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Immigrant Networking and Collaboration

Survey Evidence from CIC

Sari Pekkala Kerr and William R. Kerr

7.1 Introduction

High-skilled immigrants are a substantial and growing share of US innovation and entrepreneurship, accounting for about a quarter of US patents and firm starts. While recent research has begun to quantify these broad contributions and measure traits of the types of firms created (e.g., Brown et al. 2018; Kerr and Kerr 2017, 2018), many important factors about the innovation and entrepreneurial processes used by immigrants versus natives and how they interact are less explored.

We examine a particularly important feature—networking and the giving and receiving of advice outside of one’s own firm. Individuals working on new concepts, be they embodied in a new growth-oriented firm or a technology being developed in an established company, must acquire and integrate new knowledge. A frequent explanation for the clustering of innovative activity both nationally (e.g., Silicon Valley vs. Bismarck) and locally (e.g., Kendall Square vs. the South Shore in the Boston area) is the information spillovers and knowledge externalities that collocation with other innova-

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tors can provide. Entrepreneurs also cite access to knowledge and beneficial networks as one rationale for joining coworking spaces, incubators and accelerators, and similar facilities, sometimes at a higher rent for the space. The degree to which immigrants and natives differ on these dimensions is unknown but also important for understanding the implications of a rising share of immigrants in our innovative workforce.

We study how immigrants and natives utilize the potential networking opportunities provided by CIC, formerly known as the Cambridge Innovation Center. CIC is widely considered the center of the Boston entrepreneurial ecosystem, with its first facility and headquarters being in Kendall Square adjacent to MIT. Many well-known ventures have emerged from CIC, including Android (purchased by Google), Carbonite, and Hubspot. Start-ups begun at CIC have raised more than \$7 billion in venture capital funding and produced thousands of patents since its founding in 2001. To get a sense of this scale, the venture capital raised by CIC firms exceeds the amounts raised in most US states. CIC is also home to the labs and satellite offices of many large companies, with products such as Siri rumored to have been developed there. CIC offers many formal and informal networking opportunities, including the weekly Venture Café, where local entrepreneurs and innovators gather to network and hear talks.

In collaboration with CIC leadership, we surveyed people working at CIC in three locations spread across the Boston area and CIC's first expansion facility in St. Louis, Missouri. A total of 1,334 people participated in the survey (a 24 percent response rate). The survey included extensive questions about the backgrounds of individuals (including education and place of birth), the traits of their firms, their networking attitudes and behaviors both within and outside of CIC, their expectations for their company's future, and their personality traits. CIC leadership was particularly interested in learning about the reasons entrepreneurs chose to locate their firms at CIC and what value CIC was creating for their ventures.

In this chapter, we consider the networking attitudes and behaviors of immigrant entrepreneurs, inventors, and other employees at CIC as contrasted to their native counterparts. There are lengthy literatures on immigrant self-employment and entrepreneurship and on the importance of networking for business outcomes. Yet very little is known about the different ways in which immigrant and native founders access business networks and how they utilize such connections to benefit their ventures. Immigrants operating in a new business environment may show a heightened dependency on the connections available to them through their office location relative to natives more familiar with the local area. CIC provides a unique laboratory to study these questions given our survey's ability to track both formal and informal networking in a detailed manner.

Survey responses show that immigrants value the networking capabilities at CIC more than natives do. This finding (and the others to be described

below) are true in the sample averages and also in regressions that condition on person and firm traits and introduce fixed effects for each floor in a CIC building. There is suggestive evidence that immigrants are more likely to locate in CIC for the networking potential, and either way, there is robust evidence that immigrants perceive greater networking benefits and access to other companies as an important contributor to their work derived by locating at CIC.

Networks developed at CIC by immigrants tend to be one person larger than those of natives on average, but these differences are rarely statistically significant. When asked to list the locations of their five most important contacts, immigrant and native entrepreneurs at CIC display mostly a similar reliance on CIC itself. For contacts outside of CIC, immigrant entrepreneurs are substantially more likely to list overseas locations, while native entrepreneurs are overrepresented in terms of contacts elsewhere in the United States.

Looking at networking behavior inside CIC, the largest differences are found in the degree to which immigrants both give advice to and receive advice from people within CIC who work outside of their company. For both of these actions, immigrants report substantially greater rates of information exchange than natives for six surveyed factors: business operations, venture financing, technology, suppliers, people to recruit, and customers. On providing advice, the immigrant differential to natives is highest on business operations and customers and lowest on venture financing. On receiving advice, the differential is highest on venture financing and customers and lowest on suppliers and technology.

Our last set of analyses considers the specific traits of CIC building floors on which the company offices of immigrants and natives are located to see if they interact differently with floor-level environments. The floors within each CIC facility can have a very different feel or purpose: for example, one floor may be more populated with larger, fixed office spaces suitable for established teams, while another floor is a coworking space designed for very small and frequently changing teams or individual entrepreneurs. Conditional on the match of a client's needs to a type of space, the specific floor and office allocation is otherwise based on availability and often has a degree of randomness.

