course Perspective on Occupational Inheritance: Self-Employed Parents and their Children." *Research in the Sociology of Organizations* 25: 33–82.

———. 2007b. "Small Worlds, Infinite Possibilities? How Social Networks Affect Entrepreneurial Team Formation and Search." *Strategic Entrepreneurship Journal* 1: 147–165.

Aldrich, Howard and Martin Ruef. 2006. *Organizations Evolving*, 2nd ed. London: Sage.

Aldrich, Howard and Roger Waldinger. 1990. "Ethnicity and Entrepreneurship." *Annual Reviewof Sociology* 16: 111–135.

Allport, Gordon. 1954. *The Nature of Prejudice*. Reading, MA: Addison-Wesley.

Amason, Allen. 1996. "Distinguishing the Effects of Functional and Dysfunctional Conflict in Strategic Decision Making: Resolving a Paradox for Top Management Teams." *Academy of Management Journal* 39: 123–148.

Amit, Raphael and Paul Schoemaker. 1993. "Strategic Assets and Organizational Rents." *Strategic Management Journal* 14: 33–46.

Angrist, Joshua and Alan Krueger. 2001. "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments." *Journal of Economic Perspectives* 15: 69–85.

Anthony, Denise. 1997. "Microlending Institutions: Using Social Networks to Create Productive Capabilities." *International Journal of Sociology and Social Policy* 17: 156–178.

———. 2005. "Cooperation in Microcredit Borrowing Groups: Identity, Sanctions, and Reciprocity in the Production of Collective Goods." *American Sociological Review* 70: 496–515.

Anthony, Denise and Christine Horne. 2003. "Gender and Cooperation: Explaining Loan Repayment in Micro-Credit Groups." *Social Psychology Quarterly* 66: 293–302.

Arrow, Holly, Joseph McGrath, and Jennifer Berdahl. 2000. *Small Groups as Complex Systems: Formation, Coordination, Development and Adaptation*. Thousand Oaks, CA: Sage.

Arum, Richard and Walter Müller. eds. 2004. *The Reemergence of Self-Employment: A Comparative Study of Self-Employment Dynamics and Social Inequality*. Princeton, NJ: Princeton University Press.

Ástebro, Thomas and Irwin Bernhardt. 2005. "The Winner's Curse of Human Capital." *Small Business Economics* 24: 63–78.

Audia, Pino, John Freeman, and Paul Reynolds. 2006. "Organizational Foundings in Community Context: Instruments Manufacturers and their Interrelationship with Other Organizations." *Administrative Science Quarterly* 51: 381–419.

Audretsch, David, Max Keilbach, and Erik Lehmann. 2006. *Entrepreneurship and Economic Growth*. New York: Oxford University Press.

Bai, Chong-En, Zhigang Tao, and Changqi Wu. 2004. "Revenue Sharing and Control Rights in Team Production: Theories and Evidence from Joint Ventures." *RAND Journal of Economics* 35: 277–305.

Bailey, Thomas and Roger Waldinger. 1991. "Primary, Secondary, and Enclave Labor Markets: A Training System Approach." *American Sociological Review* 56: 432–445.

Baker, Ted and Reed Nelson. 2005. "Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage." *Administrative Science Quarterly* 50: 329–366.

Banham, Russ. 1997 (Nov/Dec). "Not-So-Clear Choices: Should You Export, or Manufacture Overseas." *International Business* 10: 23–25.
Barabasi, Albert-László and Réka Albert. 1999. "Emergence of Scaling in Random Networks." *Science* 286: 509–512.
Barnard, Chester. 1938. *The Functions of the Executive*. Cambridge, MA: Harvard University Press.
Barney, Jay. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17: 99–120.
Barney, Jay, Mike Wright, and Dave Ketchen. 2001. "The Resource-Based View of the Firm: Ten Years After 1991." *Journal of Management* 27: 625–641.
Baron, James and Michael Hannan. 1994. "The Impact of Economics on Contemporary Sociology." *Journal of Economic Literature* 32: 1111–1146.
Baron, James, Michael Hannan, and Diane Burton. 1999. "Building the Iron Cage: Determinants of Managerial Intensity in the Early Years of Organizations." *American Sociological Review* 64: 527–547.
Barrios, Salvador, Holger Gorg, and Eric Strobl. 2005. "The Evolution of the Firm Size Distribution and Nationality of Ownership." *Economics Bulletin* 12: 1–11.
Bazerman, Max and Don Moore. 2008. *Judgement in Managerial Decision Making*, 7th ed. New York: Wiley.
Bean, Jonathan. 2001. *Big Government and Affirmative Action: The Scandalous History of the Small Business Administration*. Lexington: University of Kentucky Press.
Beckman, Christine and Diane Burton. 2008. "Founding the Future: Path Dependence in the Evolution of Top Management Teams from Founding to IPO." *Organization Science* 19: 3–24.
Bellah, Robert, Richard Madsen, William Sullivan, Ann Swidler, and Steven Tipton. 1985. *Habits of the Heart: Individualism and Commitment in American Life*. Berkeley: University of California Press.
Bendix, Reinhardt. 1956. *Work and Authority in Industry*. New York: Wiley.
Berk, Richard. 1983. "An Introduction to Sample Selection Bias in Sociological Data." *American Sociological Review* 48: 386–398.
Bernheim, B. Douglas and Michael Whinston. 1998. "Incomplete Contracts and Strategic Ambiguity." *American Economic Review* 88: 902–932.
Besley, Timothy, Stephen Coate, and Glenn Loury. 1993. "The Economics of Rotating Savings and Credit Associations." *American Economic Review* 83: 792–810.
Bhide, Amar. 2000. *The Origin and Evolution of New Businesses*. New York: Oxford University Press.
Bhrolcháin, Maire Ní, and Tim Dyson. 2007. "On Causation in Demography: Issues and Illustrations." *Population and Development Review* 33: 1–36.
Bian, Yanjie. 1997. "Bringing Strong Ties Back In: Indirect Ties, Network Bridges, and Job Searches in China." *American Sociological Review* 62: 366–385.
Bigelow, Lyda and Nicholas Argyres. 2008. "Make-or-Buy Revisited: A Population-Wide Test of Transaction Cost Alignment." *Journal of Economic Behavior and Organization* 66: 791–807.
Blanchard, Lloyd, Bo Zhao, and John Yinger. 2005. "Do Credit Market Barriers Exist for Minority and Women Entrepreneurs?" Syracuse University, Center for Policy Research, Working Paper No. 74.

Blanchflower, David and Andrew Oswald. 1998. "What Makes an Entrepreneur?" *Journal of Labor Economics* 16: 26–60.

Blanck, Peter, ed. 1993. *Interpersonal Expectations: Theory, Research, and Applications*. New York: Cambridge University Press.

Blau, Peter. 1955. *Dynamics of Bureaucracy: A Study of Interpersonal Relations in Two Government Agencies*. Chicago: University of Chicago Press.

———. 1964. *Exchange and Power in Social Life*. New York: Wiley.

———. 1977. *Inequality and Heterogeneity*. New York: Free Press.

Boeker, Warren and Robert Wiltbank. 2005. "New Venture Evolution and Managerial Capabilities." *Organization Science* 16: 123–135.

Bolle, Friedel. 1994. "Team Selection—An Experimental Investigation." *Journal of Economic Psychology* 15: 511–536.

———. 1995. "Team Selection—Factor Pricing with Discrete and Inhomogeneous Factors." *Mathematical Social Sciences* 29: 131–150.

Bonacich, Edna. 1973. "A Theory of Middleman Minorities." *American Sociological Review* 38: 583–594.

Boone, Christophe, W. van Olffen, Arjen van Witteloostuijn, and Bert De Brabander. 2004. "The Genesis of Top Management Team Diversity: Selective Turnover among Top Management Teams in Dutch Newspaper Publishing, 1970–94." *Academy of Management Journal* 47: 633–656.

Bowers, Brent. 2008 (September 10). "Small Businesses Seek Clarity from Presidential Candidates." *New York Times* (available online at http://www.nytimes.com).

