

# Social Structure of Regional Entrepreneurship: The Impacts of Collective Action of Incumbents on De Novo Entrants

Entrepreneurship Theory and Practice  
2019, Vol. 43(5) 855–879  
© The Author(s) 2019  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/1042258717750861  
journals.sagepub.com/home/etp



Liang Wang<sup>1</sup> and Justin Tan<sup>2,3</sup>

## Abstract

The literature has posited that agglomeration economies and the formation of social relationships resulting from the geographic concentration of incumbents constitute the forces that “pull” new entrants into industry clusters. However, this proposition overlooks how the collective action of incumbents in pursuit of their own benefits affects new entrants. This study examines how business associations as collective action organizations established by incumbents to promote and safeguard group-wide interests contribute to *de novo* entrants. The empirical evidence from Canada’s telecommunication equipment manufacturing industry between 1995 and 2005 reveals that the prevalence of local business associations encourages *de novo* entrants. However, the impact is curvilinear such that excessive collective action on the part of local fellow incumbents can create a clubby environment and “push” new entrants away.

## Keywords

new venture creation, collective action organizations, economic agglomeration, industry cluster, business association, *de novo* entrants

*“Spatial clustering alone does not create mutually beneficial interdependencies.”*

*Saxenian (1994, p. 161)*

Why do entrepreneurs locate their new ventures around incumbents in certain regions despite the fact that Internet technology and modern transportation have dramatically reduced communication costs and supposedly made geography less relevant (Pe’er, Vertinsky, & King, 2008;

---

<sup>1</sup>School of Management, University of San Francisco, San Francisco, CA, USA

<sup>2</sup>Schulich School of Business, York University, Ontario, Canada

<sup>3</sup>School of Management, Tianjin University, Nankai Qu, Tianjin Shi, China

## Corresponding Author:

Justin Tan, Professor of Management, Newmont Chair in Business Strategy, Schulich School of Business, York University, Toronto, ON, Canada M3J 1P3.

Email: [jtan@schulich.yorku.ca](mailto:jtan@schulich.yorku.ca)

Plummer & Pe'er, 2010; Qian, Acs, & Stough, 2013)? One can attribute the clustering of entrepreneurial activities to the limited number of optimal locations for production (von Thünen, 1826; Weber, 1929) and/or to the agglomeration economies resulting from the clustering of incumbents (Fujita & Thisse, 2002; Krugman, 1991; Marshall, 1920). One can also argue that social interactions within a given spatial proximity facilitate the formation of social ties (Sorenson & Stuart, 2001; Stuart & Sorenson, 2003) and the flow of knowledge (Rosenkopf & Almeida, 2003; Tallman, Jenkins, Henry, & Pinch, 2004). The geographically bounded social networks that are formed in an industry cluster—the “geographic concentrations of interconnected companies and institutions” (Porter, 1998, p. 78)—help entrepreneurs to learn from incumbents, recognize opportunities, and mobilize resources (Bhagavatula, Elfring, van Tilburg, & van de Bunt, 2010; Spigel, 2015). As such, agglomeration economies and the social relationships that form based on the geographic concentration of incumbents constitute the forces that “pull” new entrants into clusters (Tan, 2006), as evidenced by empirical findings of a higher rate of new venture creation within industry clusters (e.g., Sorenson & Audia, 2000; Tan & Tan, 2017).

However, the above proposition of incumbents as the “pulling” factor within industry clusters overlooks the existence of *collective action organizations*, that is, voluntary social groups in an industry that are established by incumbents to promote and safeguard group-wide interests (Knoke, 1988). As with other forms of social interactions, collective action organizations foster the creation of social ties and can be viewed as exclusive local networks that are nestled in macro network-based social structures. However, in contrast to other forms of social interactions that do not share a common goal, collective action organizations facilitate collaboration among incumbent firms to make goods available to their members (Olson, 1965) such as information dissemination and collective representation (Maennig, Ölschläger, & Schmidt-Trenz, 2015; Tura & Harmaakorpi, 2005). Although some goods are purely public because they are available to both members and nonmembers, including new entrants (e.g., free industry information that is published online), some are quasi-public in nature because they are only available to member firms. Additionally, collective action organizations establish and enforce coercive instruments such as industry standards, codes of conduct, and quality control for the purpose of leveling collective sanctions for conduct that deviates from the agreed-upon practices of incumbents (Bennett & Ramsden, 2007; Jones, Hesterly, & Borgatti, 1997). While the benefits within a cluster “pull” new entrants into to a network, beyond a certain optimal level, the costs resulting from conforming to the collective norm outweigh the benefits and can “push” entrepreneurs away (Tan, 2006). This pushing effect is especially discernable among entrepreneurs who aim to disrupt the status quo in an industry cluster.

Given their distinct goal of promoting the group-wide interests of incumbent firms, collective action organizations form a distinct type of social group within the network-based social structure, and they should be treated as such. The failure to do so could result in the literature promoting misleading policy recommendations—for example, more incumbent social networking supports the creation of local entrepreneurial activities—regardless of the nature of the network-based social structure (Lechner, Frankenberger, & Floyd, 2010). As has been shown in the social-network literature, entrepreneurs can suffer from networking overload when too much time is spent networking (Steier & Greenwood, 2000). The performance of a new venture can be dampened by being over-embedded in the network (Uzzi, 1996, 1997), and entrepreneurs can find themselves losing flexibility if they become trapped in cohesive networks (Gargiulo & Benassi, 2000; Maurer & Ebers, 2006). In line with the above, our study attempts to provide more nuance to the proposition that social networking by incumbents is conducive to entrepreneurship by asking the following question: *How do collective action*

*organizations, as part of a geographically bounded and network-based social structure, affect de novo entrants in a region?*

For the purposes of this study, we focus on the collective action of incumbent firms through business associations, and we operationalize collective action organizations as the count of local business associations. Using this measure, a study of Canada's telecommunication equipment manufacturing industry between 1995 and 2005 demonstrated that local business associations encouraged *de novo* entrants, and that the impact was curvilinear. The results confirmed that collective action organizations, as part of a network-based social structure, generate societal externalities that complement the economic externalities of agglomeration. However, more importantly, the curvilinear effect suggests that a place with too many collective action organizations will likely come to resemble a clubby environment that protects the interests of incumbents and builds barriers against newcomers. Thus, the analysis revealed the complex ways in which the collective action of incumbents affects new venture creation (Pyke, Becattini, & Sengenberger, 1990).

## Theory and Hypotheses

*Collective action* refers to individuals with common interests in voluntary groups who act together in coordination to further their common interests (Olson, 1965). Such actions can produce and make nonexcludable goods available to members and sometimes to nonmembers. However, such collective action creates the possibility of misconduct such as free-riding and shirking. The prevention of these behaviors is a challenge because "unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interest" (Olson, 1965, p. 2). Thus, organizing collective action requires incentives to motivate rational and self-interested individual actors for the collective good (Knoke, 1988), or it should be rooted in a social context that encourages individual actors to participate and contribute (Gould, 1993; Wasko & Faraj, 2005; Wiertz & de Ruyter, 2007). While a few studies suggest that collective action may occur without intentional coordination (Peddibhotla & Subramani, 2007) or formal organization (Wilhoit & Kisselburgh, 2015), the literature generally acknowledges that collective action is a process of organizing, and a collective action organization can be the result of this process (Ostrom, 1990). While there is a variety of other types of collective action organizations such as labor unions and recreational associations (Knoke, 1988; Olson, 1965), the literature has recognized business associations as a particular type of collective action organization that affects industry growth and regional competitiveness (Battisti & Perry, 2015; Perez-Aleman, 2003; Schmitz, 1995, 1999) because it is through business associations that incumbent firms organize collective action in pursuit of their common interests. In this study of regional entrepreneurship, we examine how business associations as collective action organizations contribute to *de novo* entrants.

The contexts in which incumbent organizations agglomerate and function create the locus of entrepreneurial spawning (Tan & Tan, 2017). To entrepreneurs who are interested in starting a *de novo* venture, a collective action organization represents a social group that is made up of incumbents. From the social-network perspective, a collective action organization that is formed by member firms in an industry represents an inter-firm subnetwork that is part of the social structure in which economic activities are embedded (Granovetter, 1985; Uzzi, 1997). It differs from other parts of the social structure, which involve bilateral and/or more informal interactions, in its use of multilateral agreements and formal governance processes that are deliberately designed for the purpose of promoting common interests through collective activities (Ostrom, 1990). Below, we propose two hypotheses for how collective action organizations affect the regional variation of *de novo* ventures.

### *Local Efficiency From the Collective Action of Incumbent Firms*

In his seminal work, Schmitz (1995, 1999) suggested that deliberate and active joint action (either the collective and/or multilateral action of firms that join forces or individual firms that cooperate bilaterally) contributes to the growth of industry clusters. As such, collective action is a source of collective efficiency, which refers to “the competitive advantage derived from local external economies and joint action” (Schmitz, 1999, p. 466). Nadvi (1999) came to a similar conclusion in a study of two local business associations in a Pakistani cluster of surgical instrument manufacturers, where the associations organize collective activities such as lobbying the government, disseminating industry-related information, promoting exports, arbitrating disputes, and even facilitating negotiations with foreign buyers. In that case, the collective action that was organized by local business associations created public (available to everyone) and quasi-public (available to members only) goods in a region.

More generally, collective action organizations help individual actors to share information, exchange ideas, and collaborate on issues of common interest and thus serve as an organized platform of social interaction among people who may not otherwise have an opportunity to connect (Amin, 1999). As such, collective action organizations perform an important facilitating role in the creation of both weak ties and a network of collective trust (Bennett, 1998). Further, collective action organizations as social groups are instrumental in the bridging (Burt, 1992) and bonding of social capital (Coleman, 1990). Thus, they serve as catalysts for an “innovative milieu” or “the social and economic interactive relationships and networks of the actors within a spatially defined area” (Maennig & Ölschläger, 2011, p. 442). For *de novo* entrants, an industry cluster with a stronger endowment of collective action organizations offers channels that are designed to connect people and diffuse information. Such a cluster allows entrepreneurs to better connect and interact with incumbents and thus more effectively and successfully identify and commercialize investment ideas (Acs, Audretsch, & Lehmann, 2013; Gilbert, McDougall, & Audretsch, 2008).

