You are Only as Strong as Your Weakest Link: Founder and Community Social Capital and Start-Up Survival

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Abstract Social capital is important for organizational performance, but it can be a challenge for new firms to establish exchange relationships. While studies have focused on individual/firm-level social ties and network effects on firm survival or performance, less attention has been given to the role of social capital within the community. We theorize that individual and firm social ties are related to community social capital, which fosters varying levels of business opportunities. These relationships and business opportunities influence start-up survival. We test our hypotheses for a longitudinal cohort of new start-ups using Kauffman Firm Survey data merged with Rupasingha et al. (2006)'s regional measures of community social capital. Our baseline model finds that a founder's weak tie relationships—not strong ties—are associated with higher odds of start-up survival. Furthermore, we find that community-level social capital increases survival odds, particularly for founders who receive funding from weak-tie networks. Our study furthers our

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understanding of how community-level social engagement shapes individuals' social networks and firm survival odds through increased possibilities for exchange relationships.

Plain English Summary Social capital describes the social interactions that become valuable, durable exchange relationships. Weak tie-relationships that extend networks increase the chances for survival compared to the strong ties of close friends and family. Importantly, our study finds that higher community-level social capital enhances a founder's weak tie-survival relationship. From a policy perspective, our findings highlight that greater community involvement leads to higher trust relationships and increases opportunities for financial backing and partnership business ties. Community-level social capital has implications for regional entrepreneurship by helping entrepreneurs to identify funding partners and relationships with buyers and suppliers.

Keywords: entrepreneurship \cdot community \cdot social capital \cdot social networking \cdot start-ups \cdot strong ties \cdot weak ties

JEL Classifications: D71, L25, L26, M13

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1. **INTRODUCTION**

Organizational research has featured social capital as a pivotal determinant of start-up formation and survival (Stinchcombe 1965). By acquiring knowledge and relationships from external networks, social capital facilitates access to new suppliers, customers, and resources that improve processes leading to innovation and firm growth (Adler and Kwon 2002; Boudreaux and Nikolaev 2019; Brüderl and Preisendörfer 1998; De Clercq et al. 2013; Florin et al. 2003; Pennings et al. 1998), entrepreneurial funding (Alexy et al. 2012) and entrepreneurial performance (Santarelli and Tran 2013). Empirical research on social capital stresses the analysis at the individual level, emphasizing personal networks' role in facilitating entrepreneurship (Boudreaux et al. 2021; Hoang and Antoncic 2003; Kim and Aldrich 2005; Ruef 2010).

However, an emphasis on the individual level overlooks the importance of local, geographic, and social patterns that foster individual and organizational level social exchange. This oversight suggests we need a broader understanding of social capital, including the meso level of communities or regions boosting varying levels of social connections (Kim et al. 2016). De Tocqueville (1835) is perhaps the most noted writer contrasting European and U.S. involvement in community social associations, which he considered a vital ingredient for differences in entrepreneurial activity. Putnam's (2001) stated "boat model" recognizes the interaction of individual and community-level social networks as sources of trust and support enhancing entrepreneurs' resources. More recently, studies have found that entrepreneurial activity varies considerably by state and sub-geographic regions in the U.S. (Obschonka et al. 2020). Thus, it is important to consider the *social context* to explain why entry and exit rates vary by communities and regions beyond individual-level social network mechanisms (Fairlie 2010; Kwon et al. 2013).

Despite the growing concurrent literature in economic geography (Fairlie 2010) and entrepreneurial ecosystems (Wurth et al. 2022) exploring contextual factors that foster entrepreneurship, few studies have incorporated community-level social capital's effects on entrepreneurship. Although studies have examined the link between community-level social capital and entrepreneurship (Bauernschuster et al. 2010; Kwon et al. 2013) and social capital and entrepreneurial crowdfunding (Giudici et al. 2018), these studies do not address the interplay of community social interactions with individual social networks. This gap calls for studies examining the institutional context for social capital (Cooke and Wills 1999; Gedajlovic et al., 2013; Hitt and Duane 2002). What remains to be clarified is the degree to which community-level social capital enhances individual-level social ties in the context of start-up firms where key relationships influence survival chances. Stated differently, how does community social capital effect the survival rates of new firms, and does community-level social capital have differing survival effects on firm founders' strong or weak tie networks?

The purpose of our paper is to examine how the interrelation between community and individual-level social capital influences start-up survival rates. We introduce two hypotheses: First, our baseline hypothesis is that weak ties increase survival odds more than strong ties. Our second hypothesis is that community-level social capital enhances the effects of founder-level social capital on start-up survival—particularly for weak ties. We test our hypotheses using a longitudinal cohort of start-ups from the Kauffman Firm Survey (Ballou et al. 2008), and merge this with data from the U.S. Census and Rupasingha et al. (2006)'s multi-item-social-capital-measure drawn from multiple sources at the county level.