Boyd, Robert. 1991. "A Contextual Analysis of Black Self-Employment in Large Metropolitan Areas, 1970–1980." *Social Forces* 70: 409–429.

———. 2000. "Race, Labor Market Disadvantage, and Survivalist Entrepreneurship: Black Women in the Urban North During the Great Depression." *Sociological Forum* 15: 647–670.

Brewer, Marilynn. 2000. "Reducing Prejudice through Cross-Categorization: Effects of Multiple Social Identities." In *Reducing Prejudice and Discrimination*, ed. S. Oskamp, 165–183. Mahwah, NJ: Lawrence Erlbaum.

Brockhaus, Robert. 1980. "Risk Taking Propensity of Entrepreneurs." *Academy of Management Journal* 23: 509–520.

Browning, Christopher, Seth Feinberg, Danielle Wallace, and Kathleen Cagney. 2006. "Neighborhood Social Processes, Physical Conditions, and Disaster-Related Mortality: The Case of the 1995 Chicago Heat Wave." *American Sociological Review* 71: 661–678.

Browning, Lynnley. 2008 (November 13). "On Main Street, Buckling up for a Bumpy Ride." *New York Times*, 3SPG, New York.

Burt, Ronald. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.

———. 2004. "Structural Holes and Good Ideas." *American Journal of Sociology* 110: 349–399.

Business Wire. 1998 (November 23). "San Francisco Company Launches Online Specialty Toy and Game Store AREYOUGAME.COM." New York.

Cabral, Luís and José Mata. 2003. "On the Evolution of Firm Size Distribution: Facts and Theory." *American Economic Review* 93: 1075–1090.

Cagetti, Marco and Mariacristina De Nardi. 2006. "Entrepreneurship, Frictions, and Wealth." *Journal of Political Economy* 114: 835–870.

Calvo, Guillermo and Stanislaw Wellisz. 1980. "Technology, Entrepreneurs, and Firm Size." *Quarterly Journal of Economics* 95: 663–677.

Camerer, Colin. 2003. *Behavioral Game Theory: Experiments in Strategic Interaction*. Princeton, NJ: Princeton University Press.

Cameron, Colin and Pravin Trivedi. 1998. *Regression Analysis of Count Data*. Cambridge, UK: Cambridge University Press.

Cantley, Beckett. 2005. "Congress Giveth and Congress Taketh Away: The Slow Death of the SESOP." *Akron Tax Journal* 20: 59–83.

Cappelli, Peter and Peter Sherer. 1991. "The Missing Role of Context in OB: The Need for a Meso-Level Approach." *Research in Organizational Behavior* 13: 55–110.

Carland, James, Frank Hoy, William Boulton, and Jo Ann Carland. 1984. "Differentiating Entrepreneurs from Small Business Owners: A Conceptualization." *Academy of Management Review* 9: 354–359.

Carroll, Glenn. 1983. "A Stochastic Model of Organizational Mortality: Review and Reanalysis." *Social Science Research* 12: 303–329.

———. 1985. "Concentration and Specialization: Dynamics of Niche Width in Populations of Organizations." *American Journal of Sociology* 90: 1262–1283.

Carroll, Glenn and Michael Hannan. 2000. *The Demography of Corporations and Industries*. Princeton, NJ: Princeton University Press.

Carroll, Glenn and Olga Khessina. 2005. "The Ecology of Entrepreneurship." In *Handbook of Entrepreneurship Research: Disciplinary Perspectives*, ed. S. Alvarez, R. Agarwal, and O. Sorensen, 167–200. New York: Springer.

Carter, Nancy. 1994. "Reducing Barriers Between Genders: Differences in New Firm Startups," Paper Presented at the Academy of Management Meetings. Dallas, TX.

Carter, Nancy, William Gartner, and Kelly Shaver. 2004. "Career Reasons." In *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*, ed. W. Gartner, K. Shaver, N. Carter, and P. Reynolds, 142–152. Thousand Oaks, CA: Sage.

Cassidy, Mike. 2008 (November 11). "American Dream at Risk." *San Jose Mercury News*, 1,3D, San Jose.

Chandler, Alfred. 1990. *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: Harvard University Press.

Chatman, Jennifer, Jeffrey Polzer, Sigal Barsade, and Margaret Neale. 1999 "Being Different Yet Feeling Similar: The Influence of Demographic Composition and Organizational Culture on Work Processes and Outcomes." *Administrative Science Quarterly* 43: 749–780.

Chen, Chao. 1995. "New Trends in Rewards Allocation Preferences: A Sino-U.S. Comparison." *Academy of Management Journal* 38: 408–428.

Chen, Ming-Huei. 2007. "Entrepreneurial Leadership and New Ventures: Creativity in Entrepreneurial Teams." *Creativity and Innovation Management* 16: 239–249.

Chowdhury, Sanjib. 2005. "Demographic Diversity for Building an Entrepreneurial Team: Is It Important?" *Journal of Business Venturing* 20: 727–746.

Clark, Peter and James Wilson. 1961. "Incentive Systems: A Theory of Organizations." *Administrative Science Quarterly* 6: 129–166.

Coase, Ronald. 1937. "The Nature of the Firm." *Economica* 4: 386–405.

Coleman, James. 1986. "Social Theory, Social Research, and a Theory of Action." *American Journal of Sociology* 91: 1309–1335.

———. 1990. *Foundations of Social Theory*. Cambridge, MA: Harvard University Press.

Coleman, James and John James. 1961. "The Equilibrium Size Distribution of Freely-Forming Groups." *Sociometry* 24: 36–45.

Colli, Andrea. 2003. *The History of Family Business, 1850–2000*. Cambridge, UK: Cambridge University Press.

Collins, Randall. 2004. *Interaction Ritual Chains*. Princeton, NJ: Princeton University Press.

Colyvas, Jeannette and Walter Powell. 2007. "From Vulnerable to Venerated: The Institutionalization of Academic Entrepreneurship in the Life Sciences." *Research in the Sociology of Organizations* 25: 219–259.

Cook, Karen, Richard Emerson, Mary Gillmore, and Toshio Yamagishi. 1983. "The Distribution of Power in Exchange Networks: Theory and Experimental Results." *American Journal of Sociology* 89: 275–305.

Cook, Karen and Karen Hegtvedt. 1983. "Distributive Justice, Equity, and Equality." *Annual Review of Sociology* 9: 217–241.

Cooper, Arnold and Albert Bruno. 1977. "Success among High-Technology Firms" *Business Horizons* 20: 16–22.

Curl, Joseph. 2008 (October 16). "'Joe the Plumber' Stars in Final Debate." *Washington Post* (available online at http://www.washingtonpost.com).

Dalton, Melville. 1959. *Men Who Manage*. New York: Wiley.

Damanpour, Fariborz. 1992. "Organizational Size and Innovation." *Organization Studies* 13: 375–402.

David, Robert and Shin-Kap Han. 2004. "A Systematic Assessment of the Empirical Support for Transaction Cost Economics." *Strategic Management Journal* 25: 39–58.

Davidsson, Per. 2006. "Nascent Entrepreneurship: Empirical Studies and Developments." *Foundations and Trends in Entrepreneurship* 2: 1–76.

Davidsson, Per and Benson Honig. 2003. "The Role of Social and Human Capital among Nascent Entrepreneurs." *Journal of Business Venturing* 18: 301–331.

De Cock, Christian, James Fitchett, and Christina Volkmann. 2005. "Constructing the New Economy: A Discursive Perspective." *British Journal of Management* 16: 37–49.

De Vecchi, Nicolò. 1995. *Entrepreneurs, Institutions, and Economic Change: The Economic Thought of J. A. Schumpeter (1905–1925)*. Aldershot, UK: Edward Elgar.

Dekle, Robert and Koichi Hamada. 2000. "On the Development of Rotating Credit Associations in Japan." *Economic Development and Cultural Change* 49: 77–90.

Dessí, Roberta. 2005. "Start-up Finance, Monitoring, and Collusion." *RAND Journal of Economics* 36: 255–274.