First, as a business association coordinates the activities of individual firms by collectively informing and promoting an industry, it accelerates the dissemination of information on the facts and trends of the industry (Rauch, van Doorn, & Hulsink, 2014) and thus helps entrepreneurs to better identify business opportunities in the industry. Scott’s (1994) comparative study of the gem and jewelry clusters of Los Angeles and Bangkok, for example, attributed the greater dynamism of the Thai cluster to trade exhibitions and the international marketing campaigns that were organized by the local business association to inform people about the industry. Similarly, entrepreneurs can learn about an industry from the industry information that is published by a business association. Sometimes the information becomes a public good because it is made free and available to everyone who is interested in the industry. Furthermore, faster information dissemination allows the crucial resources that are released from failed ventures to be more efficiently redirected into new ventures for their best use (Gilbert, 2012; Lee, Yamakawa, Peng, & Barney, 2011). Faster information dissemination helps *de novo* entrants to discover entrepreneurial opportunities in the local business community, and the more efficient allocation of resources helps them to realize those opportunities by mobilizing the resources that have been released from failed incumbents.

Second, some regional resources such as skilled workers, which are intentionally developed by a business association for the benefit of the incumbent firms, can also be utilized by the entrepreneurs. For example, Scott (1994) also highlighted the role played by the training programs organized by the local business association to the vibrant entrepreneurial ecosystem in the gem and jewelry industry in Bangkok. In their study of the Ontario wine industry, Massa, Helms, Voronov, and Wang (2017) documented how the local business association took the lead in bringing the viticultural practices of well-established wine regions into Ontario and establishing the education institutions of wine production; and the resources

built from these collective activities (e.g., wine-making technologies and skillful wine makers) contributed to the subsequent boom of the industry.

Third, the collective action of the incumbent firms in developing standards, rules, and norms in an industry for their own benefit can result in reduced transaction costs for the entrepreneurial activities of new entrants. Unlike informal interpersonal social ties, collective action organizations must develop rules and norms to govern member behavior and to resolve conflicts and disputes to ensure that their functioning is not hampered by inappropriate behaviors such as free-riding, shirking, or the leaking of confidential information. Through repeated practice, these rules and norms are developed and shared by local firms and the community at large, which results in reduced transaction costs for inter-firm cooperation and the promotion of localized trust (Raco, 1998). This type of local sociocultural environment encourages entrepreneurial activities (MacLeod & Goodwin, 1999; Nadvi, 1999). For example, Massa et al. (2017) revealed that the Ontario wine-making industry attracted steady new entrants after the local business association established an appellation of wine origin system and enforced standards of wine production in the region.

Fourth, collective action by local firms enhances a region's legitimacy for businesses and generates a positive public image for the region that attracts new entrants (McKendrick, Jaffee, Carroll, & Khessina, 2003). For example, as documented in the description of Italian "industrial districts" (Piore & Sabel, 1984), the functioning of local business associations leads to identity creation, which makes a region more identifiable for potential entrepreneurs. Considering the time limits and search costs that go into making location decisions, an entrepreneur would naturally focus on the places that they already know, and a better-recognized location is an easier choice.

It is worth noting that public (available to everyone) and quasi-public (available to members only) goods that are produced by collective action complement the principles of agglomeration economies (Fujita & Thisse, 2002; Krugman, 1991; Marshall, 1920) in explaining the spatial variation of entrepreneurial activities (Armington & Acs, 2002). Economic agglomeration externalities result from the co-location of existing firms (Acs & Varga, 2005; Fu, 2012; Hoover, 1948), and it includes human capital and specialized suppliers (Ciccone & Hall, 1996; David & Rosenbloom, 1990; Henderson, 2003; Rotemberg & Saloner, 2000) as well as knowledge spillover (Acs, Armington, & Zhang, 2007; Gilbert et al., 2008; Qian & Acs, 2013). Firms that are clustered by passive location enjoy an advantage over isolated firms (Chung & Kalnins, 2001; Cumming & Johan, 2010; Jaffe, Trajtenberg, & Henderson, 1993; Kalnins & Chung, 2004) and thus lure entrepreneurs to locate closer to the existing firms (Pe'er & Keil, 2013). In contrast, however, collective action requires deliberate and active organization to develop collective efficiency (Schmitz, 1999). Thus, the absence of collective action organizations in a region makes it unlikely that the region will benefit from the public (available to everyone) and quasi-public (available to members only) goods that are produced by collective action organizations. In addition, the existence of collective action organizations can help a region to provide more public and quasi-public goods to entrepreneurs. With this in mind, we predict the following:

***Hypothesis 1:** The greater the prevalence of collective action organizations in a region, ceteris paribus, the more likely it is that de novo ventures will be created in that region.*

### **Local Clubbiness From the Collective Action of Incumbent Firms**

Thus far, our discussion suggests that collective action organizations contribute to new venture creation in industry clusters by providing platforms for social interaction,

the establishment of norms and rules, resource mobilization, legitimacy, and identity. However, such a linear association is in direct contrast to Olson's (1982) proposition that collective action can contribute to economic decline and that collective action organizations such as special interest groups might pursue their own interests at the expense of the greater society and, in particular, newcomers who are not represented. From this perspective, collective action organizations function as "distributional coalitions" (Olson, 1965, 1982) or "predatory lobbies" (Sabel, 1994) whose primary goal is to collectively lobby the government and extract disproportionate economic benefits for their members that are unachievable in the market. The impact on entrepreneurial activities in this case can be rather negative.

This paradox is echoed by Amin and Thrift (1994) who posit that a region with a "thick" social structure with active social groups provides shared rules, conventions, and knowledge to boost local industry (Djelic, Nooteboom, & Whitley, 2005; Parker & Tamaschke, 2005); however, when local social groups grow too strong, the place can become a "clubby" environment with high entry barriers that implicitly or explicitly exclude newcomers as outsiders (Warf, 2001). As such, the impact of the thickness of social structures on new venture creation can be curvilinear: The impact is positive only up to a certain point. For example, Manzetti (1994, pp. 91–92) found a role for collective action organizations in facilitating collaboration and disseminating technology; however, the study also found that the collective activities that were organized by business associations in Argentina "increased in number across time [emphasis added], and political life grew more divisive, and... economic growth turned into prolonged stagnation."

For *de novo* entrants in particular, too much organized collective action by incumbents can dampen entrepreneurial activities for the following reasons. First, as collective action organizations increase in number over time to provide more platforms of social interaction, more individual actors in the social structure will be connected with each other, which results in a denser social network. The process of accelerated social connection will gradually lead to an increasingly closed social network (Coleman, 1990) to the point that eventually everyone is connected with one another. In an overly closed and cohesive social network, entrepreneurial activities can be dampened due to over-embeddedness (Uzzi, 1996), flexibility can be reduced as a result of being caught in such a network (Gargiulo & Benassi, 2000; Maurer & Ebers, 2006), and networking overload can be crippling for entrepreneurs when too much time is spent on networking (Steier & Greenwood, 2000).

Second, incumbents who hold a more central position have more access to resources and information in such a social network, and potential newcomers with fewer social connections will be at a disadvantage. As a result, the creation of *de novo* ventures, in comparison with *de alio* entrants who enjoy transfers of resources and capabilities from their parents (Pe'er et al., 2008), can be dampened because of distortion in the supply of economic resources. This is consistent with the proposition that collective action organizations are special interest groups with disproportionate organizational power to facilitate collective actions. Such disproportionate power includes possible collusion to advance the interests of group members at the expense of nonmembers who are not well organized (Olson, 1965, 1982). Such imbalances in power can lead to reductions in efficiency and in the economic growth of a society, particularly societies with weak governance (Clague, 1997).

Third, too much formal organization will result in too many norms and rules for a potential entrepreneur to follow. This can become cumbersome for entrepreneurs because they must become acquainted with the local norms and rules, learn the local "language," and build a legitimate identity before they can join collective action organizations, obtain access to quasi-public and member-only goods, and effectively explore business opportunities. Faulconbridge (2007) noted how new advertising and law entities in London and New York often could not

develop identities as legitimate participants through either formal meetings or informal circumstances. While a key function of collective action organizations is to develop norms and rules for the group, too much organization can result in a “clubby” environment in which there are too many norms and rules, which raises entry barriers to newcomers (Warf, 2001).

Additionally, it is necessary to enforce group standards of practice and codes of conduct for finished products or production processes and to punish violators through various instruments such as revoked membership. Access to local resources, such as investment capital, may thus be denied if standards are not met. In this sense, industry standards that are endorsed by incumbent firms through collective action can prevent or limit *de novo* entrants when the standards function as a screening mechanism. Following the above line of reasoning, we expect the following relationship:

*Hypothesis 2: The positive impact of collective action organizations on de novo venture creation is curvilinear.*

## Methods

In the context of analyzing firms in an industry as individual actors, it is widely acknowledged that collective action organizations are embodied in business associations (Battisti & Perry, 2015; Knoke, 1988; Olson, 1965; Perez-Aleman, 2003; Schmitz, 1995, 1999). Business associations, which are also known as employer’s associations, trade associations, or business interest groups, are “collective bodies that are intermediary between individual business action and state action” (Bennett, 1998, p. 244). The functions of business associations include representing common interests and providing legitimacy, developing standards and enforcing codes of conduct, formulating common objectives and mediating conflicts, disseminating information, and facilitating social interactions and bridging otherwise disconnected entities (Bennett & Ramsden, 2007; Dalziel, 2006; Streeck & Schmitter, 1985). Following the literature, we collected data on business associations to examine the hypotheses.