Our study contributes to the literature on social capital and entrepreneurship in several ways. First, our study examines start-up survival rates as a function of social capital in both the

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individual and community. Although studies have investigated the relationship between social capital and entrepreneurship, they have focused on only one level of analysis, particularly the individual level (Adler and Kwon 2002; Brüderl and Preisendörfer 1998; Florin et al. 2003; Pennings et al. 1998). We find that community-level social capital moderates the positive effect of a founder's weak ties on start-up survival. As such, the community fosters social connections and ties that help fledgling start-ups survive.

Second, we address the criticism that social capital theory has failed to connect theory with outcomes (Anderson 2008; Lin 2001). Our study responds to this "looseness and precision of how constructs are conceived and operationalized" (Gedajlovic et al. 2013, p. 457) by connecting measures of social capital at the individual and community-level and considering their interactive effects on start-up survival from a needed "meso level" perspective (Kim et al. 2016; Payne et al. 2011). By drawing on community-level social capital measures in economics and sociology (Guiso et al. 2004; Knack and Keefer 1997; Rupasingha et al. 2006), we highlight the broader social context of entrepreneurship.

Third, our findings reveal social capital's heterogenous effects—weak ties are associated with higher start-up survival odds, not strong ties. Lastly, our paper offers several policy implications. Because community social capital helps founders leverage their weak-tie relationships, policymakers might consider strengthening community-level norms and associations to promote such interactions. Policymakers might also encourage weak-tie rather than strong-tie relationships within the community.

2. THEORY AND HYPOTHESES

2.1 Individual social ties and firm survival

Social capital is the networking of individuals with different capabilities to pursue shared interests (Anderson and Jack 2002). Network theory offers a specified approach and empirical measure of dyadic relationships. These social networks provide a competitive advantage (Nahapiet and Ghoshal 1998) by providing access to knowledge and financial and physical resources (Helena Yli-Renko et al. 2001). Increased social connections offer better opportunities for individuals embedded in social situations, including new partnerships with suppliers and customers (Jack and Anderson 2002; Kim and Aldrich 2005). Several literatures like entrepreneurial ecosystems (Neumeyer et al. 2019; Pittz et al. 2021; Theodoraki et al. 2013), group entrepreneurship (Garud and Karnøe 2003), and business incubators (Amezcua et al. 2013) discuss the importance of social ties to entrepreneurship. An environment fostering social connections entails better lending practices, increased resource availability (Colombo et al. 2015; Florin et al. 2003), performance (Bosma et al. 2004; Greve and Salaff 2003, 2003; Honig 1998), and firm survival (Brüderl et al. 1992; Pennings et al. 1998).

Social network theory differentiates close relationships between friends and family (strong ties) and broader relationships (weak ties). Weak ties facilitate business success through greater exposure to new knowledge and resources for products, organizational structure, and enhancing supplier and customer relationships (Granovetter 1973, 1983). By developing external connections, social capital enables entrepreneurs to exploit potentially lucrative opportunities (De Carolis and Saparito 2006). Compared to strong-tie relationships, weak-tie relationships require less maintenance and expand social networks to catalyze new opportunities for the new venture. The firm's knowledge base and international growth benefit significantly by fostering social capital

within the start-up and external relationships (Yli-Renko et al. 2002). Firms acquire external knowledge through formal and external relationships (Anand et al. 2002). This external knowledge increases survival rates by improving collaborations and resource access. (Watson 2007). However, to maximize partner cooperation, firms must develop a trust-based relationship (Ireland et al. 2002). Social capital also encourages relational and resource embeddedness (e.g., financial resources, reputation, decision-making power, and social connections), which affects firms' revenue and profit margins (Batjargal 2003).

In contrast to weak ties, strong tie formation is between individuals with close relationships like friends and family members (Granovetter 1973, 1983). Strong ties indicate more frequent interactions and greater shared knowledge and resources. Despite the benefits to strong-tie relationships, like greater trust and reciprocity, the common social network reduces the benefit of these relationships (Granovetter 1983). Strong ties also require more maintenance than weak ties. This suggests a trade-off between the size and scope of social network formation. Although the relationship quality increases as entrepreneurs invest in strong-tie formation, it comes at the expense of social network size—it will be smaller with fewer potential investors or collaborators. For these reasons, we present the following hypothesis:

Hypothesis 1: There is a positive association of (a) weak ties and (b) strong ties with start-up survival rates.