Dickson, David. 2008. "Panel Declares Official Recession; Few Surprised, but Dow Drops." *Washington Times*, 1A, Washington, DC.

DiMaggio, Paul. ed. 2001. *The Twenty-First Century Firm: Changing Economic Organization in International Perspective*. Princeton, NJ: Princeton University Press.

DiMaggio, Paul and Hugh Louch. 1998. "Socially Embedded Consumer Transactions: For What Kinds of Purchases Do People Most Often Use Networks?" *American Sociological Review* 63: 619–637.

Duneier, Mitchell. 1999. *Sidewalk*. New York: Farrar, Straus and Giroux.

Durkheim, Emile. 1933. *The Division of Labor in Society*. New York: Free Press (originally published in 1893).

Eckhoff, Torstein. 1974. *Justice: Its Determinants in Social Interaction*. Rotterdam: Rotterdam Press.

Ehlers, Tracy and Karen Main. 1998. "Women and the False Promise of Microenterprise." *Gender and Society* 12: 424–440.

Eisenberg, Melvin. 1999. "The Conception that the Corporation is a Nexus of Contracts, and the Dual Nature of the Firm." *Journal of Corporation Law* 24: 819–832.

Eisenhardt, Kathleen and L. J. Bourgeois. 1988. "Politics of Strategic Decision Making in High-Velocity Environments: Toward a Midrange Theory." *Academy of Management Journal* 31: 737–770.

Eisenhardt, Kathleen and Claudia B. Schoonhoven. 1990. "Organizational Growth: Linking Founding Team, Strategy, Environment, and Growth among U.S. Semiconductor Ventures, 1978–1988." *Administrative Science Quarterly* 35: 504–529.

———. 1996. "Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms." *Organization Science* 7: 136–150.

Ekeh, Peter. 1974. *Social Exchange Theory: The Two Traditions*. Cambridge, MA: Harvard University Press.

Elliott, Philip. 2009 (March 16). "Obama Offers More Aid to Small Businesses." *Associated Press*, Washington, DC.

Emerson, Richard. 1962. "Power-Dependence Relations." *American Sociological Review* 27: 31–41.

Ensley, Michael. 1999. *Entrepreneurial Teams as Determinants of New Venture Performance*. New York: Garland.

Ensley, Michael, James Carland, and Jo Ann Carland. 2000. "Investigating the Existence of the Lead Entrepreneur." *Journal of Small Business Management* 38: 59–77.

Ensley, Michael, Jo Ann Carland, James Carland, and McRae Banks. 1999. "Exploring the Existence of Entrepreneurial Teams." *International Journal of Management* 16: 276–286.

Evans, David and Boyan Jovanovic. 1989. "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints." *Journal of Political Economy* 97: 808–827.

Farh, Jiing-Lih, Anne Tsui, Katherine Xin, and Bor-Shiuan Cheng. 1998. "The Influence of Relational Demography and Guanxi: The Chinese Case." *Organization Science* 9: 471–488.

Faris, Jack. 2005 (October 19). "Small-Business Focus: Climbing Mount Regulation." *National Federation of Independent Business* (available online at http://www.NFIB.com).

Fehr, Ernst and Herbert Gintis. 2007. "Human Motivation and Social Cooperation: Experimental and Analytical Foundations." *Annual Review of Sociology* 33: 43–64.

Feld, Scott. 1981. "The Focused Organization of Social Ties." *American Journal of Sociology* 86: 1015–1035.

Fernando, Jude. 1997. "Nongovernmental Organizations, Micro-Credit, and Empowerment of Women." *Annals of the American Academy of Political and Social Science* 554: 150–177.

Fichman, Mark and Daniel Levinthal. 1991. "Honeymoons and the Liability of Adolescence: A New Perspective on Duration Dependence in Social and Organizational Relationships." *Academy of Management Review* 16: 442–468.

Financial Times. 1999 (July 5). "Toy Story (Observer Column)." p. 13, London.

Fischer, Claude. 1982. *To Dwell among Friends: Personal Networks in Town and City*. Chicago: University of Chicago Press.

Fisek, M. Hamit, Joseph Berger, and Robert Z. Norman. 1991. "Participation in Heterogeneous Groups: A Theoretical Integration." *American Journal of Sociology* 97: 114–142.

Forbes, Daniel, Patricia Borchert, Mary Zellmer-Bruhn, and Harry Sapienza. 2006. "Entrepreneurial Team Formation: An Exploration of New Member Addition." *Entrepreneurship Theory and Practice* 30: 225–248.

Frazier, E. Franklin. 1957. *Black Bourgeoisie*. Glencoe, IL: Free Press.

Frohlich, Norman and Joe Oppenheimer. 1970. "I Get By with a Little Help from my Friends." *World Politics* 23: 104–120.

Gadrey, Jean. 2003. *New Economy, New Myth*. New York: Routledge.

Gartner, William, James Carland, Frank Hoy, and Jo Ann Carland. 1988. "'Who Is an Entrepreneur?' Is the Wrong Question." *American Journal of Small Business* 12: 11–32.

Gartner, William, Kelly Shaver, Elizabeth Gatewood, and Jerome Katz. 1994. "Finding the Entrepreneur in Entrepreneurship." *Entrepreneurship Theory and Practice* 18: 5–9.

Geertz, Clifford. 1962. "The Rotating Credit Association: A 'Middle Rung' in Development." *Economic Development and Cultural Change* 10: 241–263.

Giddens, Anthony. 1984. *The Constitution of Society*. Berkeley: University of California Press.

Gimeno, Javier, Timothy Folta, Arnold Cooper, and Carolyn Woo. 1997. "Survival of the Fittest? Entrepreneurial Human Capital and the Persistence of Underperforming Firms." *Administrative Science Quarterly* 42: 750–783.

Goffman, Erving. 1963. *Behavior in Public Places: Notes on the Social Organization of Gatherings*. Glencoe, IL: Free Press.

Goldstein, Harvey and Michael Healy. 1995. "The Graphical Presentation of a Collection of Means." *Journal of the Royal Statistical Society (Series A)* 158: 175–177.

Goodman, Leo. 1964. "Mathematical Methods for the Study of Systems of Groups." *American Journal of Sociology* 70: 170–192.

Goto, Toshio. 2006. "Longevity of Japanese Family Firms." In *Handbook of Research on Family Business*, ed. P. Poutziouris, K. Smyrnios, and S. Klein, 517–536. Northampton, MA: Edward Elgar.

Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78: 1360–1380.

———. 1983. "The Strength of Weak Ties: A Network Theory Revisited." *Sociological Theory* 1: 201–233.

———. 1984. "Small Is Bountiful: Labor Markets and Establishment Size." *American Sociological Review* 49: 323–334.

———. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91: 481–510.

———. 1995. *Getting a Job: A Study of Contacts and Careers*, 2nd ed. Chicago: University of Chicago Press.

———. 2005. "Business Groups and Social Organization." In *Handbook of Economic Sociology*, 2nd ed., ed. N. Smelser and R. Swedberg, 429–450. Princeton, NJ: Princeton University Press and Russell Sage.

Greene, William. 2003. *Econometric Analysis*, 5th ed. Upper Saddle River, NJ: Prentice Hall.

Greif, Avner. 1989. "Reputations and Coalitions in Medieval Trade: Evidence on the Maghribi Traders." *Journal of Economic History* 49: 857–882.

———. 2006. *Institutions and the Path to the Modern Economy: Lessons from Medieval Trade*. Cambridge, UK: Cambridge University Press.

Guillén, Mauro. 2000. "Business Groups in Emerging Economies: A Resource-Based View." *Academy of Management Journal* 43: 362–380.

Gurvitch, Georges. 1949. *Industrialisation et Technocratie*. Paris: Armand Colin.

Hage, J. T. 1999. "Organizational Innovation and Organizational Change." *Annual Review of Sociology* 25: 597–622.

Halaby, Charles. 2003. "Sources of Entrepreneurial and Bureaucratic Job Values." *American Sociological Review* 68: 251–278.

Hallen, Benjamin. 2008. "The Causes and Consequences of the Initial Network Positions of New Organizations: From Whom Do Entrepreneurs Receive Investments." *Administrative Science Quarterly* 53: 685–718.