## Research Setting

This study focuses on Canada’s telecommunication equipment industry (i.e., Telephone and Telegraph Apparatus, SIC code 3661) across the dotcom bubble (1995–2005). As a major component of the information technology sector, the telecommunication equipment manufacturing industry has observed great technological uncertainty and regulatory changes in the past two decades. Such a challenging external environment has created a fertile background against which firms have actively engaged in inter-organizational collaboration and collective activities on issues of common interest (Amesse, Latour, Rebolledo, & Séguin-Dulude, 2004).

Starting from the mid-1990s, the telecommunication equipment industry saw a need for collaboration, as the pace of technological change was enormously accelerated by the introduction of the Internet. Traditional telecommunication equipment manufacturers, whose key businesses were to serve wired or wireless telephone networks, suddenly had to address computer networks in the emerging “information society” (Abramson & Raboy, 1999). At the same time, the global telecommunication equipment market opened up due to deregulation, and a large number of new players entered the industry to explore the previously heavily regulated market (Amesse et al., 2004). Both the incumbents and the new entrants shared a common interest: the creation of novel technological solutions and networks (Godoe, 2000). As a result, the industry witnessed the emergence of various forms of regional industry

collaboration (e.g., business associations, technology consortia, and professional societies) for the purpose of coordinating technological and market development (Hawkins, 1999).

This trend of inter-firm collaboration and collective industry engagement was witnessed in the Canadian telecommunication equipment industry, often at the regional or local levels. Canada has an approximately century-long history of manufacturing telecommunication equipment. The Canada–U.S. Free Trade Agreement, which was set in place in 1989, both opened up the U.S. market and exposed Canadian telecommunication equipment manufacturers to competition from the south (Globerman & Booth, 1989). The need for “collaborating in order to compete” in the industry triggered local economic and industrial adjustment, to different extents, across Canada. For example, the center of Canada’s information technology sector, which is generally situated surrounding the city of Waterloo, Ontario—now popularly known as “Canada’s Technology Triangle”—experienced a transformational development of collaborative and associative organizations beginning in the early 1990s (Leibovitz, 2003). A Canadian news report described the seemingly successful experience as “one example of how people at the local level—in business, government, education, social agencies and unions—helped this region make the transition from old industrial Ontario... to a new knowledge-based one” (Crane, 1997). Such a context, where firms were actively engaged in collaborative and collective activities on issues of common interest at a regional level, provides a decent empirical setting to examine collective action organizations.

We also situated the study across the dotcom bubble (1995–2005). The dotcom bubble (sometimes called the IT bubble) refers to the speculative bubble that developed and then burst because of advances in the information technology sector. The Canadian telecommunication equipment manufacturing industry witnessed soaring demand during the bubble as service providers launched ambitious plans to build the next generation of network infrastructure. Indeed, the manufacturing of information technology equipment and components doubled between 1997 and 2000 (Statistics Canada, 2001). In 2000, the sector grew by 21% even though the overall gross domestic product of Canada increased by only 4.5%. However, when the bubble burst in 2000, demand dramatically declined, and global investments in IT infrastructure waned. The industry, which had depended heavily on foreign markets—more than 80% of information and communication technology products that were manufactured in Canada were exported—was dealt its first blow when manufacturing in this sector crashed in the latter part of 2000 (Statistics Canada, 2003). After the burst of the dotcom bubble, exports by Canada’s telecommunication manufacturing industry did not reach half their peak value over the next 5 years. The turbulence that was experienced by this industry at this time makes it an ideal context to test our hypotheses (Wang, 2017).

### *Data Collection*

We collected three sets of data to represent the history of Canada’s telecom equipment manufacturing industry during the dotcom bubble period (1995–2005). First, we obtained a listing of telecom equipment manufacturing firms from Scott’s Corporate Directory (1995–2005), which was first launched in 1957 and is the most complete and comprehensive source of data on Canadian manufacturers. For each manufacturer, it lists an array of basic information, including production location, years of founding and dissolution, estimated sales, and headquarters. For companies that operate in more than one location, each establishment is reported separately, an approach that is consistent with the definitions of both Statistics Canada and the U.S. Census Bureau, which refer to an establishment as a single physical location where manufacturing is performed. However, given the purpose of this study of analyzing new venture creation rather than the growth of existing ventures, we removed all



of the establishments that were a subsidiary of a parent company (i.e., those with headquarters as reported in Scott's Corporate Directory). This is consistent with the literature (Pe'er et al., 2008). By doing so, we excluded parent company ventures and focused exclusively on *de novo* new ventures, which accounted for approximately 90% of all newly created establishments in the database. The national list represented a compilation of data from Scott's Ontario Manufacturers, Quebec Manufacturers, Atlantic Industrial, and Western Industrial lists. The Atlantic portion covered New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland and Labrador. The Western list consisted of British Columbia, Alberta, Saskatchewan, and Manitoba. Other Canadian territories were not included because they hosted virtually no telecom equipment manufacturers.

Second, to control for the potential impact of location characteristics on firm-founding, we collected municipal-level information about each place where a manufacturer was located from the annual publication of *Financial Post Markets: Canadian Demographics*, which reports demographics, income, household expenses, education, and occupations by major groups. Consistent with the methodology of Statistics Canada and the *Financial Post Markets: Canadian Demographics*, we used municipalities to define "place" for our research. A municipality is a city, town, or census agglomeration, and it is the Canadian equivalent of a metropolitan statistical area, which is widely used as the unit of analysis in the agglomeration research (e.g., Canina, Enz, & Harrison, 2005). In total, 91 Canadian municipalities were included in our research, and information about each municipality helped to control for municipal-level variance.

Third, the collective action organizations were measured by business associations in a given municipality. Detailed information about the business associations came from *Associations Canada: The Directory of Associations in Canada* (1995–2005). This directory is the most extensive list of Canadian associations available; it lists business associations by subject in relation to a generic field of interest. There was a dramatic development in information and communication technology in the telecom equipment manufacturing industry during our study period, so we included the associations that are listed under the following three subject categories: computers, information technology, and telephones and telecommunications. We supplemented and cross-referenced this dataset with information from *Scott's Directories* (2000–2002). If these sources diverged, we granted privilege to the *Associations Canada* database, which provides a more comprehensive listing.

## Measures

**Collective action organizations.** We measured this independent variable according to the count of business associations in each municipality, following the existing literature (Battisti & Perry, 2015; Knoke, 1988; Olson, 1965; Perez-Aleman, 2003; Schmitz, 1995, 1999). In the *Associations Canada* (1995–2005) database, an association is "a voluntary nongovernmental, nonprofit organization composed of personal and/or institutional members, with or without a federal or provincial charter, formed for some particular purpose or to advance a common cause, especially of a public nature." For example, the profile of the Information Technology Association of Canada's Vancouver Division describes its goal as "to provide leadership on issues that affect the growth and profitability of the information technology industry." The assumption is that increased numbers of the business associations of an industry in a location should result in increased levels of organized collective action of the incumbent firms, mutual awareness of involvement in a common agenda, and structured coalition patterns. It is also worth noting that the *Associations Canada* (1995–2005) database includes all business and trade groups, including groups that establish and enforce industry standards that are endorsed by the incumbent firms in the industry and thus raises entry barriers for new entrants.

*New venture creation.* We measured this dependent variable as the count of *de novo* new telecom equipment manufacturing firms that are established in a municipality in a given year. The key resources for new venture creation, such as labor supply, are unevenly distributed in Canada, so we used “municipality” (i.e., city, town, or census agglomeration) as the unit of analysis, which is consistent with the previous geographic concentration research that has used geographically meaningful areas, such as areas that are designated by postal code (Stuart & Sorenson, 2003) or state (Sorenson & Audia, 2000), as the unit of analysis. Following the previous research methods (e.g., Sorenson, 2005; Stuart & Sorenson, 2003; Wang, Madhok, & Li, 2014), we only included municipalities that hosted telecom equipment manufacturing operations during the investigation period. In total, the analysis included 292 founding events in 910 yearly observations, spread over 91 municipalities.

*Control variables.* We added a “spatial lag” term to account for potential spatial dependence (Plummer, 2010). To test the impacts of business associations on firm-founding, we controlled for other variables that might have offered alternative explanations. At the municipality level, we included a comprehensive set of control variables. The estimated gross domestic income of each municipality controlled for the size of the municipality. Household expenses other than food, shelter, and education helped us to control for the demand for telecommunication products in the local market, as firms may have co-located closer to their customers (Rosenthal & Strange, 2003). Different types of municipalities—cities, towns, or census agglomerations—have different advantages and disadvantages for manufacturing activities, so we added two municipality-type dummies. Education, or the percentage of the population with college or higher degrees in science and engineering, was included to control for the impact of knowledge endowment on the founding of high-tech telecom manufacturers (Miller & Acs, 2013). Research centers, which refers to the number of wireless communications research centers in a municipality as recorded by Industry Canada, was included to control for the impact of government spending and research-based institutions on new venture creation (Gilbert & Campbell, 2015; Plummer & Gilbert, 2015). French population, which refers to the percentage of French-speakers in a municipality, was added to control for the political dynamics in Canada in the form of the impact of the Quebec sovereignty movement on the economic development of many Canadian municipalities. We included cultural diversity, or the percentage of the population that uses languages other than English or French, to control for the possible impacts of cultural diversity and openness on new venture creation (Acs & Megyesi, 2009). We added firm exits, which refers to the number of firms that exited the industry in each municipality, to control for the impact of economic turbulence and industry consolidation (Pe'er & Vertinsky, 2008). Lastly, we followed previous empirical analyses of agglomeration (Ellison & Glaeser, 1997; Ellison, Glaeser, & Kerr, 2010) and measured the agglomeration of labor as the sum of the existing employees of all of the telecom manufacturers in a municipality.