2.2. Community-level social capital, individual social ties, and start-up survival

Although investments in weak ties relative to strong ties are likely to increase the odds of start-up survival, there are several reasons to believe the community social context moderates this individual level relationship. First, social capital benefits the individual and others in the community. Studies have found that individuals are more likely to be self-employed in

communities with more social trust and greater association participation (Kwon et al. 2013). Second, social capital is a community characteristic that "facilitates or inhibits the kind of innovative, risk-taking behavior that is part and parcel of entrepreneurship" (Westlund and Bolton 2003, p. 79). Because the cultural environment is an integral component of entrepreneurship (Autio et al. 2013), social capital's effect likely depends on the underlying social norms within these communities. For instance, studies of the Alutiiq people in Alaska suggest that social capital positively influences entrepreneurship but only if the community provides supportive cultural capital (Light and Dana 2013). Hence, communities have greater entrepreneurship rates (De Carolis and Saparito 2006).

What are community-level social capital factors? Economic sociologists have used civic activity (e.g., participation in service organizations, sports leagues, churches, and youth organizations) to measure greater community interaction that fosters interpersonal networks (Rupasingha et al. 2006). As the size of voluntary civic organizations increases, opportunities increase for individuals to network with other members (i.e., weak ties) (Granovetter 1973, 1983).

An important result of civic engagement is the increase in "social trust"—or the perceived trustworthiness of the average citizen. (Fukuyama 1995, p. 153) notes, "trust arises when a community shares a set of moral values in such a way as to create regular expectations of regular and honest behavior." Perceived trust is more likely among members of civic associations despite limited personal interactions due to the shared interest in the civic group goals and values. Kwon et al. (2013, p. 982) suggest that "the role social trust plays in self-employment and business formation is crucial at the community-level of analysis for two reasons: (1) it encourages the free

flow of information between social groups, and (2) it helps small entrepreneurs overcome a lack of recognizability and well-defined reputation."

While entrepreneurs may possess similar amounts of social capital compared to nonentrepreneurs, they often use social ties more efficiently to develop relational capital (Liao and Welsch 2005). Benefits may include greater access to lending sources (Karlan and Zinman 2011) and increased interactions with others who can provide expert advice and ideas for the business (Watson 2007). As a result, high community engagement in civic activity should facilitate weak tie formation's effectiveness, and the strength of weak ties (Granovetter 1973, 1983). As such, weak ties expand social networks to resource funding, supply purchasing, customer development, employees, and increased visibility, which are vital to start-ups' survival.

Although we propose that community social capital positively moderates a founder's weak ties, community social capital is less likely to have the same effect on strong tie networks. Strong ties occur between family members or close friends. Importantly, greater community involvement does not foster these relationships. A high dependency on strong ties in the community is associated with less community engagement in civic organizations, as Fukuyama (1995) has documented in family-dominated societies. Close social ties help maintain trust limiting the potential number and value of interactions with other community members. As a result, the reduced interactions decrease knowledge, lower innovation, and minimize potential suppliers and markets. Because strong ties develop trusted close relationships that do not require general social trust or engagement with new members, community social capital will affect strong ties less. For these reasons, we propose the following hypothesis:

Hypothesis 2: *Community-level social capital will positively moderate (a) the weak tie–survival rate and (b) strong tie-survival rate relationships*

3. METHODS

3.1 Sample and data description

To test our hypotheses, we merge data from several sources. Individual and organizationlevel data are from the proprietary Kauffman Firm Survey (KFS) (Ballou et al. 2008). The survey used a multi-mode design, including a web survey and computer-assisted telephone interviewing follow-up. The sample consists of newly created start-ups in 2004 with annual follow-up through 2011². The baseline survey response rate was 43 percent, with a follow-up response rate of over 80 percent (Boudreaux 2020, 2021). This data allows us to observe start-up survival because researchers can quickly ascertain when and how the start-ups went out of business. *U.S. Census Bureau* data provided average per capita personal income data at the county level. We collected industry competition at the three-digit NAICS level from the *U.S. County Business Patterns*.

We gathered community social capital data from a unique social capital measure developed by Rupasingha et al. (2006). The community-level social capital measure from Rupasingha et al. (2006) is the most comprehensive measure at the county level and is used widely in different disciplines (Chetty et al. 2014; Jha and Chen 2015; Jha and Cox 2015; Putnam 2007). The community social capital measure consists of four dimensions and one aggregated social capital score at the U.S. County level and is compiled from data for the years 1990, 1997, 2005, and 2009³. The authors identify two network density dimensions reflecting community connectedness and two altruistic norm dimensions reflecting behaviors towards others in the community. They then conduct a principal component analysis to construct an index for each county and consider the first component as a measure of the social capital index.