Halstead, Richard. 1985 (October 7). "San Francisco Game Inventors' Job Is Murder." *San Francisco Business Journal*, 6: 1.

Hamilton, Barton. 2000. "Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment?" *Journal of Political Economy* 108: 604–631.

Hannan, Michael and John Freeman. 1977. "The Population Ecology of Organizations." *American Journal of Sociology* 82: 929–964.

———. 1984. "Structural Inertia and Organizational Change." *American Sociological Review* 49: 149–164.

Hannan, Michael and James Ranger-Moore. 1990. "The Ecology of Organizational Size Distributions: A Microsimulation Approach." *Journal of Mathematical Sociology* 15: 67–89.

Hardin, Russell. 1982. *Collective Action*. Baltimore, MD: Johns Hopkins University Press.

Hargadon, Andrew and Yellowlees Douglas. 2001. "When Innovations Meet Institutions: Edison and the Design of the Electric Light." *Administrative Science Quarterly* 46: 476–501.

Harper, David. 2008. "Towards a Theory of Entrepreneurial Teams." *Journal of Business Venturing* 23: 613–626.

Harrington, Brooke. 2008. *Pop Finance: Investment Clubs and the New Investor Populism*. Princeton, NJ: Princeton University Press.

Harris, Richard. 1983. "Pinning Down the Equity Formula." In *Equity Theory: Psychological and Sociological Perspectives*, ed. D. Messick and K. Cook, 207–242. New York: Praeger.

Hartmann, Heinz. 1959. "Managers and Entrepreneurs: A Useful Distinction?" *Administrative Science Quarterly* 3: 429–451.

Hawley, Amos. 1950. *Human Ecology*. New York: Ronald.

Heaton, John and Deborah Lucas. 2000. "Portfolio Choice and Asset Prices: The Importance of Entrepreneurial Risk." *Journal of Finance* 55: 1163–1198.

Heckathorn, Douglas and Judith Rosenstein. 2002. "Group Solidarity as the Product of Collective Action: Creation of Solidarity in a Population of Injection Drug Users." *Advances in Group Processes* 19: 37–66.

Hegtvedt, Karen. 2005. "Doing Justice to the Group: Examining the Roles of the Group in Justice Research." *Annual Review of Sociology* 31: 25–45.

Hellmann, Thomas. 1998. "The Allocation of Control Rights in Venture Capital Contracts." *RAND Journal of Economics* 29: 57–76.

Henneke, Daniel and Christian Lüthje. 2007. "Interdisciplinary Heterogeneity as a Catalyst for Product Innovativeness of Entrepreneurial Teams." *Creativity and Innovation Management* 16: 121–132.

Henrich, Joseph. 2000. "Does Culture Matter in Economic Behavior? Ultimatum Game Bargaining among the Machiguenga of the Peruvian Amazon." *American Economic Review* 90: 973–979.

Henrich, Joseph, Robert Boyd, Samuel Bowles, Colin Camerer, Ernst Fehr, and Herbert Gintis, eds. 2004. *Foundations of Human Sociality: Economic Experiments and Ethnographic Evidence from Fifteen Small-Scale Societies*. New York: Oxford University Press.

Herring, Cedric. 2009. "Does Diversity Pay?" *American Sociological Review* 74: 208–224.

Holtz-Eakin, Douglas, David Joulfaian, and Harvey Rosen. 1994. "Sticking It Out: Entrepreneurial Survival and Liquidity Constraints." *Journal of Political Economy* 102: 53–75.

Homans, George. 1950. *The Human Group*. New York: Harcourt-Brace.

———. 1961. *Social Behavior: Its Elementary Forms*. New York: Harcourt-Brace.

House, Robert, Denise Rousseau, and Melissa Thomas-Hunt. 1995. "The Meso Paradigm: A Framework for the Integration of Micro and Macro Organizational Behavior." *Research in Organizational Behavior* 17: 71–114.

Hout, Michael. 1984. "Status, Autonomy, and Training in Occupational Mobility." *American Journal of Sociology* 89: 1379–1409.

Hurst, Erik and Annamaria Lusardi. 2004. "Liquidity Constraints, Household Wealth, and Entrepreneurship." *Journal of Political Economy* 112: 319–347.

Ibarra, Herminia. 1992. "Homophily and Differential Returns: Sex Differences in Network Structure and Access in an Advertising Firm." *Administrative Science Quarterly* 37: 422–447.

———. 1993. "Network Centrality, Power, and Innovation Involvement: Determinants of Technical and Administrative Roles." *Academy of Management Journal* 36: 471–501.

———. 1997. "Paving an Alternative Route: Gender Differences in Managerial Networks." *Social Psychology Quarterly* 60: 91–102.

Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. New York: Random House.

Jacobs, Jerry and Kathleen Gerson. 2004. *The Time Divide: Work, Family, and Gender Inequality*. Cambridge, MA: Harvard University Press.

James, Harold. 2006. *Family Capitalism: Wendels, Haniels, Falcks, and the Continental European Model*. Cambridge, MA: Harvard University Press.

James, John. 1951. "A Preliminary Study of the Size Determinant in Small Group Interaction." *American Sociological Review* 16: 474–477.

———. 1953. "The Distribution of Free-Forming Small Group Size." *American Sociological Review* 18: 569–570.

Jasso, Guillermina. 1980. "A New Theory of Distributive Justice." *American Sociological Review* 45: 3–32.

———. 1983. "Fairness of Individual Rewards and Fairness of the Reward Distribution: Specifying the Inconsistency between the Micro and Macro Principles of Justice." *Social Psychology Quarterly* 46: 185–199.

Jensen, Michael and William Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3: 305–360.

Johnson, Richard and Gary Schulman. 1989. "Gender-Role Composition and Role Entrapment in Decision-Making Groups." *Gender and Society* 3: 355–372.

Kahn, Arnold, Robin Nelson, and William Gaeddert. 1980. "Sex of Subject and Sex Composition of the Group as Determinants of Reward Allocation." *Journal of Personality and Social Psychology* 38: 737–750.

Kahneman, Daniel and Amos Tversky. 1972. "Subjective Probability: A Judgement of Representativeness." *Cognitive Psychology* 3: 430–454.

Kalev, Alexandra, Frank Dobbin, and Erin Kelly. 2006. "Best Practices or Best Guesses? Assessing the Efficacy of Corporate Affirmative Action and Diversity Policies." *American Sociological Review* 71: 589–617.

Kalleberg, Arne, David Knoke, Peter Marsden, and Joe Spaeth. 1996. *Organizations in America: Analyzing their Structure and Human Resource Practices*. Thousand Oaks, CA: Sage.

Kalmijn, Matthijs. 1998. "Intermarriage and Homogamy: Causes, Patterns and Trends." *Annual Review of Sociology* 24: 395–421.

Kamm, Judith, Jeffrey Shuman, John Seeger, and Aaron Nurick. 1990. "Entrepreneurial Teams in New Venture Creation: A Research Agenda." *Entrepreneurship Theory and Practice* 14: 7–17.

Kandola, Pearn. 2006. "The Psychology of Effective Business Communication in Geographically Dispersed Teams." Research Report, Cisco Systems: http: // newsroom.cisco.com, accessed January 29, 2008.

Kanter, Rosabeth Moss. 1977. *Men and Women of the Corporation*. New York: Basic Books.

Karau, Steven and Kipling Williams. 1993. "Social Loafing: A Meta-Analytic Review and Theoretical Integration." *Journal of Personality and Social Psychology* 65: 681–706.

Katz, Jerome and William Gartner. 1988. "Properties of Emerging Organizations." *Academy of Management Review* 13: 429–441.

Khanna, Tarun and Jan Rivkin. 2001. "Estimating the Performance Effects of Business Groups in Emerging Markets." *Strategic Management Journal* 22: 45–74.

Khurana, Rakesh. 2007. *From Higher Aims to Hired Hands: The Social Transformation of American Business Schools and the Unfulfilled Promises of Management as a Profession*. Princeton, NJ: Princeton University Press.