At the provincial level, the corporate tax rate of each province was included to control for the impact of tax structures on investment decisions. We also added the unemployment rate for each province to further control for the impact of macroeconomic upswings and downswings.

At the industry level, we borrowed from the density dependence model in the population ecology literature (Carroll & Hannan, 1989) and the national density and squared term of the number of telecom equipment manufacturers in Canada to control for ecological dynamics. We included exports, which refers to the dollar amount of the industry’s overseas sales, to control for the product or technology life cycle that can affect new entrants. We also included dotcom bubble as a dummy variable that was coded as 1 if the year was after 2000 to control for the impact of economic downturns after the burst of the dotcom bubble.

All of the independent and control variables were lagged 1 year to account for the time that is needed for any new venture creation decision, which thus reduces concerns about the temporality of the data, reverse causality, and simultaneity. This followed the empirical studies with similar data structures (e.g., Yang, Phelps, & Steensma, 2010).

*Estimation methods.* Poisson regression was chosen as an appropriate method because with a count variable for the dependent variable, it can take nonnegative integer values. With Poisson regression as the starting point, we adopted negative binomial regression as the modeling strategy. The Poisson regression assumes that the dependent variable has a Poisson distribution with equal conditional variance and mean. However, the Poisson variance assumption is violated by the data for which the variance is greater than the mean (i.e., in situations of over-dispersion). Following the previous research (e.g., Simons & Ingram, 2003), we chose a negative binomial regression model to account for over-dispersion.

To properly analyze the panel data, we used Allison and Waterman's (2002) unconditional estimation of fixed-effects negative binomial models by including dummy variables for all municipalities and all years. This followed the empirical studies with the same data structure (Yang et al., 2010). The year dummies controlled for unobserved systematic period effects, and the municipality dummies controlled for unobserved and temporally stable municipality differences in firm-founding. We also employed the more conventional conditional maximum likelihood estimation procedure that was developed by Hausman, Hall, and Griliches (1984), and we obtained consistent results. We choose to report the results of Allison and Waterman's (2002) method because the Hausman et al. (1984) method does not qualify as a true fixed-effects method as it does not control for unchanging covariates.

Another empirical issue of our analysis is the possible existence of spatial dependence (Anselin, 1988) because firm-founding in one location might be a function of firm-founding in nearby locations. This can be a serious problem because it violates the assumption of the regression analysis that the observations of the variables are not spatially correlated. In a pioneering effect, Plummer (2010) demonstrated how spatial dependence is especially problematic for the study of entrepreneurial activities and outlined the econometric techniques that are needed to address the problem. We followed the procedure as suggested by Plummer (2010) and employed two methods to account for the potential existence of spatial dependence. First, we calculated a "spatial lag" term and included it as an additional control variable in the regression models, following several previous studies (Acs, Plummer, & Sutter, 2009; Acs & Plummer, 2005; Plummer & Acs, 2014; Plummer & Gilbert, 2015). For each observation (i.e., each municipality in a given year in our study), the "spatial lag" term was the weighted average of the dependent variable (i.e., firm-founding) observed over the neighboring municipalities, and this controlled for any possible spillover of new venture creation across geographical boundaries (Anselin, 2001). Second, we applied the Driscoll–Kraay estimator in an additional regression analysis to correct for both spatial and serial correlation in the regression residuals (Driscoll & Kraay, 1998; Hoechle, 2007; Plummer & Gilbert, 2015). Third, we used robust errors and clustered the standard errors by Canadian province to consider the possibility that new venture creation in one province across different municipalities is spatially dependent.

Finally, we addressed the issue of simultaneity bias. It was possible that we might encounter a confounding variable in the regression analysis because of the possibility that the high degree of agglomeration of labor could result in a high number of business associations in a municipality. According to our theory, collective action organizations encourage new venture creation up to a tipping point, and the created new ventures contribute to the agglomeration of labor in the industry and the creation of more business associations. Our regression models

would thus be subject to simultaneity bias. In consideration of this issue, we followed the practice of Plummer and Acs (2014) and ran additional analyses and used the three-state least squares (3SLS) estimator to simultaneously estimate collective action organizations and new venture creation models. The results that were obtained from the different regression models were consistent with one another.

## Results

In Table 1, we report the means, standard deviations, and correlations for all of the study variables. To test for the presence of multicollinearity, we used ordinary least squares to calculate the variance inflation factors (VIF) for all of the control variables and independent variables. All of the VIF values were within the acceptable range with a mean value of 2.96; thus, the regression models were free of significant multicollinearity concerns (Meyers, Gamst, & Guarino, 2006).

Table 2 presents the results of three different regression methods: the unconditional fixed-effects negative binomial analysis (Models 1 and 2), the 3SLS (Models 3 and 4), and the Driscoll–Kraay estimators (Models 5 and 6). For each method, we first introduced all of the control variables in the first model (i.e., Models 1, 3, and 5) and then added collective action organizations and its squared term in the second model (i.e., Models 2, 4, and 6).

The regression results lent support to the hypotheses. Models 1 and 2 reported the results of the unconditional fixed-effects negative binomial regression analysis. In Model 1, we found a positive impact of agglomeration of labor ( $\beta = 0.53, p < .01$ ), which supported the existing studies (e.g., Sorenson & Audia, 2000) in finding that the higher the degree of agglomeration, the more new firms were founded in that place. We also found a positive impact of firm exits ( $\beta = 0.23, p < .001$ ) with more exits associated with more founding. Considering the market turbulence that shook many well-established firms during the dotcom bubble, the finding suggests that the exit of incumbents released resources that could have been used to start new businesses, which is consistent with the prediction that business associations facilitate efficient resource allocation. Model 2 added the independent variable of collective action organizations and its squared term. We found a positive first-order effect with an opposite sign for the squared term ( $\beta = 1.10, p < .001$ ;  $\beta = -0.20, p < .001$ , respectively). The positive first-order and negative second-order effects suggested an inverted U-shaped impact (i.e., the prevalence of local business associations at lower ranges related positively to firm-founding; however, beyond a certain point, the impact diminished). The results demonstrated a curvilinear impact and offered strong, clear support for Hypotheses 1 and 2.

Models 3 and 4 reported the results of the 3SLS estimator. The regression analysis simultaneously estimated new venture creation and collective action organizations. We also included year dummies and municipality dummies to control for unobserved temporal and panel heterogeneity. The results in Model 3, which included all of the control variables, did not offer support to the prediction that the agglomeration of labor leads to the establishment of business associations, although population seems to be a significant predictor. Model 4 added the independent variable and its squared term, and it showed consistent results (collective action organizations,  $\beta = 2.61, p < .001$ ; its squared term,  $\beta = -0.34, p < .001$ ).

Models 5 and 6 reported the results of the Driscoll–Kraay estimator. We found consistent results (i.e., collective action organizations had a positive first-order effect) with the opposite for the squared term ( $\beta = 0.62, p < .001$ ;  $\beta = -0.09, p < .001$ , respectively). The consistent results that were obtained from the three different regression methods demonstrated strong support for our hypotheses.

**Table 1.** Descriptive Statistics and Correlations (N = 910).

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) New venture creation	0.32	0.74																		
(2) Gross domestic income (\$10 billion)	0.37	0.49	.33																	
(3) Household expenses/1,000	8.78	1.86	.05	.12																
(4) City	0.69	0.46	.10	.27	-.13															
(5) Town	0.11	0.32	.02	-.10	.42	-.53														
(6) Education	0.03	0.01	.09	.16	.44	.18	.11													
(7) Research center	0.26	0.69	.11	.61	-.13	.22	-.14	.08												
(8) French population	24.42	35.98	-.11	-.23	-.43	.12	-.20	-.07	-.07											
(9) Cultural diversity	12.77	11.50	.22	.43	.24	.29	-.04	.21	.15	-.23										
(10) Firm exits	0.37	0.85	.46	.40	.05	.12	.00	.14	.16	-.11	.23									
(11) Agglomeration of labor/1,000	0.23	0.72	.37	.23	.04	.09	-.06	.21	.08	-.06	.13	.26								
(12) Corporate tax rate	0.11	0.01	-.03	-.11	.04	.09	.01	.02	.08	.03	-.16	-.06	-.02							
(13) Unemployment rate	8.37	2.19	-.07	-.29	-.34	.18	-.17	-.12	-.09	.42	-.15	-.11	-.07	.27						
(14) Density	144.7	15.44	.05	-.07	-.29	.01	-.01	-.25	.00	.02	-.20	.00	.07	.00	.25					
(15) Density <sup>2</sup>	1.00	0.82	.01	.05	.18	.00	.00	.11	.00	-.01	.05	.04	.00	.00	-.03	-.46				
(16) Exports (billion \$)	5.81	2.49	.00	.01	.05	.00	.00	-.04	.00	.00	-.11	.02	.01	.00	-.16	.29	-.17			
(17) Dotcom bubble	0.60	0.49	-.03	.08	.29	.00	.01	.23	.00	-.02	.08	.02	-.06	.00	-.41	-.69	.11	.28		
(18) Collective action organizations	0.70	2.25	.21	.62	.02	.15	-.03	.15	.64	-.13	.27	.24	.14	.01	-.10	.02	-.01	.00	-.02	
(19) Collective action organizations <sup>2</sup>	1.00	5.47	.07	.43	-.01	.10	-.04	.06	.53	-.07	.17	.09	.04	.02	-.06	.02	.00	.00	-.03	.90

Note. All correlations with absolute values greater than .065 are significant at  $p < .05$ .