² To match community social capital data, we only used Kauffman data from 2004 to 2009.

³ https://aese.psu.edu/nercrd/community/social-capital-resources/social-capital-variables-for-1997-2005-2009

To match Kauffman firm data with periodic social capital measures, we assume a linear year-to-year change interpolating the community social measures for years between 1990 to 1997, 1998 to 2004, and 2006 to 2009, following the approach of Hilary and Hui (2009). Because the Kauffman Firm Survey data ranges from 2004 until 2011 and the social capital measure is available from 1990 until 2009, we merged the data for the overlapping years 2004 to 2009.

INSERT FIGURE 1 ABOUT HERE

Figure 1 presents a U.S. County map and the variation in community social capital for the year 2005 as an example. The Midwest and Northeast contain many counties with high social capital. The correlation between the social capital index of 1990 and 2009 is 0.72, suggesting social capital is "sticky" over time (Anheier et al. 1995). The highest and lowest community social capital counties have small populations suggesting either social isolation and little engagement on the low end or involvement by necessity on the high end of the community social capital spectrum.

Table 1 provides the summary statistics and correlation matrix. Small businesses comprise all 50 states. California, Texas, and Michigan have the largest presence in the KFS, with 9.85, 7.41, and 5.85 percent of observations, respectively, while 23 states each comprise less than 1 percent of all observations. 41% of all businesses list their home as their primary location and 92% of owners are incorporated as either an LLC, S-corporation, or C-corporation. The mean owner in the data sample has 12 years of experience and is 48 years old. In addition, 87% of owners are white, and 71% are male. While 63% of start-ups claim a competitive advantage in at least one area, only 25% of organizations have intellectual property. Firms have a mean of five employees, and 57% earn a profit.

INSERT TABLE 2 ABOUT HERE

3.2 Measures

3.2.1 Dependent variable. Our dependent variable is *start-up survival.* It is coded 1 in the year they exit (if at all) and 0 otherwise. Start-ups report several reasons for the exit, including (1) a sale, (2) a merger, (3) a temporary exit, and (4) going out of business. Because not all organizational exits indicate failure (e.g., a sale or merger), we only consider organizational exit when the start-up goes out of business.

3.2.2 Community social capital measures. Our key independent variable is community social capital. Following Woolcock (2001), social capital is the norms and community networks that facilitate collective action where "the formation of groups and other forms of civic activity or collective action is at the heart of this definition" (Rupasingha et al. 2006, p. 84). Consistent with this definition, community social capital consists of two measures of norms and two measures of networks. Two items measure the norms dimension: voter turnout in the presidential election and the census response rate. Communities with higher participation in voluntary civic responsibilities tend to connect with community members in other areas of community life. The two measures for community networks are social and civic associations. Social associations include physical fitness facilities, public golf courses, religious organizations, sports clubs, managers and promoters, political organizations, professional organizations, business associations, and labor organizations in the county. Civic associations are the number of non-government organizations (NGOs) that excludes NGOs with an international focus. The county population normalizes both measures to adjust for size. Rupasingha et al. (2006) used principal component analysis to create an overall measure of social capital using the first component for these four dimensions. These social capital

measures and separate dimensions have examined government quality, demographic differences, and religion (Alesina and La Ferrara 2000; Hopkins 2011).

3.2.3. Firm-level social capital measures. While social capital was initially used to describe relational resources embedded in community networks (Jacobs 1964), it has also been used to study relationships within and between organizations. Social capital facilitates acquiring and exploiting valuable knowledge and financial resources (Colombo et al. 2015; Helena Yli-Renko et al. 2001). In young firms, relational resources frequently depend on the entrepreneurial founder's social connectedness. We include two aspects of social capital: *weak* and *strong ties* (Granovetter 1973, 1983; Hmieleski et al. 2015). *Weak ties* are the number of informal connections or associations for funding sources from either loans or equity (such as banks, other businesses, and the government). *Strong ties* are the number of family, friends, and close social contacts who invested in the business through loans or equity. While weak ties are more valuable than strong ties in acquiring new knowledge (Granovetter 1983), start-ups are more likely to obtain financial resources from strong ties due to information asymmetries (Shane and Cable 2002).

3.2.4. Control variables. We include several controls for organizational founders. Education is often a proxy for human capital, with the owner's years of formal higher education. Work experience is the number of years in the labor force of the owner. We also include the Age of the owner. These continuous variables are included to capture the degree of experience and the tacit knowledge of the organization owner. When owners are experienced, older, and more educated, they can better leverage their skills and experience and access social networks to increase start-up survival odds (Shane 2008). We also include characteristics of gender and race. Gender is 1 if male and 0 if female. Female-owned businesses have lower survival rates than male-owned businesses due to less start-up capital, social networks, and work experience (Fairlie and Robb 2009).