Kihlstrom, Richard and Jean-Jacques Laffont. 1979. "A General Equilibrium Entrepreneurial Theory of New Firm Formation Based on Risk Aversion." *Journal of Political Economy* 87: 304–316.

Kim, Phillip, Howard Aldrich, and Lisa Keister. 2006. "Access (Not) Denied: The Impact of Financial, Human, and Cultural Capital on Entrepreneurial Entry in the United States." *Small Business Economics* 27: 5–22.

Kindleberger, Charles. 1996. *Manias, Panics, and Crashes: A History of Financial Crises*, 3rd ed. New York: Wiley.

Klein, Benjamin. 2000. "Fisher-General Motors and the Nature of the Firm." *Journal of Law and Economics* 43: 105–141.

Klepper, Steven and Kenneth Simons. 2000. "Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry." *Strategic Management Journal* 21: 997–1016.

Knorr-Cetina, Karin and Urs Bruegger. 2002. "Global Microstructures: The Virtual Societies of Financial Markets." *American Journal of Sociology* 107: 905–950.

Kogut, Bruce, P. Urso, and G. Walker. 2007. "Emergent Properties of a New Financial Market: American Venture Capital Syndication, 1960–2006." *Management Science* 53: 1181–1198.

Kogut, Bruce and Udo Zander. 1996. "What Firms Do? Coordination, Identity, and Learning." *Organization Science* 7: 502–523.

Kohn, Melvin, Atsushi Naoi, Carrie Schoenbach, Carmi Schooler, and Kazimierz Slomczyniski. 1990. "Position in the Class Structure and Psychological Functioning in the United States, Japan, and Poland." *American Journal of Sociology* 95: 964–1008.

Kor, Yasemin. 2003. "Experience-Based Top Management Team Competence and Sustained Growth." *Organization Science* 14: 707–719.

Kotha, Reddi and Gerry George. 2006. "Resource Contribution and the Distribution of Equity in Startups." *Best Paper Proceedings* of the Academy of Management Meetings, Atlanta, GA.

Kristof, Nicholas. 2009 (February 8). "Mistresses of the Universe." *New York Times*, WK12.

Laumann, Edward and Franz Pappi. 1976. *Networks of Collective Action: A Perspective on Community Influence Systems*. New York: Academic Press.

Lazarsfeld, Paul and Robert Merton. 1954. "Friendship as a Social Process: A Substantive and Methodological Analysis." In *Freedom and Control in Modern Society*, ed. M. Berger, T. Abel, and C. Page, 18–66. New York: Octagon Books.

Lechler, Thomas. 2001. "Social Interaction: A Determinant of Entrepreneurial Team Venture Success." *Small Business Economics* 16: 263–278.

Light, Ivan. 1972. *Ethnic Enterprise in America: Business and Welfare among Chinese, Japanese, and Blacks*. Berkeley: University of California Press.

Lindh, Thomas and Henry Ohlsson. 1996. "Self-Employment and Windfall Gains: Evidence from the Swedish Lottery." *Economic Journal* 106: 1515–1526.

Linz, Daniel, Kenneth Land, Jay Williams, Bryant Paul, and Michael Ezell. 2004. "An Examination of the Assumption that Adult Businesses are associated with Crime in Surrounding Areas: A Secondary Effects Study in Charlotte, North Carolina." *Law and Society Review* 38: 69–104.

Lippmann, Stephen, Amy Davis, and Howard Aldrich. 2005. "Entrepreneurship and Inequality." *Research in the Sociology of Work* 15: 3–31.

Lipset, Seymour Martin. 1963. *The First New Nation: The United States in Historical and Comparative Perspective*. New York: Basic Books.

Lounsbury, Michael. 2001. "Institutional Sources of Practice Variation: Staffing College and University Recycling Programs." *Administrative Science Quarterly* 46: 29–56.

Lounsbury, Michael and Mary Ann Glynn. 2001. "Cultural Entrepreneurship: Stories, Legitimacy, and the Acquisition of Resources." *Strategic Management Journal* 22: 545–564.

Macy, Michael and Andreas Flache. 1995. "Beyond Rationality in Models of Choice." *Annual Review of Sociology* 21: 73–91.

Malcomson, James. 1997. "Contracts, Hold-Up, and Labor Markets." *Journal of Economic Literature* 35: 1916–1957.

Malerba, Franco and Luigi Orsenigo. 1996. "Technological Regimes and Sectoral Patterns of Innovative Activities." *Industrial and Corporate Change* 6: 83–117.

March, James. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science* 2: 71–87.

———. 1994. *A Primer on Decision Making: How Decisions Happen*. New York: Free Press.

Marsden, Peter. 1987. "Core Discussion Networks of Americans." *American Sociological Review* 52: 122–131.

Marsden, Peter and Karen Campbell. 1984. "Measuring Tie Strength" *Social Forces* 63: 482–501.

Marshack, Kathy. 1994. "Copreneurs and Dual-Career Couples: Are They Different?" *Entrepreneurship Theory and Practice* 19: 49–69.

Marwell, Gerald and Pamela Oliver. 1993. *The Critical Mass in Collective Action: A Micro-Social Theory*. New York: Cambridge University Press.

Matlay, Harry and Paul Westhead. 2005. "Virtual Teams and the Rise of e-Entrepreneurship in Europe." *International Small Business Journal* 23: 279–302.

McDougall, William. 2003. *An Introduction to Social Psychology*. North Chelmsford, MA: Courier Dover (first published in 1908).

McPherson, J. Miller. 1982. "Hypernetwork Sampling: Duality and Differentiation among Voluntary Organizations." *Social Networks* 3: 225–249.

———. 2001. "Sampling Strategies for the Arts: A Hypernetwork Approach." *Poetics* 28: 291–306.

McPherson, J. Miller and Lynn Smith-Lovin. 1987. "Homophily in Voluntary Organizations: Status Distance and the Composition of Face-to-Face Groups." *American Sociological Review* 52: 370–379.

McPherson, J. Miller, Lynn Smith-Lovin, and Matthew Brashears. 2006. "Social Isolation in America: Changes in Core Discussion Networks over Two Decades." *American Sociological Review* 71: 353–375.

McPherson, J. Miller, Lynn Smith-Lovin, and James Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27: 415–444.

Meyer, Marshall and Xiaohui Lu. 2005. "Managing Indefinite Boundaries: The Strategy and Structure of a Chinese Business Firm." *Management and Organization Review* 1: 57–86.

Miller, Daniel and Guy Swanson. 1958. *The Changing American Parent: A Study in the Detroit Area*. New York: Wiley.

Miller, Robert. 1985 (August 27). "Creators Hope Murder Mysteries Will Yield Happy Ending." *Dallas Morning News*, 3D, Dallas.

Miner, John and Nambury Raju. 2004. "Risk Propensity Differences Between Managers and Entrepreneurs and Between Low- and High-Growth Entrepreneurs: A Reply in a More Conservative Vein." *Journal of Applied Psychology* 89: 3–13.

Moe, Terry. 1988. *The Organization of Interests: Incentives and the Internal Dynamics of Political Interest Groups*. Chicago: University of Chicago Press.

Molm, Linda, Gretchen Peterson, and Nobuyki Takahashi. 1999. "Power in Negotiated and Reciprocal Exchange." *American Sociological Review* 64: 876–890.

Morgan, James. 2004. "On Economic Sophistication." In *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*, ed. W. Gartner, K. Shaver, N. Carter, and P. Reynolds, 214–219. Thousand Oaks, CA: Sage.

Moskowitz, Tobias and Annette Vissing-Jørgensen. 2002. "The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle." *American Economic Review* 92: 745–778.

Moules, Jonathan. 2008 (November 15). "Entrepreneurs Defy the Gloom." *Financial Times*, p. 2, London.

Mouw, Ted. 2003. "Social Capital and Finding a Job: Do Contacts Matter?" *American Sociological Review* 68: 868–898.

Myers, Samuel and Tsze Chan. 1996. "Who Benefits from Minority Business Set-Asides? The Case of New Jersey." *Journal of Policy Analysis and Management* 15: 202–226.