**Table 2.** Regression Analysis of New Venture Creation of Canada's Telecom Equipment Manufacturers.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Baseline <i>Fixed effects negative binomial</i>	HI & H2 <i>HI &amp; H2 binomial</i>	Baseline <i>Three-stage least squares</i>	HI & H2 <i>HI &amp; H2 least squares</i>	Baseline <i>Driscoll-Kraay</i>	HI & H2
<i>New venture creation</i>						
Intercept	1.31 (2.15)	-2.04 (2.50)	-0.19 (1.43)	-1.27 (1.79)	-0.07 (2.04)	-0.68 (2.02)
Founding spatial lag	0.10 (0.11)	0.09 (0.12)	0.03 (0.04)	0.03 (0.04)	0.03 (0.03)	0.03 (0.03)
Gross domestic income (\$ 10 billion)	0.25 (0.39)	0.05 (0.36)	0.23 (0.15)	-0.71 (0.24) <sup>***</sup>	0.28 (0.07) <sup>***</sup>	0.08 (0.16)
Household expenses/1,000	0.00 (0.02)	0.00 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.03 (0.02)	-0.02 (0.02)
City	0.13 (0.70)	-0.85 (0.70)	0.76 (0.36) <sup>*</sup>	-0.84 (0.49)	0.76 (0.56)	0.38 (0.44)
Town	-1.24 (0.95)	-1.38 (0.47) <sup>***</sup>	0.30 (0.46)	-0.16 (0.51)	0.32 (0.44)	0.23 (0.34)
Education	7.23 (5.81)	9.49 (7.37)	1.43 (3.28)	2.90 (3.62)	-0.16 (1.12)	0.44 (0.79)
Research center	-0.26 (0.22)	0.20 (0.18)	-0.26 (0.11) <sup>*</sup>	0.21 (0.17)	-0.27 (0.11) <sup>*</sup>	-0.09 (0.13)
French population	0.00 (0.01)	0.00 (0.00)	0.01 (0.00)	-0.00 (0.00)	0.00 (0.01)	0.00 (0.01)
Cultural diversity	0.03 (0.03)	0.02 (0.02)	0.01 (0.01) <sup>*</sup>	-0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Firm exits	0.23 (0.04) <sup>***</sup>	0.20 (0.04) <sup>***</sup>	0.23 (0.03) <sup>***</sup>	0.13 (0.04) <sup>***</sup>	0.24 (0.10) <sup>*</sup>	0.22 (0.10) <sup>*</sup>
Agglomeration of labor/1,000	0.53 (0.18) <sup>***</sup>	0.51 (0.18) <sup>***</sup>	0.30 (0.04) <sup>***</sup>	0.27 (0.04) <sup>***</sup>	0.30 (0.10) <sup>***</sup>	0.29 (0.10) <sup>***</sup>
Corporate tax rate	-4.84 (31.80)	31.42 (29.62)	5.12 (13.50)	29.71 (17.09)	-3.16 (14.28)	6.93 (15.28)
Unemployment rate	0.02 (0.12)	-0.00 (0.10)	-0.03 (0.03)	-0.07 (0.04)	-0.00 (0.03)	-0.01 (0.02)
Density	0.98 (0.96)	0.80 (0.88)	0.10 (0.04) <sup>*</sup>	0.11 (0.05) <sup>*</sup>	0.10 (0.03) <sup>***</sup>	0.09 (0.03) <sup>***</sup>
Density <sup>2</sup>	0.73 (0.71)	0.61 (0.65)	0.08 (0.05)	0.10 (0.05)	0.04 (0.02) <sup>*</sup>	0.05 (0.02) <sup>***</sup>
Exports (billion)	-0.26(0.08) <sup>***</sup>	-0.27(0.13) <sup>*</sup>	-0.01(0.01)	-0.02 (0.01)	-0.01(0.01) <sup>***</sup>	-0.01(0.01)
Dotcom bubble	0.08 (0.40)	0.07 (0.36)	Omitted	Omitted	0.11 (0.07)	0.08 (0.06)

(continued)

Table 2. Continued

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Baseline <i>Fixed effects negative binomial</i>	H1 & H2 <i>Fixed effects negative binomial</i>	Baseline <i>Three-stage least squares</i>	H1 & H2 <i>Three-stage least squares</i>	Baseline <i>Driscoll-Kraay</i>	H1 & H2 <i>Driscoll-Kraay</i>
Year dummies	Included	Included	Included	Included		
Municipality dummies	Included	Included	Included	Included		
Year effects					Included	Included
Municipality fixed effects					Included	Included
Collective action organizations		1.10 (0.29) <sup>***</sup>		2.61 (0.48) <sup>***</sup>		0.62 (0.17) <sup>***</sup>
Collective action organizations <sup>2</sup>		-0.20 (0.04) <sup>***</sup>		-0.34 (0.06) <sup>***</sup>		-0.09 (0.02) <sup>***</sup>
<i>Collective action organizations</i>						
Intercept			-0.47 (0.03) <sup>***</sup>	-0.46 (0.03) <sup>***</sup>		
Agglomeration of labor/1,000			0.00 (0.05)	0.03 (0.05)		
Population			0.00 (0.00) <sup>***</sup>	0.00 (0.00) <sup>***</sup>		
New venture creation			0.01 (0.08)	-0.10 (0.08)		
Log Pseudolikelihood	-522.14	-516.67				
R <sup>2</sup>			0.37	0.24	0.20	0.22
Total observation	910	910	910	910	910	910

Note. In total, 292 new ventures were created across 91 municipalities. Robust errors clustered by province are in parentheses. H1 = Hypothesis 1; H2 = Hypothesis 2.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

While the information in Table 2 is informative, it remains somewhat limited. To further demonstrate the curvilinear effect, we illustrated the effect in Figure 1. The inverted U-shaped curve of the fitted value clearly shows a tipping point. The relationship starts out positive before the point and becomes negative after that. The results that are shown in Figure 1 illustrate this curvilinear relationship between collective action organizations and new venture creation.

### Discussion and Conclusion

Entrepreneurs establish their start-ups in certain regions and around certain types of incumbent firms to improve their chances of survival and growth. Consequently, added insights about the context and the intrinsic nature in which a collection of incumbent firms attracts or spawns entrepreneurial founding and performance are tremendously relevant for academic researchers, policy makers, and corporate decision makers. Social scientists are paying increasing attention to the sociological explanation of this interdisciplinary phenomenon, in addition to the century-old theory of economic agglomeration (Marshall, 1920). Given that intentional collaboration is not needed for the principle of agglomeration economies to be effective (Gordon & McCann, 2000), the agglomeration theorization of the spatial variation of entrepreneurial activities implicitly treats individuals and organizations as atomistic entities, and it thus overlooks the social structure in which economic activities are embedded and governed (Granovetter, 1985). In contrast, sociological theorization sheds light on the role of network-based social structures in the geographic concentration of entrepreneurial activities (Sorenson, 2005; Stuart & Sorenson, 2003). It posits that geographically bounded social networks that are formed within an industry cluster help entrepreneurs to identify opportunities

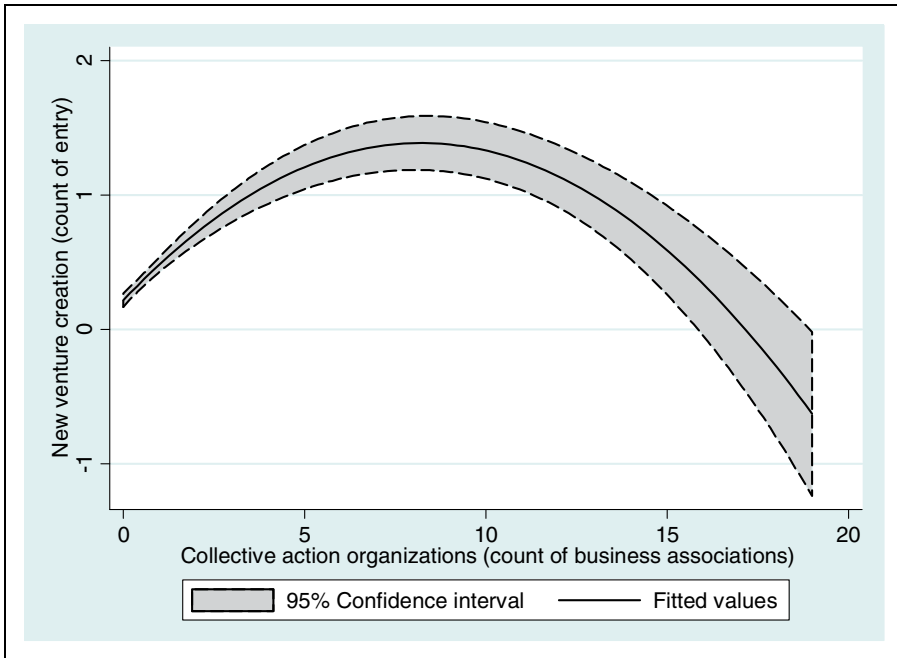


Figure 1. The predicted new venture creation with 95% confidence interval.



and mobilize resources and thus reinforce the clustering of entrepreneurial activities (Sorenson & Audia, 2000). However, a literature review of this line of research shows that sociological theorization will remain incomplete unless it goes beyond its fundamental yet simplistic proposition on the benefits of social networks for entrepreneurs and separately examines the diverse functions and impacts of the different types of social networks that form the different fabrics of regional social structures (McCann & Folta, 2008). Without this more precise examination, the literature risks implying an oversimplified linear association between network-based social structures and new venture creation, regardless of the distinct natures of different social networks.