Similarly, other studies found differences in funding sources and outcomes based on race and ethnicity (Fairlie et al. 2022; Fairlie and Robb 2007). *Race* is 1 if Caucasian and 0 otherwise.

We also include controls at the organizational level. Home Based is 1 for owners who base their business at home and 0 otherwise. Sole Proprietorship is 1 for companies organized as a sole proprietorship and 0 otherwise. For instance, Robb and Robinson (2014) find that homebased businesses are more likely to rely on owner financing rather than from outside lending sources more commonly used by partnerships, corporations, and LLCs. These organizations may also differ in their social networks leading to a variance in the liability of newness (Stinchcombe 1965). Following previous work on the KFS (Boudreaux 2021; Coleman and Robb 2009), we include a measure of *Competitive Advantage*, coded 1 if the surveyed owner or manager claims at least one source of competitive advantage and 0 otherwise. Respondents listed the reasons for their source of competitive advantage: cost, design, expertise, marketing, price, reputation, and speed. Have IP is 1 if the owner or manager is the holder of any intellectual property and 0 otherwise. We include these variables to capture the organization's strategic position. Intellectual Property (IP) is related to industry and organization strategy since IP increases entry barriers, profitability, and start-up survival rates (Porter, 1979). Credit risk is a discrete variable measured on a scale from 1 to 5, where 1 indicates the organization has minimal credit risk, and five suggests the organization is at a considerable risk based on its credit. These data are made available in the KFS but were originally extracted from credit reports provided by Dun & Bradstreet Corporate. *Profit* is 1 if the start-up records a net profit and 0 if it records a net loss or breaks even. Assets(log) is the natural logarithm of an organization's total assets. We include these three variables to capture the risk and financial positions of the organization. We anticipate that organizations with a high credit risk, low profits, and fewer assets will be less likely to survive the

competitive business environment. *Total Employees* is the number of employees, and *Assets(log)* measures firm size.

Geographic variation across the United States influences start-up survival rates through varying access to resources, markets, or competitive products (Acs et al. 2007). We include several county-level controls for these differences. Per capita income (ln) is the county-level per capita personal income provided by the U.S. Census Bureau. We use this variable to capture the economy's effect on the business climate. Higher disposable income and the demand for goods are positively correlated, which should lead and services to more profitable opportunities. Competitive Density captures the level of competition as the number of organizations in the same 3-digit industry/1000.

3.3 Estimation methods

We use Cox-proportional hazard models to test our hypotheses about social capital's effects on start-up survival. This approach follows work examining start-up survival (Audretsch and Mahmood 1995; Delmar et al. 2013; Geroski 1995; van Praag 2003; Wennberg and Lindqvist 2010). Cox-proportional hazard models take the following form:

$$h(t) = h_0(t)e^{\beta X} \tag{1}$$

where h(t) is the hazard rate for start-up survival. $h_0(t)$ is an unspecified baseline hazard function, X denotes our predictors, and β is the estimated coefficient for these predictors. The KFS is a stratified sample based on industrial technology and gender. The KFS was interested in high tech high-tech-owned businesses and oversampled along these margins. Thus, the KFS also suggests using sampling weights due to its disproportionate stratified sampling procedure. We used these survey-adjusted sampling weights with robust standard errors clustered by the organization. Coxproportional hazard models account for right-censoring issues in the data, i.e., some organizations have not failed by the end of the study (Cleves et al. 2010). We report estimates as hazard ratios (e^{β}) , with numbers above 1 indicating lower survival rates and numbers below one indicating higher survival rates.

4. **RESULTS AND ANALYSIS**

Table 3 presents the results from the Cox-proportional hazard models. Model 1 estimates our baseline specification that includes all variables but does not test our moderating hypotheses. Although higher rates of community social capital are associated with lower odds of survival (e^{β} =1.048; p=0.635), it is statistically insignificant. In addition, we find that *founder-level* social capital has heterogeneous effects on the odds of start-up survival, depending on whether the social capital is a weak or strong tie. Weak ties are associated with *higher* odds of survival (e^{β} =0.794; p=0.042), whereas strong ties are associated with *lower* survival rates (e^{β} =1.273; p=0.157). More specifically, a one-unit increase in weak ties is associated with 20.6% (1-.794) higher odds of survival. For strong ties, a one-unit increase is associated with 27.3% (1.273-1) lower odds of survival. Our results also suggest that higher credit risks are associated with lower survival rates, and larger firms (as measured by total assets) have higher survival rates. At the county level, higher rates of competitive density are associated with lower survival rates.