Myers, Terence and Dorinda Descherer. 2008. *The Business Tax Answer Book*. Chicago: Kluwer (CCH).

National Federation of Independent Business. 2008 (updated July 29). "Get

Smart on Small Business: The Backbone of the U.S. Economy" (available online at http://www.NFIB.com).
Neergaard, Helle. 2005. "Networking Activities in Technology-Based Entrepreneurial Teams." *International Small Business Journal* 23: 257–278.
Nelson, R. and S. Winter. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, MA: Belknap Press.
Nenadic, Stana. 1998. "The Social Shaping of Business Behavior in the Nineteenth-Century Women's Garment Trades." *Journal of Social History* 31: 625–645.
Nownes, Anthony and Grant Neeley. 1996. "Public Interest Group Entrepreneurship and Theories of Group Mobilization." *Political Research Quarterly* 49: 119–146.
Oliver, Pamela. 1993. "Formal Models of Collective Action." *Annual Review of Sociology* 19: 271–300.
Oliver, Pamela, Gerald Marwell, and Ruy Teixeira. 1985. "A Theory of the Critical Mass. I. Interdependence, Group Heterogeneity, and the Production of Collective Action." *American Journal of Sociology* 91: 522–556.
Olson, Mancur. 1971. *The Logic of Collective Action: Public Goods and the Theory of Groups* (revised edition). New York: Schocken Books (originally published in 1965).
Owen, Margaret and Patricia Greene. 2004. "Time Use." In *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*, ed. W. Gartner, K. Shaver, N. Carter, and P. Reynolds, 104–114 Thousand Oaks, CA: Sage.
Papke, Leslie and Jeffrey Wooldridge. 1996. "Econometric Methods for Fractional Response Variables with an Application to 401K Plan Participation Rates." *Journal of Applied Econometrics* 11: 619–632.
Parker, Simon. 2004. *The Economics of Self-Employment and Entrepreneurship*. London: Cambridge University Press.
Pearlin, Leonard and Melvin Kohn. 1966. "Social Class, Occupation, and Parental Values: A Cross-National Study." *American Sociological Review* 31: 466–479.
Perrow, Charles. 1986. *Complex Organizations*, 3rd ed. New York: Scott Foresman.
Perry, Elissa, Carol Kulik, and Jing Zhou. 1999. "A Closer Look at the Effects of Subordinate-Supervisor Age Differences." *Journal of Organizational Behavior* 20: 341–357.
Perry-Smith, Jill. 2006. "Social Yet Creative: The Role of Social Relationships in Facilitating Individual Creativity." *Academy of Management Journal* 49: 85–101.
Perry-Smith, Jill and Christina Shalley. 2003. "The Social Side of Creativity: A Static and Dynamic Social Network Perspective." *Academy of Management Review* 28: 89–106.
Pfeffer, Jeffrey. 1983. "Organizational Demography." *Research in Organizational Behavior* 5: 299–357.
———. 2003. "Introduction to the Classic Edition." In *The External Control of Organizations*, J. Pfeffer and G. Salancik, xi–xxix. Stanford, CA: Stanford University Press.
Pfeffer, Jeffrey and Gerald Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper and Row.
Pitt, Mark and Shahidur Khandker. 1998. "The Impact of Group-Based Credit

Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?" *Journal of Political Economy* 106: 958–996.
Podolny, Joel. 2005. *Status Signals: A Sociological Study of Market Competition*. Princeton, NJ: Princeton University Press.
Podolny, Joel and James Baron. 1997. "Resources and Relationships: Social Networks and Mobility in the Workplace." *American Sociological Review* 62: 673–693.
Podolny, Joel and Toby Stuart. 1995. "A Role-Based Ecology of Technological Change." *American Journal of Sociology* 100: 1224–1260.
Popper, Karl. 1959. *The Logic of Scientific Discovery*. Hutchinson: London (originally published in 1934).
Portes, Alejandro, William Haller, and Luis Guarnizo. 2002. "Transnational Entrepreneurs: An Alternative Form of Immigrant Economic Adaptation." *American Sociological Review* 67: 278–298.
Portes, Alejandro and Julia Sensenbrenner. 1993. "Embeddedness and Immigration: Notes on the Social Determinants of Economic Action," *American Journal of Sociology*, 98: 1320–1350.
Portes, Alejandro and Steven Shafer. 2007. "Revisiting the Enclave Hypothesis: Miami Twenty-Five Years Later." *Research in the Sociology of Organizations* 25: 157–190.
Powell, Walter, Kenneth Koput, and Laurel Smith-Doerr. 1996. "Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology." *Administrative Science Quarterly* 41: 116–145.
PR Newswire. 2001 (March 13). "AreYouGame.Com Claims 'Last Standing Advantage' in E-Commerce Toy Wars." New York.
———. 2008 (May 30). "SBA to Launch Damage Control Campaign after Losing Federal Lawsuit." Petaluma, CA.
Pralahad, C. K. and Gary Hamel. 1990. "The Core Competence of the Organization." *Harvard Business Review* 68: 79–91.
Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
Quadrini, Vincenzo. 1999. "The Importance of Entrepreneurship for Wealth Concentration and Mobility." *Review of Income and Wealth* 45: 1–19.
Raines, J. Patrick and Charles Leathers. 2000. "Behavioral Influences of Bureaucratic Organizations and the Schumpeterian Controversy." *Journal of Socio-Economics* 29: 375–388.
Rand, Ayn. 2005. *Atlas Shrugged* (Centennial Edition). New York: Dutton (originally published in 1957).
Randall, Christina and Charles Mueller. 1995. "Extensions of Justice Theory: Justice Evaluations and Employees' Reactions in a Natural Setting." *Social Psychology Quarterly* 58: 178–194.
Rauch, James. 2001. "Business and Social Networks in International Trade." *Journal of Economic Literature* 39: 1177–1203.
Reich, Robert. 1987. "Entrepreneurship Reconsidered: The Team as Hero." *Harvard Business Review* 65: 77–83.
Renzulli, Linda, Howard Aldrich, and James Moody. 2000. "Family Matters: Gender, Networks, and Entrepreneurial Outcomes." *Social Forces* 79: 523–546.

Reskin, Barbara. 1999. "The Determinants and Consequences of Workplace Sex and Race Composition." *Annual Review of Sociology* 25: 335–361.

Reynolds, Paul. 1997. "Who Starts New Firms? Preliminary Explorations of Firms-in-Gestation." *Small Business Economics* 9: 449–462.

———. 2007. "New Firm Creation in the U.S.: A PSED I Overview." *Foundations and Trends in Entrepreneurship* 3: 1–149.

Reynolds, Paul and Richard Curtin. 2008. "Business Creation in the United States: Panel Study of Entrepreneurial Dynamics II Initial Assessment." *Foundations and Trends in Entrepreneurship* 4: 155–307.

Rindova, Violina and Charles Fombrun. 2001. "Entrepreneurial Action in the Creation of the Specialty Coffee Niche." In *The Entrepreneurial Dynamic: Origins of Entrepreneurship and the Evolution of Industries*, ed. C. B. Schoonhoven and E. Romanelli, 236–261. Stanford, CA: Stanford University Press.

Riordan, Christine. 2000. "Relational Demography within Groups: Past Developments, Contradictions, and New Directions." *Research in Personnel and Human Resources Management* 19: 131–173.

Robb, Alicia. 2002. "Entrepreneurial Performance by Women and Minorities: The Case of New Firms." *Journal of Developmental Entrepreneurship* 7: 383–397.

Roberson, Quinetta and Jason Colquitt. 2005. "Shared and Configural Justice: A Social Network Model of Justice in Teams." *Academy of Management Review* 30: 595–607.

Rogers, Everett. 2003. *Diffusion of Innovations*, 5th ed. New York: Free Press.

Rogerson, William. 1992. "Contractual Solutions to the Hold-Up Problem." *Review of Economic Studies* 59: 777–794.

Rohter, Larry. 2008 (October 17). "Real Deal on 'Joe the Plumber' Reveals New Slant." *New York Times*, A21, New York.