As a departure from the sociological theorization of the geographic concentration of economic activities, we join the debate by offering more fine-tuned insights regarding the research question: *How do collective action organizations as part of a geographically bounded and network-based social structure affect de novo entrants in a region?* Following the literature (Battisti & Perry, 2015; Knoke, 1988; Olson, 1965; Perez-Aleman, 2003; Schmitz, 1995, 1999), our study operationalized collective action organizations as business associations. The earlier empirical studies of the impacts of business associations on economic growth generated mixed evidence (Curran & Blackburn, 1994; Foreman-Peck, Makepeace, & Morgan, 2006; Houghton, Smith, & Hood, 2009; Sievers & Maennig, 2006), which reflects the divergent views of collective action organizations from network facilitators (Bennett, 1998; Bennett & Ramsden, 2007; Dalziel, 2006; Maennig & Ölschläger, 2011) to distributional coalitions (Manzetti, 1994; Olson, 1965, 1982). With the aim of shedding light on the inconclusive empirical results and divergent theoretical views of collective action organizations, this study yielded intriguing empirical results by using data from Canada's telecommunication equipment manufacturing industry between the years 1995 and 2005.

Among the significant insights from the study, we found empirical evidence that economic agglomeration contributed positively to new venture creation, which was consistent with the existing literature. More importantly, we found strong evidence that collective action organizations affected new venture creation. Consistent with the previous studies (Dalziel, 2006; Houghton et al., 2009; Maennig & Ölschläger, 2011), we found that local business associations encouraged firm-founding as they helped to establish a social platform for new venture creation and economic growth. In addition, we found the positive relationship to be curvilinear. In line with the previous studies that revealed the possible negative impacts of business associations (Foreman-Peck et al., 2006; Manzetti, 1994; Sievers & Maennig, 2006), this finding suggests that a region with too many collective action organizations comes to resemble a clubby environment that erects high entry barriers against newcomers, perhaps for the purpose of protecting the interests of the incumbents.

### ***Theoretical Contributions and Practical Implications***

As one of the earliest efforts to examine how collective action organizations create a "pulling" effect (Tan, 2006) in new venture creation, this research contributes to the entrepreneurship research in general (Busenitz, Plummer, Klotz, Shahzad, & Rhoads, 2014) by offering fine-tuned insights and empirical evidence on the role of local collective organizations. The empirical studies have generated abundant qualitative evidence on the role of organized collective action in building industry clusters (e.g., American Electronics Association in the building of Silicon Valley; see (Saxenian, 1994)) and sporadic quantitative evidence of the impacts of business associations on a variety of dependent variables that range from strategic competence (Houghton et al., 2009) and innovation performance (Dalziel, 2006) to firm growth (Foreman-Peck et al., 2006) and economic development (Beugelsdijk & Van Schaik, 2005); however, a direct assessment

of the impacts of collective action organizations on new venture creation has been missing. The pioneering study of Maennig and Ölschläger (2011) partially filled the gap by reporting a positive relationship between business associations and regional start-up rates; however, the relationship was not at the 95% significance level, and the implications of the findings were limited due to the study's cross-sectional design. By being the first to reveal quantitative evidence from longitudinal data, our study advances the understanding of how collective action that is organized by business associations affects the location choice of entrepreneurial activities.

More specifically, the positive and curvilinear impact of business associations on new venture creation reconciles the theoretical debate over whether collective action organizations are network facilitators (Bennett, 1998; Bennett & Ramsden, 2007; Dalziel, 2006; Maennig & Ölschläger, 2011) or distributional coalitions (Manzetti, 1994; Olson, 1965, 1982). The curvilinear relationship that is revealed in this study suggests that both perspectives can be valid and that the impacts of collective action are essentially a double-edged sword. Collective actions that are organized by business associations do facilitate networking, the development of trust, and collaboration and collective representation; thus, they help to build industry clusters with more social capital, lower transaction costs, faster knowledge dissemination, a more visible regional identity, and consequently more entrepreneurial activities. However, the functions of business associations are directed toward the representation of the existing members and the creation of collective industry standards, norms, and rules, which leads to an overly dense social structure, which becomes costly for new entrants. Such a social structure favors the status quo and is no longer conducive to entrepreneurship. Instead, it becomes an entry barrier for entrepreneurs and for *de novo* entrants in particular because they may disrupt the status quo in the industry cluster. As a result, at some point, the inhibiting "push" force overwhelms the positive "pull" factor that has attracted new entrants and nurtured entrepreneurial growth in a cluster (Tan, 2006), and the facilitating benefits of local collective action organizations start to decline. To validate our findings, we presented the empirical results to some of the external constituents who were also the primary source of our data. These individuals confirmed our hypotheses, and one of them made the following remark: "I can see how too many rule-setting organizations in one location could complicate entrepreneurship and dampen creativity, being more of a hindrance than a help." The implication for policy makers and industry leaders is thus readily apparent as such insights may offer actionable guidance as they attempt to emulate the winning attributes and avoid potential hindrance in clusters.

Additionally, the findings contribute to the sociological theorization of economic activities by directly measuring collective action organizations, which are a key social structure element, thus confirming that social structure is relevant in the regional variation of entrepreneurial activities (Sorenson & Audia, 2000). As the literature suggests, the persistence of geographic industry concentration can be a result of either agglomeration externalities that help to maintain the competitiveness of existing firms or the social structure of industry clusters that generates and attracts new business ventures. Social connections in industry clusters provide entrepreneurs, particularly spinoffs (Klepper & Sleeper, 2005), with opportunities to observe how local firms respond to customer needs and then adapt and alter the strategies that are used by existing firms (Almeida & Kogut, 1997; Audretsch, 1998; Audretsch, 2003; Saxenian, 1994). However, the literature of sociological theorization of industry clusters has not directly and separately assessed the different types of social networks with divergent objectives and functions. Consistent with economic reasoning, our study finds that the agglomeration of labor has a positive impact on the founding of new ventures; and, after controlling for agglomeration economics, we found that collective action organizations have a positive impact on new venture creation. Thus, our study confirms the impacts of both agglomeration and social structure, and it empirically demonstrates that social structure (i.e., collective action organizations) complements economic externalities by contributing to entrepreneurial activities. Finally, the curvilinear relationship that was found is

consistent with the research on the dark side of social capital (Lechner et al., 2010). In sum, these nuanced findings reveal a complexity in the functions and impacts of social structure on entrepreneurial activities that has not yet been addressed in the literature.

### ***Implications for Future Research***

This study examines how the collective action of incumbent firms affects *de novo* entrants. Our research strategy was grounded by Saxenian's (1994) suggestion to examine local industrial structure to understand why more new ventures emerge in some places but not in others. In particular, a place with a "thick" social structure "ranging from strong local institutional presence through to the strength of shared rules, conventions, and knowledge" (Amin & Thrift, 1994, p. 2) has the potential to shape local industry (Djelic et al., 2005; Parker & Tamaschke, 2005). For the purposes of this study, we focus on the collective action of incumbent firms through business associations, and we operationalize collective action organizations as the count of local business associations. By doing so, the study does not account for the other types of collective action organizations, such as labor unions and recreational associations (Knoke, 1988; Olson, 1965). However, these groups can also potentially facilitate networking and knowledge flow for entrepreneurs to identify opportunities and mobilize resources. Considering the similarities and differences, it is interesting to note whether the curvilinear impact of business associations applies to the other collective action organizations. More generally, future research should attempt to capture how other types of social networks within industry clusters play roles in new venture creation. A more comprehensive and multilevel research design (e.g., Tan, Zhang, & Wang, 2015) that incorporates firm-level, industry/cluster-level, and regional-level interactions may offer more accurate account and fine-tuned insights about this important yet underexplored issue.

Finally, in response to recent developments, future research efforts are called for to examine why the agglomeration of incumbents may have beneficial effects on attracting new entrants and increasing founding rates but detrimental effects on subsequent venture survival (Tan & Tan, 2017). Our finding of a positive relationship between firm exits and new venture creation (see Table 2) provides an opportunity for further study. While it indirectly confirms our theory that collective action organizations facilitate the efficient allocation of resources in the industry (such that the resources that are released from failed ventures can be quickly distributed to their next best use in a new venture), and we ran additional regression analyses to test the impact of business associations on firm exits, the result was not significant, and we were not able to draw a definitive conclusion. Future research on the functions of collective action organizations in terms of both new venture creation and firm exits is thus needed. In sum, by offering preliminary findings on an issue of increasing importance, our research aims to raise scholarly interest and to provoke future debate.

### **Acknowledgments**

We thank *ETP* Editor James Fiet and anonymous reviewers for comments and suggestions.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was in part supported by a Social Science and Humanities

Research Council of Canada research grant and National Natural Science Foundation of China research grants (71472131, 71732005, and 71401183).