INSERT TABLE 3 ABOUT HERE

To test our moderating hypotheses, models 2 and 3 augment the baseline specification to include an interaction term between community-level and founder-level social capital. The results from model 2 suggest founder-level social capital is associated with *higher* odds of start-up

survival for founders who establish weak-tie relationships ($e^{\beta}=0.715$; p=0.011), and the odds of survival become even higher in communities with more social capital ($e^{\beta}=0.801$; p=0.041). The results in model 3 also suggest that community-level social capital moderates the relationship between founder-level *strong ties* and the odds of start-up survival. However, the effect of strong ties is associated with a *decrease* in the start-up survival odds. These findings indicate that strong ties are associated with a decrease in start-up survival odds, but community-level social capital attenuates this effect. These findings provide evidence to support our hypotheses.

INSERT FIGURE 2 ABOUT HERE

To better understand these moderating effects, Figures 2 and 3 report the average marginal effect of strong and weak ties across the community social capital index spectrum. We report these marginal effects as elasticities (i.e., a percentage change in the odds of survival in response to a one percent change in strong/weak ties). The results in Figure 2 reveal that weak ties are associated with higher odds of survival, and this effect varies by the community's social capital. For example, at the average level of community social capital, a 1% increase in weak ties is associated with a 7.7% increase in the odds of survival.⁴ However, the effect of weak ties is more significant in areas endowed with greater community social capital—at one standard deviation above the mean, there is a 15.3% increase in the odds of survival.⁵ At lower levels of community social capital, weak ties have a negligible effect on the odds of survival.⁶

INSERT FIGURE 3 ABOUT HERE

⁴ Mean Community Social Capital Index = -0.42

 $^{^{5}}$ SD = 0.94; Therefore, mean + 1SD = (-.42 + .94) = 0.52.

 $^{^{6}}$ SD = 0.94; Therefore, mean – 1SD = (-.42 - .94) = -1.36.

For strong ties, it is the opposite. Strong ties are associated with lower survival odds in areas endowed with less community social capital, and the effect is statistically insignificant in areas with greater community social capital. For example, at the average level of community social capital, a 1% increase in strong ties is associated with a 1.7% decrease in the odds of survival. At one standard deviation above the mean, strong ties only have a 0.01% decrease in the odds of survival, and at one standard deviation below the mean, there is a 3.4% decrease in the odds of survival. As a result, we conclude that community social capital plays a pivotal role in enhancing founders' social capital.

5. **DISCUSSION**

5.1 Summary

Using a diverse longitudinal cohort of U.S. start-ups founded in 2004 and followed through 2009, our study examines how the interrelation between community and individual-level social capital influences start-up survival. To summarize our findings: It is a founder's weak tie relationships—not strong ties—that are associated with higher start-up survival rates; Moreover, community-level social capital increases the start-up survival rate, particularly for firm founders who receive funding from weak ties; In contrast, founders who rely on strong ties have lower start-up survival rates, but community social capital attenuates this adverse effect.

5.2 Implications for the entrepreneurship literature

Our study contributes to the entrepreneurship literature in several ways. First, we found community-level social capital moderates the positive effect of a founder's weak ties on start-up survival. In other words, weak ties are more beneficial for survival for start-ups operating in regions with more community-level social capital. This complements findings from studies analyzing social capital at the individual or founder level (Boudreaux et al. 2021; Hoang and Antoncic 2003; Kim and Aldrich 2005; Ruef 2010). As such, our study demonstrates the importance of social context—the community plays a pivotal role in fostering social connections and ties that help fledgling start-ups survive. While studies have examined the relationship between social capital and start-up survival (Brüderl and Preisendörfer 1998; Florin et al. 2003; Pennings et al. 1998), we respond to calls urging studies to consider different levels of analysis connecting social capital to outcomes (Kim, et al., 2016).

Second, we address the criticism that the literature on social capital theory has failed to connect theory with outcomes (Anderson 2008; Lin 2001). Our study addresses this call by connecting measures of social capital at the individual and community-level and considering their interactive effects on start-up survival from a "meso level" perspective (Kim et al. 2016; Payne et al. 2011). By drawing on community-level social capital measures found in the economics and sociology literature (Guiso et al. 2004; Knack and Keefer 1997; Rupasingha et al. 2006), we consider social capital as a community-level construct reflecting the normative levels of involvement and altruism within the community. Increased civic engagement regarding the community increases the opportunities for social ties in a particular business context for entrepreneurs. Separating social capital in this manner provides additional insights into how social capital affects firm performance.