Ross, Edward A. 1908. *Social Psychology*. New York: Macmillan.

Ruef, Martin. 2002a. "Strong Ties, Weak Ties, and Islands: Structural and Cultural Predictors of Organizational Innovation." *Industrial and Corporate Change* 11: 427–449.

———. 2002b. "Unpacking the Liability of Aging: Toward a Socially-Embedded Account of Organizational Disbanding." *Research in the Sociology of Organizations* 19: 195–228.

———. 2002c. "A Structural Event Approach to the Analysis of Group Composition." *Social Networks* 24: 135–160.

———. 2005. "Origins of Organizations: The Entrepreneurial Process." *Research in the Sociology of Work* 15: 63–100.

———. 2009. "Economic Inequality among Entrepreneurs." *Research in the Sociology of Work* 18: 57–87.

———. In press. "Entrepreneurial Groups." In *The Historical Foundations of Entrepreneurship Research*, ed. Hans Landström and Franz Lohrke, Northampton, MA: Edward Elgar.

Ruef, Martin, Howard Aldrich, and Nancy Carter. 2003. "The Structure of Founding Teams: Homophily, Strong Ties, and Isolation among U.S. Entrepreneurs." *American Sociological Review* 68: 195–222.

Ruef, Martin, Bart Bonikowski, and Howard Aldrich. 2009. "Business Owner Demography, Human Capital, and Social Networks." In *New Firm Creation*

in the United States: Preliminary Explorations with the PSED II Data Set, ed. P. Reynolds and R. Curtin, 95–114. New York: Springer.

Ruef, Martin and Michael Lounsbury. 2007. "Introduction: The Sociology of Entrepreneurship." *Research in the Sociology of Organizations* 25: 1–29.

Sahlins, Marshall. 1965. "On the Sociology of Primitive Exchange." In *The Relevance of Models for Social Anthropology*, ed. M. Banton, 139–236. London: Tavistock.

Salisbury, Robert. 1969. "An Exchange Theory of Interest Groups." *Midwest Journal of Political Science* 13: 1–32.

Sally, David. 1995. "Conversation and Cooperation in Social Dilemmas: A Meta-Analysis of Experiments from 1958 to 1992." *Rationality and Society* 7: 58–92.

Sandberg, William. 1986. *New Venture Performance: The Role of Strategy and Industry Structure*. Lexington, MA: D.C. Heath.

Sanders, Jimy and Victor Nee. 1996. "Immigrant Self-Employment: The Family as Social Capital and the Value of Human Capital." *American Sociological Review* 61: 231–249.

Santos, Filipe. 2003. *Constructing Niches and Shaping Boundaries: Entrepreneurial Action in Nascent Fields*. Unpublished dissertation, Department of Management Science and Engineering. Stanford University, Stanford, CA.

Santos, Filipe and Kathleen Eisenhardt. 2005. "Organizational Boundaries and Theories of Organization." *Organization Science* 16: 491–508.

Sarasvathy, Saras. 2001. "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency." *Academy of Management Review* 26: 243–288.

Saxenian, AnnaLee. 2006. *The New Argonauts: Regional Advantage in a Global Economy*. Cambridge, MA: Harvard University Press.

Scally, Robert. 1998 (December 14). "Cyber Traffic Swells as Retailers Catch E-Commerce Wave." *Discount Store News*, 37: 8, 87.

Schneider, Mark and Paul Teske. 1992. "Toward a Theory of the Political Entrepreneur: Evidence from Local Government." *American Political Science Review* 86: 737–747.

Schofeld, J. W. 1995. "Review of Research on School Desegregation's Impact on Elementary and Secondary School Students." In *Handbook of Research on Multicultural Education*, ed. J. Banks and C. McGee, 597–616. New York: MacMillan.

Schoonhoven, Claudia B., Kathleen Eisenhardt, and Katherine Lyman. 1990. "Speeding Products to Market: Waiting Time to First Product Introduction in New Firms." *Administrative Science Quarterly* 35: 177–207.

Schumpeter, Joseph. 1934. *The Theory of Economic Development*. Cambridge, MA: Harvard University Press (originally published in 1911).

———. 1942. *Capitalism, Socialism and Democracy*. New York: Harper and Row.

Schwiedland, Eugen. 1933. *Zur Sociologie des Unternehmertums*. Leipzig, Germany: C.L. Hirschfeld Verlag.

Scott, W. Richard and Gerald Davis. 2006. *Organizations and Organizing: Rational, Natural, and Open Systems Perspectives*. Upper Saddle River, NJ: Prentice-Hall.

Selznick, Philip. 1957. *Leadership in Administration: A Sociological Interpretation*. Evanston, IL: Row.

Shane, Scott. 2008. *The Illusions of Entrepreneurship*. New Haven, CT: Yale University Press.

Shaw, Eleanor and Sara Carter. 2007. "Social Entrepreneurship: Theoretical Antecedents and Empirical Analysis of Entrepreneurial Processes and Outcomes." *Journal of Small Business and Enterprise Development* 14: 418–434.

Shelanski, Howard and Peter Klein. 1995. "Empirical Research in Transaction Cost Economics: A Review and Assessment." *Journal of Law, Economics, and Organization* 11: 335–361.

Shepherd, Dean. 1999. "Venture Capitalists' Assessment of New Venture Survival." *Management Science* 45: 621–632.

Sherstyuk, Katerina. 1999. "Team Selection with Asymmetric Agents." *Journal of Economic Behavior and Organization* 38: 421–452.

Siegel, Jordan, Amir Licht, and Shalom Schwartz. 2007. "Egalitarianism, Cultural Distance, and FDI: A New Approach." Paper Presented at the Cornell-McGill Conference on *Institutions and Entrepreneurship*, July 23, Ithaca, NY.

Silver, Allan. 1990. "Friendship in Commercial Society: Eighteenth-Century Social Theory and Modern Sociology." *American Journal of Sociology* 6: 1474–1504.

Simmel, Georg. 1902. "The Number of Members as Determining the Sociological Form of the Group, II." *American Journal of Sociology* 8: 158–196 (translated by Albion Small).

———. 1950. "The Stranger." In *The Sociology of Georg Simmel*, trans. K. Wolff, 402–408. Glencoe, IL: Free Press.

Simon, Herbert. 1964. "On the Concept of Organizational Goal." *Administrative Science Quarterly* 9: 1–22.

Simon, Herbert and Charles Bonini. 1958. "On the Size Distribution of Business Firms." *American Economic Review* 48: 607–617.

Sobel, Russell and Andrea Dean. 2008. "Has Wal-Mart Buried Mom and Pop? Does Small Business Decline when Wal-Mart Enters the Market?" *Economic Inquiry* 46: 676–695.

Sørensen, Jesper and Toby Stuart. 2000. "Aging, Obsolescence, and Organizational Innovation." *Administrative Science Quarterly* 45: 81–112.

Sorenson, Olav and Pino Audia. 2000. "The Social Structure of Entrepreneurial Activity: Geographic Concentration of Footwear Production in the United States, 1940–1989." *American Journal of Sociology* 106: 424–462.

Spener, David and Frank Bean. 1999. "Self-Employment Concentration and Earnings among Mexican Immigrants in the U.S." *Social Forces* 77: 1021–1047.

Spitzer, Joshua and Patrick Arippol. 2006 (December 1). "Growing Up with University Games: 20 Years and Still Playing." Case Study E-210, Stanford Graduate School of Business.

Stanford Business. 2000 (May). "Playing and Winning the Dot-Com Game" (available online at http://www.gsb.stanford.edu/community/bmag/sbsm0005/newsmakers.html).

———. 2004 (February). "Creative Solutions" (available online at http://www.gsb.stanford.edu/news/bmag/sbsm0402/newsmakers.shtml).

Sternberg, Rolf and Sander Wennekers. 2005. "Determinants and Effects of New Business Creation Using Global Entrepreneurship Monitor Data." *Small Business Economics* 24: 193–203.