## References

- Abramson, B. D., & Raboy, M. (1999). Policy globalization and the “information society”: A view from Canada. *Telecommunications Policy*, 23, 775–791.
- Acs, Z. J., Armington, C., & Zhang, T. (2007). The determinants of new-firm survival across regional economies: The role of human capital stock and knowledge spillover. *Papers in Regional Science*, 86, 367–391.
- Acs, Z. J., Audretsch, D. B., & Lehmann, E. E. (2013). The knowledge spillover theory of entrepreneurship. *Small Business Economics*, 41, 757–774.
- Acs, Z. J., & Megyesi, M. I. (2009). Creativity and industrial cities: A case study of Baltimore. *Entrepreneurship & Regional Development*, 21, 421–439.
- Acs, Z. J., & Plummer, L. A. (2005). Penetrating the “knowledge filter” in regional economies. *Annals of Regional Science*, 39, 439–456.
- Acs, Z. J., Plummer, L. A., & Sutter, R. (2009). Penetrating the knowledge filter in “rust belt” economies. *Annals of Regional Science*, 43(4), 989–1012.
- Acs, Z. J., & Varga, A. (2005). Entrepreneurship, agglomeration and technological change. *Small Business Economics*, 24, 323–334.
- Allison, P. D., & Waterman, R. P. (2002). Fixed-effects negative binomial regression models. *Sociological Methodology*, 32, 247–265.
- Almeida, P., & Kogut, B. (1997). The exploration of technological diversity and the geographic localization of innovation. *Small Business Economics*, 9, 21–31.
- Amesse, F., Latour, R., Rebolledo, C., & Séguin-Dulude, L. (2004). The telecommunications equipment industry in the 1990s: From alliances to mergers and acquisitions. *Technovation*, 24, 885–897.
- Amin, A. (1999). An institutionalist perspective on regional economic development. *International Journal of Urban and Regional Research*, 23, 365–378.
- Amin, A., & Thrift, N. J. (1994). *Globalization, institutions, and regional development in Europe*. Oxford: Oxford University Press.
- Anselin, L. (1988). *Spatial econometrics: Methods and models*. Dordrecht: Kluwer Academic Publishers.
- Anselin, L. (2001). Spatial econometrics. In B. Baltagi (Ed.), *A companion to theoretical econometrics* (pp. 310–330). Oxford: Basil Blackwell.
- Armington, C., & Acs, Z. J. (2002). The determinants of regional variation in new firm formation. *Regional Studies*, 36, 33–45.
- Associations Canada. (1995–2005). *Financial post markets: Canadian demographics*. Toronto: Financial Post.
- Audretsch, B. (1998). Agglomeration and the location of innovative activity. *Oxford Review of Economic Policy*, 14, 18–29.
- Audretsch, D. B. (2003). Managing knowledge spillovers: The role of geographic proximity. In J. Baum & O. Sorenson (Eds.), *Geography and strategy: Advances in strategic management* (pp. 23–48). Oxford: JAI Press.
- Battisti, M., & Perry, M. (2015). Small enterprise affiliations to business associations and the collective action problem revisited. *Small Business Economics*, 44, 559–576.
- Bennett, R. J. (1998). Business associations and their potential contribution to the competitiveness of SMEs. *Entrepreneurship & Regional Development*, 10, 243–260.
- Bennett, R. J., & Ramsden, M. (2007). The contribution of business associations to SMEs: Strategy, bundling or reassurance?. *International Small Business Journal*, 25, 49–76.
- Beugelsdijk, S., & Van Schaik, T. (2005). Differences in social capital between 54 Western European regions. *Regional Studies*, 39, 1053–1064.
- Bhagavatula, S., Elfring, T., van Tilburg, A., & van de Bunt, G. G. (2010). How social and human capital influence opportunity recognition and resource mobilization in India’s handloom industry. *Journal of Business Venturing*, 25, 245–260.
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.

- Busenitz, L. W., Plummer, L. A., Klotz, A. C., Shahzad, A., & Rhoads, K. (2014). Entrepreneurship research (1985–2009) and the emergence of opportunities. *Entrepreneurship Theory and Practice*, 38, 981–1000.
- Canina, L., Enz, C. A., & Harrison, J. S. (2005). Agglomeration effects and strategic orientations: Evidence from the U.S. lodging industry. *Academy of Management Journal*, 48, 565–581.
- Carroll, G. R., & Hannan, M. T. (1989). Density dependence in the evolution of populations of newspaper organizations. *American Sociological Review*, 54, 524–541.
- Chung, W., & Kalnins, A. (2001). Agglomeration effects and performance: A test of the Texas lodging industry. *Strategic Management Journal*, 22, 969–988.
- Ciccone, A., & Hall, R. E. (1996). Productivity and the density of economic activity. *American Economic Review*, 86, 54–70.
- Clague, C. (1997). *Institutions and economic development: Growth and governance in less-developed and post-socialist countries*. Baltimore, MD: Johns Hopkins University Press.
- Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Crane, D. (1997, September 16). Technology triangle: A model for job and wealth creation. *Toronto Star*, p. D2.
- Cumming, D., & Johan, S. (2010). The differential impact of the internet on spurring regional entrepreneurship. *Entrepreneurship Theory and Practice*, 34, 857–883.
- Curran, J., & Blackburn, R. (1994). *Small firms and local economic networks: The death of the local economy?* London: Paul Chapman.
- Dalziel, M. (2006). The impact of industry associations: Evidence from statistics Canada data. *Innovation*, 8, 296–306.
- David, P. A., & Rosenbloom, J. L. (1990). Marshallian factor market externalities and the dynamics of industrial localization. *Journal of Urban Economics*, 28, 349–370.
- Djelic, M.-L., Nootboom, B., & Whitley, R. (2005). Introduction: Dynamics of interaction between institutions, markets and organizations. *Organization Studies*, 26, 1733–1741.
- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, 80, 549–560.
- Ellison, G., & Glaeser, E. L. (1997). Geographic concentration in U.S. manufacturing industries: A dartboard approach. *Journal of Political Economy*, 105, 889–927.
- Ellison, G., Glaeser, E. L., & Kerr, W. R. (2010). What causes industry agglomeration? Evidence from coagglomeration patterns. *American Economic Review*, 100, 1195–1213.
- Faulconbridge, J. R. (2007). Exploring the role of professional associations in collective learning in London and New York's advertising and law professional-service-firm clusters. *Environment and Planning A*, 39, 965–984.
- Foreman-Peck, J., Makepeace, G., & Morgan, B. (2006). Growth and profitability of small and medium-sized enterprises: Some Welsh evidence. *Regional Studies*, 40, 307–319.
- Fu, X. (2012). Foreign direct investment and managerial knowledge spillovers through the diffusion of management practices. *Journal of Management Studies*, 49, 970–999.
- Fujita, M., & Thisse, J. F. (2002). *Economics of agglomeration: Cities, industrial location, and regional growth*. Cambridge, MA: Cambridge University Press.
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11, 183–196.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91, 481–510.
- Gilbert, B. A. (2012). Creative destruction: Identifying its geographic origins. *Research Policy*, 41, 734–742.
- Gilbert, B. A., & Campbell, J. T. (2015). The geographic origins of radical technological paradigms: A configurational study. *Research Policy*, 44, 311–327.
- Gilbert, B. A., McDougall, P. P., & Audretsch, D. B. (2008). Clusters, knowledge spillovers and new venture performance: An empirical examination. *Journal of Business Venturing*, 23, 405–422.
- Globerman, S., & Booth, P. (1989). The Canada-US free trade agreement and the telecommunications industry. *Telecommunications Policy*, 13, 319–328.

- Godoe, H. (2000). Innovation regimes, R&D and radical innovations in telecommunications. *Research Policy*, 29, 1033–1046.
- Gordon, I. R., & McCann, P. (2000). Industrial clusters: Complexes, agglomeration and/or social networks? *Urban Studies*, 37, 513–532.
- Gould, R. V. (1993). Collective action and network structure. *American Sociological Review*, 58, 182–196.
- Hausman, J., Hall, B. H., & Griliches, Z. (1984). Econometric models for count data with an application to the patents-R & D relationship. *Econometrica*, 52, 909–938.
- Hawkins, R. (1999). The rise of consortia in the information and communication technology industries: Emerging implications for policy. *Telecommunications Policy*, 23, 159–173.
- Henderson, J. V. (2003). Marshall's scale economies. *Journal of Urban Economics*, 53, 1–28.
- Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, 7, 281–312.
- Hoover, E. M. (1948). *The location of economic activity*. New York, NY: McGraw-Hill.
- Houghton, S. M., Smith, A. D., & Hood, J. N. (2009). The influence of social capital on strategic choice: An examination of the effects of external and internal network relationships on strategic complexity. *Journal of Business Research*, 62, 1255–1261.
- Jaffe, A. B., Trajtenberg, M., & Henderson, R. (1993). Geographic localization of knowledge spillovers as evidenced by patent citations. *Quarterly Journal of Economics*, 108, 577–598.
- Jones, C., Hesterly, W. S., & Borgatti, S. P. (1997). A general theory of network governance: Exchange conditions and social mechanisms. *Academy of Management Review*, 22, 911–945.
- Kalnins, A., & Chung, W. (2004). Resource-seeking agglomeration: A study of market entry in the lodging industry. *Strategic Management Journal*, 25, 689–699.
- Klepper, S., & Sleeper, S. (2005). Entry by spinoffs. *Management Science*, 51, 1291–1306.
- Knoke, D. (1988). Incentives in collective action organizations. *American Sociological Review*, 53, 311–329.
- Krugman, P. (1991). *Geography and trade*. Cambridge, MA: MIT Press.
- Lechner, C., Frankenberger, K., & Floyd, S. W. (2010). Task contingencies in the curvilinear relationships between intergroup networks and initiative performance. *Academy of Management Journal*, 53, 865–889.
- Lee, S.-H., Yamakawa, Y., Peng, M. W., & Barney, J. B. (2011). How do bankruptcy laws affect entrepreneurship development around the world? *Journal of Business Venturing*, 26, 505–520.
- Leibovitz, J. (2003). Institutional barriers to associative city-region governance: The politics of institution-building and economic governance in “Canada’s technology triangle.” *Urban Studies*, 40, 2613–2642.
- MacLeod, G., & Goodwin, M. (1999). Space, scale and state strategy: Rethinking urban and regional governance. *Progress in Human Geography*, 23, 503–527.
- Maennig, W., & Ölschläger, M. (2011). Innovative milieux and regional competitiveness: The role of associations and chambers of commerce and industry in Germany. *Regional Studies*, 45, 441–452.
- Maennig, W., Ölschläger, M., & Schmidt-Trenz, H.-J. (2015). Organisations and regional innovative capability: The case of the chambers of commerce and industry in Germany. *Environment and Planning C: Government and Policy*, 33, 811–827.
- Manzetti, L. (1994). Institutional decay and distributional coalitions in developing countries: The Argentine riddle reconsidered. *Studies in Comparative International Development*, 29, 82–114.
- Marshall, A. (1920). *Principles of economics*. London: Macmillan.
- Massa, F. G., Helms, W. S., Voronov, M., & Wang, L. (2017). Emotions uncorked: Inspiring evangelism for the emerging practice of cool-climate winemaking in Ontario. *Academy of Management Journal*, 60, 461–499.
- Maurer, I., & Ebers, M. (2006). Dynamics of social capital and their performance implications: Lessons from biotechnology start-ups. *Administrative Science Quarterly*, 51, 262–292.
- McCann, B. T., & Folta, T. B. (2008). Location matters: Where we have been and where we might go in agglomeration research. *Journal of Management*, 34, 532–565.