Lastly, our study finds that the type of social capital matters. We found that an entrepreneur's broader relationships (weak ties) facilitate firm survival, and community social capital positively moderates this effect to create and maintain those ties. However, strong ties from close family and friends do not directly affect firm survival. Our evidence, therefore, is consistent

with the strength of the weak ties theory (Granovetter 1973, 1983) because weak ties are associated with higher start-up survival rates, but strong ties are not. As a result, our study provides a more nuanced perspective than what is currently understood from the literature.

5.3 Implications for policy

Our findings also have important policy implications. First, studies have argued that government initiatives should focus less on attempting to "pick winners" and more on enhancing the environment for new and small business survival (Faria et al. 2023; Lerner 2010; Mason and Brown 2013; Shane 2008, 2009). Suggestions along these lines argue for an increased emphasis on entrepreneurship education, such as thinking more seriously about the start-up process. In this sense, our findings add to this policy advice. Our results suggest that a greater emphasis on social capital and community governance (Boudreaux et al. 2022; Bowles and Gintis 2002) provides a more conducive entrepreneurial environment where entrepreneurs face higher odds of survival.

Second, to the extent that social ties affect start-up survival, we find that social norms within the community positively moderate this relationship. Entrepreneurship policy is often concerned with creating opportunities for the success of small business owners. One way to increase the odds of success is to encourage the accumulation of social capital. Unfortunately, social norms like trust in a community change slowly (Williamson 2000) and are difficult to change. Indeed, it is easier to lose trust than to gain it (Cvetkovich 2013). Therefore, policy initiatives might explore ways to prevent the erosion of social trust—especially concerning relationships with community leaders and community governance. Policymakers might also consider identifying ways to increase a community's social capital. Our findings indicate that these community capital investments will nurture the development of fledgling start-ups.

5.4 Limitations and suggested directions

Our research has limitations that offer opportunities for future studies. Our study is a representative cohort sample of newly created U.S. firms tracked from 2004 to 2009. While the data offered useful indicators of founders' relationships, we did not examine the broader community engagement mechanisms that translate to weak ties. Thus, it is likely that all forms of community engagement do not affect business relationships. Future research might consider analyzing specific forms of community engagement that are more likely to encourage business ties (e.g., Rotary Club, Chamber of Commerce, and country clubs). Furthermore, by combining the effects of community social capital and individual social networks, our study identified differences in nascent firm start-up rates and funding at firm founding. Although social ties have been linked to firm entry (Ellis 2000), few studies have considered the deeper definitions and distinctions that criticisms of the social capital literature have called into question (Anderson 2008; Lin 2001). Thus, a closer look at social capital and firm entry might be a fruitful area for future research.

6. CONCLUSION

Using a diverse longitudinal cohort of U.S. start-ups founded in 2004 and followed through 2009, our study examines how the interrelation between community and individual-level social capital influences start-up survival. To summarize our findings: It is a founder's weak tie relationships—not strong ties—that are associated with higher start-up survival rates; Moreover, community-level social capital increases the start-up survival rate, particularly for firm founders who receive funding from weak ties; In contrast, founders who rely on strong ties have lower start-up survival rates, but community social capital attenuates this adverse effect.

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Table 1 – Descriptive Statistics and Correlations

Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Education	.51	.5	1																	
(2) Work Experience	12.06	9.06	0.05	1																
(3) Age	47.67	9.84	0.09	0.36	1															
(4) Race	.87	.31	-0.07	0.08	0.13	1														
(5) Male	.71	.34	0.12	0.23 -	-0.04	0.01	1													
(6) Have IP	.25	.44	0.14 -	0.02	0.03	-0.00	0.07	1												
(7) Home Based	.41	.49	-0.04 -	0.06	-0.00	-0.03	-0.08	-0.08	1											
(8) Comparative Advantage	.63	.48	0.09 -	0.01 -	-0.07	-0.00	-0.01	0.21 -	0.12	1										
(9) Credit Risk	2.95	.95	-0.08 -	0.08	-0.09	-0.08	-0.02	-0.03	0.06	0.02	1									
(10) Profit	.57	.50	0.00	0.07 -	-0.02	0.04	0.03	-0.08	0.00	0.06 -0	0.13	1								
(11) Assets (ln)	10.60	3.13	0.08	0.08	0.08	0.09	0.09	0.08 -	0.31	0.12 -0	0.17	0.09	1							
(12) Firm Size	5.55	12.43	0.03	0.08	0.00	-0.04	0.10	0.07 -	0.25	0.07 -0	0.04	0.05	0.28	1						
(13) Competitive Density	1.20	2.90	0.11	0.00 -	-0.04	-0.10	0.00	0.02	0.04	0.02 -0	0.05	0.04	-0.04	-0.00	1					
(14) Per capita income (ln)	10.53	.27	0.25	0.04	0.03	-0.08	0.04	0.06	0.00	0.03 -0	0.08	0.02	0.04	0.02	0.23	1				
(15) Incorporated	.92	.28	0.10 -	0.01 -	-0.04	0.00	0.04	0.08	0.01	0.02 -0	0.08	-0.02	0.09	0.01	-0.03	0.04	1			
(16) Community social capital	42	.94	0.05	0.01	0.01	0.12	-0.02	-0.01 -	0.00	0.01 -0	0.00	-0.00	-0.02	-0.04	-0.24	0.16	0.04	1		
(17) Individual Weak ties	.35	.65	0.03	0.05	0.01	0.04	0.10	0.10 -	0.21	0.07 -0	0.06	-0.06	0.27	0.22	-0.03	0.02	0.06	0.02	1	
(18) Individual Strong ties	.06	.27	0.02 -	0.01 -	-0.08	-0.02	-0.01	0.06 -	0.03	0.05 (0.05	-0.11	0.04	0.00	0.02	0.02	-0.01	0.02	0.12	1