Stewman, Shelby. 1988. "Organizational Demography." *Annual Review of Sociology* 14: 173–202.
Stinchcombe, Arthur. 1965. "Social Structure and Organizations." In *Handbook of Organizations*, ed. J. March, 142–193. Chicago: Rand McNally.
———. 1983. *Economic Sociology*. New York: Academic Press.
———. 2001. *When Formality Works: Authority and Abstraction in Law and Organizations*. Chicago: University of Chicago Press.
Stottlemyer, Todd. 2008 (February 4). "Why Helping Small Business Helps the Country." *National Federation of Independent Business* (available online at http://www.NFIB.com).
Strang, David and Sarah Soule. 1998. "Diffusion in Organizations and Social Movements: From Hybrid Corn to Poison Pills." *Annual Review of Sociology* 24: 265–290.
Stuart, Toby and Olav Sorenson. 2003. "Liquidity Events and the Geographic Distribution of Entrepreneurial Activity." *Administrative Science Quarterly* 48: 175–201.
Sundbo, Jon. 1998. *The Theory of Innovation: Entrepreneurs, Technology and Strategy*. Northampton, MA: Edward Elgar.
Sutton, John. 1997. "Gibrat's Legacy." *Journal of Economic Literature* 35: 40–59.
Swedberg, Richard. 2005. *The Max Weber Dictionary: Key Words and Central Concepts*. Stanford, CA: Stanford University Press.
Theil, Henri. 1967. *Economics and Information Theory*. Amsterdam: North-Holland.
Thibaut, John and Harold Kelley. 1959. *The Social Psychology of Groups*. New York: John Wiley.
Thompson, James D. 1967. *Organizations in Action*. New York: McGraw-Hill.
Timmons, Jeffry. 1975. "The Entrepreneurial Team: An American Dream or Nightmare?" *Journal of Small Business Management* 13: 33–38.
———. 1979. "Careful Self-Analysis and Team Assessment Can Aid Entrepreneurs." *Harvard Business Review* 57: 198.
Tirole, Jean. 1986. "Procurement and Renegotiation." *Journal of Political Economy* 94: 235–259.
Tocqueville, Alexis de. 2003. *Democracy in America*. New York: Penguin (first published in 1835 and 1840).
Tomaskovic-Devey, Donald, Catherine Zimmer, Kevin Stainback, Corre Robinson, Tiffany Taylor, and Tricia McTague. 2006. "Documenting Desegregation: Segregation in American Workplaces by Race, Ethnicity, and Sex, 1966–2003." *American Sociological Review* 71: 565–588.
Tsui, Anne and Barbara Gutek. 1999. *Demographic Differences in Organizations: Current Research and Future Directions*. Lanham, MD: Lexington Books.
Tsui, Anne and Charles O'Reilly. 1989. "Beyond Simple Demographic Effects: The Importance of Relational Demography in Superior-Subordinate Dyads." *Academy of Management Journal* 32: 402–423.
Twain, Mark and Charles Warner. 1873. *The Gilded Age: A Tale of Today*. Hartford, CT: American Publishing.
Tzeng, Meei-Shenn. 1992. "The Effects of Socioeconomic Heterogamy and

Changes on Marital Dissolution for First Marriages." *Journal of Marriage and the Family* 54: 609–619.

Ucbasaran, Deniz, Andy Lockett, Mike Wright, and Paul Westhead. 2003. "Entrepreneurial Founder Teams: Factors Associated with Member Entry and Exit." *Entrepreneurship Theory and Practice* 28: 107–127.

U.S. Department of Commerce. 2009. *Statistical Abstract of the United States: The National Data Book*. Washington, DC: U.S. Government Printing Office.

U.S. Small Business Administration, Office of Advocacy. 2009. "Firm Size Data, Statistics for U.S. Businesses and Nonemployer Statistics.," http: //www.sba.gov/advo/research/data.html.

Uzzi, Brian. 1999. "Social Relations and Networks in the Making of Financial Capital." *American Sociological Review* 64: 481–505.

Uzzi, Brian and Jarrett Spiro. 2005. "Collaboration and Creativity: The Small World Problem." *American Journal of Sociology* 111: 447–504.

Vanaelst, Iris, Bart Clarysse, Mike Wright, Andy Lockett, Nathalie Moray, and Rosette S'Jegers. 2006. "Entrepreneurial Team Development in Academic Spinouts: An Examination of Team Heterogeneity." *Entrepreneurship Theory and Practice* 30: 249–271.

Vyakarnam, Shailendra and Jari Handelberg. 2005. "Four Themes of the Impact of Management Teams on Organizational Performance: Implications for Future Research of Entrepreneurial Teams." *International Small Business Journal* 23: 236–256.

Wall Street Journal. 1999a (May 13). "Toys 'R' Us Inc." New York.

———. 1999b (July 6). "Toys 'R' Us Says Moog, Intended CEO of Online Unit, Won't Be Joining Firm." New York.

Walsh, James P. 1995. "Managerial and Organizational Cognition: Notes from a Trip Down Memory Lane." *Organization Science* 6: 280–321.

Wasserman, Noam and Matt Marx. 2008. "Split Decisions: How Social and Economic Choices Affect the Stability of Founding Teams." Working Paper, Harvard Business School.

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge, UK: Cambridge University Press.

Watson, Warren, Kamalesh Kumar, and Larry Michaelsen. 1993. "Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups." *Academy of Management Journal* 36: 590–602.

Watts, Duncan. 2004. "The 'New' Science of Networks." *Annual Review of Sociology* 30: 243–270.

Weber, Max. 1930. *The Protestant Ethic and the Spirit of Capitalism*. London: Routledge (translated by T. Parsons, originally published in 1904–1905. reprinted in 1992).

———. 1968. *Economy and Society: An Outline of Interpretive Sociology*. Berkeley: University of California Press (edited by G. Roth and C. Wittich).

———. 2003. *The History of Commercial Partnerships in the Middle Ages*. Lanham, MD: Rowman and Littlefield (translated by L. Kaelber, originally published in 1889).

Wernerfelt, Birger. 1984. "A Resource-Based View of the Firm." *Strategic Management Journal* 5: 171–180.
White, Harrison. 1962. "Chance Models of Systems of Casual Groups." *Sociometry* 25: 153–172.
———. 1992. *Identity and Control: A Structural Theory of Social Action*. Princeton, NJ: Princeton University Press.
Willer, Robb. 2009. "Groups Reward Individual Sacrifice: The Status Solution to the Collective Action Problem." *American Sociological Review* 74: 23–43.
Williams, Katherine and Charles O'Reilly. 1998. "Demography and Diversity in Organizations: A Review of 40 Years of Research." *Research in Organizational Behavior* 20: 77–140.
Williamson, Oliver. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.
———. 1981. "The Economics of Organization: The Transaction Cost Approach." *American Journal of Sociology* 87: 548–577.
———. 1985. *The Economic Institutions of Capitalism: Firms, Markets, and Relational Contracting*. New York: Free Press.
———. 1991. "Comparative Economic Organization: The Analysis of Discrete Structural Alternatives." *Administrative Science Quarterly* 36: 269–296.
———. 1993. "Calculativeness, Trust, and Economic Organization." *Journal of Law and Economics* 36: 453–486.
———. 1998. "The Institutions of Governance." *American Economic Review* 88: 75–79.
Woolley, Frances and Judith Marshall. 1994. "Measuring Inequality within the Household." *Review of Income and Wealth* 40: 415–431.
Wright, Erik Olin. 1997. *Class Counts: Comparative Studies in Class Analysis*. New York: Cambridge University Press.
Xu, Hongwei and Martin Ruef. 2004. "The Myth of the Risk-Tolerant Entrepreneur." *Strategic Organization* 2: 331–355.
———. 2007. "Boundary Formation in Emergent Organizations." *Research in the Sociology of Organizations* 25: 125–153.
Yakubovich, Valery and Stanislav Shekshnia. 2008. "The Formal Structure of Informal Networks: A Case of the Russian Corporate Bureaucracy." Working Paper, Wharton School of Business, University of Pennsylvania.
Zelizer, Viviana. 1994. *The Social Meaning of Money*. New York: Basic Books.

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