- McKendrick, D. G., Jaffee, J., Carroll, G. R., & Khessina, O. M. (2003). In the bud? Disk array producers as a (possibly) emergent organizational form. *Administrative Science Quarterly*, 48, 60–93.
- Meyers, L. S., Gamst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. Thousand Oaks, CA: Sage Publications.
- Miller, D. J., & Acs, Z. J. (2013). Technology commercialization on campus: Twentieth century frameworks and twenty-first century blind spots. *Annals of Regional Science*, 50, 407–423.
- Nadvi, K. (1999). The cutting edge: Collective efficiency and international competitiveness in Pakistan. *Oxford Development Studies*, 27, 81–107.
- Olson, M. (1965). *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard University Press.
- Olson, M. (1982). *The rise and decline of nations*. New Haven, CT: Yale University Press.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge, MA: Cambridge University Press.
- Parker, R., & Tamaschke, L. (2005). Explaining regional departures from national patterns of industry specialization: Regional institutions, policies and state coordination. *Organization Studies*, 26, 1787–1807.
- Peddibhotla, N. B., & Subramani, M. R. (2007). Contributing to public document repositories: A critical mass theory perspective. *Organization Studies*, 28, 327–346.
- Pe'er, A., & Keil, T. (2013). Are all startups affected similarly by clusters? Agglomeration, competition, firm heterogeneity, and survival. *Journal of Business Venturing*, 28, 354–372.
- Pe'er, A., & Vertinsky, I. (2008). Firm exits as a determinant of new entry: Is there evidence of local creative destruction? *Journal of Business Venturing*, 23, 280–306.
- Pe'er, A., Vertinsky, I., & King, A. (2008). Who enters, where and why? The influence of capabilities and initial resource endowments on the location choices of *de novo* enterprises. *Strategic Organization*, 6, 119–149.
- Perez-Aleman, P. (2003). A learning-centered view of business associations: Building business-government relations for development. *Business and Politics*, 5, 193–213.
- Piore, M. J., & Sabel, C. F. (1984). *The second industrial divide: Possibilities for prosperity*. New York, NY: Basic Books.
- Plummer, L. A. (2010). Spatial dependence in entrepreneurship research: Challenges and methods. *Organizational Research Methods*, 13, 146–175.
- Plummer, L. A., & Acs, Z. J. (2014). Localized competition in the knowledge spillover theory of entrepreneurship. *Journal of Business Venturing*, 29, 121–136.
- Plummer, L. A., & Gilbert, B. A. (2015). The effect of defense agency funding of university research on regional new venture creation. *Strategic Entrepreneurship Journal*, 9, 136–152.
- Plummer, L. A., & Pe'er, A. (2010). The geography of entrepreneurship. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research* (pp. 519–556). New York, NY: Springer-Verlag.
- Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, 76, 77–90.
- Pyke, F., Becattini, G., & Sengenberger, W. (1990). *Industrial districts and inter-firm cooperation in Italy*. Geneva: International Institute for Labor Studies.
- Qian, H., & Acs, Z. J. (2013). An absorptive capacity theory of knowledge spillover entrepreneurship. *Small Business Economics*, 40, 185–197.
- Qian, H., Acs, Z. J., & Stough, R. R. (2013). Regional systems of entrepreneurship: The nexus of human capital, knowledge and new firm formation. *Journal of Economic Geography*, 13, 559–587.
- Raco, M. (1998). Assessing “institutional thickness” in the local context: A comparison of Cardiff and Sheffield. *Environment and Planning A*, 30, 975–996.
- Rauch, A., van Doorn, R., & Hulsink, W. (2014). A qualitative approach to evidence-based entrepreneurship: Theoretical considerations and an example involving business clusters. *Entrepreneurship Theory and Practice*, 38, 333–368.

- Rosenkopf, L., & Almeida, P. (2003). Overcoming local search through alliances and mobility. *Management Science*, 49, 751–766.
- Rosenthal, S. S., & Strange, W. C. (2003). Geography, industrial organization, and agglomeration. *Review of Economics and Statistics*, 85, 377–393.
- Rotemberg, J. J., & Saloner, G. (2000). Competition and human capital accumulation: A theory of interregional specialization and trade. *Regional Science and Urban Economics*, 30, 373–404.
- Sabel, C. (1994). Learning by monitoring: The institutions of economic development. In N. Smelser & R. Swedberg (Eds.), *The handbook of economic sociology* (pp. 137–165). Princeton, NJ: Princeton University Press.
- Saxenian, A. (1994). *Regional advantage: Culture and competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Schmitz, H. (1995). Collective efficiency: Growth path for small-scale industry. *Journal of Development Studies*, 31, 529–566.
- Schmitz, H. (1999). Collective efficiency and increasing returns. *Cambridge Journal of Economics*, 23, 465–483.
- Scott, A. J. (1994). Variations on the theme of agglomeration and growth: The gem and jewelry industry in Los Angeles and Bangkok. *Geoforum*, 25, 249–263.
- Sievers, T., & Maennig, W. (2006). Die rolle des dritten sektors als determinante im nationalen und internationalen standortwettbewerb. In H. J. Schmidt-Trenz & R. Stober (Eds.), *Jahrbuch recht und oekonomik des dritten sektors 2005/2006* (pp. 276–292). Baden-Baden: Nomos.
- Simons, T., & Ingram, P. (2003). Enemies of the state: The interdependence of institutional forms and the ecology of the Kibbutz, 1910–1997. *Administrative Science Quarterly*, 48, 592–621.
- Sorenson, O. (2005). Social networks and the persistence of clusters: Evidence from the computer workstation industry. In S. Breschi & F. Malerba (Eds.), *Clusters, networks, and innovation* (pp. 297–316). Oxford: Oxford University Press.
- Sorenson, O., & Audia, P. G. (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.
- Sorenson, O., & Stuart, T. E. (2001). Syndication networks and the spatial distribution of venture capital investments. *American Journal of Sociology*, 106, 1546–1588.
- Spigel, B. (2015). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41, 49–72.
- Statistics Canada. (2001). *Information and communication technologies in Canada*. Ottawa: Statistics Canada.
- Statistics Canada. (2003). Canada's journey to an information society. In *Compendium publication on information and communications technologies (ICTs) in Canada* (pp. 3–48). Ottawa: Statistics Canada.
- Steier, L., & Greenwood, R. (2000). Entrepreneurship and the evolution of angel financial networks. *Organization Studies*, 21, 163–192.
- Streeck, W., & Schmitter, P. C. (1985). *Private interest government: Beyond market and state*. London: Sage Publications.
- Stuart, T., & Sorenson, O. (2003). The geography of opportunity: Spatial heterogeneity in founding rates and the performance of biotechnology firms. *Research Policy*, 32, 229–253.
- Tallman, S., Jenkins, M., Henry, N., & Pinch, S. (2004). Knowledge, clusters, and competitive advantage. *Academy of Management Review*, 29, 258–271.
- Tan, D., & Tan, J. (2017). Far from the tree? Do private entrepreneurs agglomerate around public sector incumbents during economic transition? *Organization Science*, 28, 113–132.
- Tan, J. (2006). Growth of industry clusters and innovation: Lessons from Beijing Zhongguancun science park. *Journal of Business Venturing*, 21, 827–850.
- Tan, J., Zhang, H., & Wang, L. (2015). Network closure or structural hole? The conditioning effects of network-level social capital on innovation performance. *Entrepreneurship Theory and Practice*, 39, 1189–1212.



- Tura, T., & Harmaakorpi, V. (2005). Social capital in building regional innovative capability. *Regional Studies*, 39, 1111–1125.
- Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61, 674–698.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42, 35–67.
- von Thünen, J. H. (1826). *The isolated state*. Oxford: Pergamon Press.
- Wang, L. (2017). Time and space in business: Dynamic geographic concentration and localized industry life cycle. *Journal of Strategy and Management*, 10, 1–28.
- Wang, L., Madhok, A., & Li, S. X. (2014). Agglomeration and clustering over the industry life cycle: Toward a dynamic model of geographic concentration. *Strategic Management Journal*, 35, 995–1012.
- Warf, B. (2001). Global dimensions of U.S. legal services. *Professional Geographer*, 53, 398–406.
- Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 29, 35–57.
- Weber, A. (1929). *Theory of the location of industries*. Chicago, IL: University of Chicago Press.
- Wiertz, C., & de Ruyter, K. (2007). Beyond the call of duty: Why customers contribute to firm-hosted commercial online communities. *Organization Studies*, 28, 347–376.
- Wilhoit, E. D., & Kisselburgh, L. G. (2015). Collective action without organization: The material constitution of bike commuters as collective. *Organization Studies*, 36, 573–592.
- Yang, H., Phelps, C., & Steensma, H. K. (2010). Learning from what others have learned from you: The effects of knowledge spillovers on originating firms. *Academy of Management Journal*, 53, 371–389.

### Author Biographies

**Liang Wang** is an associate professor of entrepreneurship, innovation and strategy in the School of Management at University of San Francisco. He received his PhD from the Schulich School of Business at York University. His research interests include firm location strategy, local institutions and regional innovation, with a focus on China's innovation ecosystem.

**Justin Tan** is a Professor and the Newmont Chair in Business Strategy at the Schulich School of Business at York University. His research in strategy, entrepreneurship and innovation has been supported by grants from the Ford Foundation, Social Science and Humanities Research Council of Canada, and National Science Foundation of China, among others.