Notes: N = 4,662 observations. $r \ge |.03|$ statistically significant p < 0.05 (two-tailed test).

Verichlas			(2)
Variables	(1)	(2)	(3)
Owner characteristics			
Education	0.950	0.939	0.943
	(0.124)	(0.122)	(0.123)
Work Experience	0.998	0.997	0.998
	(0.008)	(0.008)	(0.008)
Age	1.001	1.001	1.001
	(0.007)	(0.007)	(0.007)
Race	1.392	1.389	1.395
	(0.292)	(0.291)	(0.292)
Male	1.054	1.053	1.059
	(0.204)	(0.204)	(0.205)
Firm characteristics		(0.201)	(0.200)
Have IP	0.933	0.929	0.936
Trave II	(0.145)	(0.144)	(0.146)
Home Based	1.020	(0.144)	(0.140)
Home Dased	1.020	1.000	1.024
	(0.140)	(0.157)	(0.139)
Comparative Advantage	0.764	0.765	0.760
	(0.098)	(0.098)	(0.097)
Credit Risk	1.250***	1.257***	1.255***
	(0.091)	(0.092)	(0.091)
Profit	0.717***	0.716***	0.721***
	(0.090)	(0.090)	(0.090)
Assets (ln)	0.941***	0.941***	0.941***
	(0.015)	(0.015)	(0.015)
Firm Size	0.999	0.999	0.999
	(0.010)	(0.010)	(0.010)
Incorporated	1.024	1.012	1.037
1	(0.195)	(0.193)	(0.199)
County characteristics	(0.000)	(01170)	(*****)
Competitive Density	1 048**	1 048**	1 046**
Competitive Density	(0.022)	(0.023)	(0.023)
Der Carita Incomo (In)	0.022)	(0.023)	(0.023)
Per Capita income (in)	0.925	0.917	0.950
Second Catital	(0.219)	(0.219)	(0.222)
	1.001	1.007	4.055
Community Social Capital	1.031	1.096	1.055
	(0.067)	(0.078)	(0.071)
Individual Weak ties	0.794**	0.715**	0.792**
	(0.090)	(0.095)	(0.091)
Individual Strong ties	1.273	1.257	1.131
	(0.217)	(0.217)	(0.205)
Moderating hypotheses			
Weak ties × Comm. Soc. Capital		0.801**	
1		(0.087)	
Strong ties × Comm. Soc. Capital			0.784^{*}
			(0.115)
Industry FE	Ves	Ves	Ves
Number of Observations	4 662	4 662	4 662
Log likelihood	97501	T,002 87420	97467
LOZ-IIKCIIIIOOU	-0/301	-0/432	-0/40/

Notes: * $p < .10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test). N = 4,662 observations. Models estimated using Cox
Proportional Hazard where organizational exit is going out of business. Hazard ratios are reported as $\exp(\beta)$.
Coefficients above 1 indicate higher exit rates, and below 1, lower exit rates. Survey-adjusted robust standard errors
clustered at the firm level and reported in parentheses.).

Figure 1. Social capital by counties



Note - Social capital is the county-level variable that measures social norms and social networks (Rupasingha et al., 2006). This figure presents the distribution of the social capital by county for the year 2005. The higher values represent higher social capital.



Figure 2. Interaction between community social capital and founder's weak ties in start-up survival.

Figure 3. Interaction between community social capital and founder's strong ties in start-up survival.