In the building floor analysis, we measure six traits of each floor: inventor percentage, immigrant percentage, average age, female percentage, average firm size, and total number of firms. Controlling for floor fixed effects, we interact these traits with an indicator for whether the respondent is an immigrant to observe whether there is heterogeneity in the immigrant differential due to the various floor characteristics. We do not find evidence that floor traits matter for the strength of the immigrant-native differential with respect to networking. There is some evidence that the greater degree to which immigrants give and receive advice is accentuated on floors that have

a high fraction of inventors, but the more important finding is that these floor-level shaping factors are second order to the main effects.

The next section provides a short literature review. Section 7.3 describes CIC and our survey instrument in detail. Section 7.4 presents the main empirical findings, and section 7.5 concludes.

7.2 Literature Review

Entrepreneurs can strongly benefit from collocating with other entrepreneurs, as is evident in Silicon Valley, Boston, North Carolina's Research Triangle, and many other industrial clusters. Extensive literature documents the importance of networking within such clusters and the potential location advantages for entrepreneurs in terms of innovation and discovery, securing financing and other resources, and increasing the performance of their ventures.¹ Katz and Wagner (2014) provide a summary of the more recent concept of the "innovation district" that has become very popular with cities; the authors explain how network considerations are a large part of why such start-up company collocations are proving successful.²

Many scholars argue that networks are particularly important at the start-up phase of a business, when good advice and connections to financing are most valuable.³ Four kinds of social networks are typically discussed in the literature, including family, collegial, transnational, and ethnic networks. One strand of the networking literature has focused on the effect of networking activity on business outcomes and firm performance, and another strand has evaluated the various factors influencing networks' formation and functioning.⁴ Explanations for why belonging to a network improves firm performance include the provision of a source of competitive advantage, reduced transaction costs, and enhanced access to knowledge and resources.⁵ Given the many potential mechanisms, the importance of networks is likely to vary greatly across heterogeneous firms.

While most of the literature does not differentiate between immigrant

1. For example, see Witt (2007); Elfring and Hulsink (2003, 2007); Powell, Koputt, and Smith-Doerr (1996); Balconi, Breschi, and Lissoni (2004); Breschi and Lissoni (2005, 2009); Glaeser and Kerr (2009); Kerr and Kominers (2015); Greve and Salaff (2003); Sorenson (2005); Aldrich and Reese (1993); Carlino and Kerr (2015); and Aldrich, Rosen, and Woodward (1987).

2. Katz, Vey, and Wagner (2015) further argue that the economic, physical, and networking assets within those districts create the innovation ecosystem that makes them so valuable. Chatterji, Glaeser, and Kerr (2014) discuss the policy environments that support innovation districts.

3. For example, see Davidson and Honig (2003), Aldrich and Zimmer (1986), Kim and Aldrich (2005), Uzzi (1999), Sharir and Lerner (2006), and Weber and Kratzer (2013).

4. For example, see Hoang and Antoncic (2003), Ahuja (2000), Calvó-Armengol et al. (2009), Fershtman and Gandal (2011), Jack (2010), Jack et al. (2010), and Gandal and Stettner (2016).

5. For example, see Dyer and Singh (1998); Lin and Lin (2016); Gulati and Higgins (2003); Zaheer and Bell (2005); Vanhaverbeke et al. (2009); Schott and Jensen (2016); McDonald, Khanna, and Westphal (2017); and Mazzola, Perrone, and Kamuriwo (2016).

and native entrepreneurs, extensive research quantifies that individuals from similar backgrounds tend to network with each other, a phenomenon called “homophily” (e.g., McPherson, Smith-Lovin, and Cook 2001). From the point of view of an immigrant entrepreneur, this may mean that there are fewer obvious network connections available in many foreign locations as compared to a typical native in the same location, and ethnicity has been found to be an important dimension of homophily in entrepreneurial founding teams.⁶ Some studies argue that heightened interaction among immigrant networks can explain why immigrant entrepreneurs cluster their businesses in certain locations and industries.⁷ Saxenian (2000) describes how Chinese and Indian immigrant networks in Silicon Valley promoted the extensive clustering of Chinese and Indian high-tech entrepreneurs in a small geographic area. Despite the large share of immigrant-owned businesses (e.g., Kerr and Kerr 2018), immigrant entrepreneurs in the US tend to have a smaller network to draw on when seeking financing, mentors, partners, employees, or clients than do typical native-born entrepreneurs (Raijman and Tienda 2000).

A complete literature review on business networks spans many disciplines from economics and sociology to management science and regional analysis.⁸ This study contributes in important and novel ways. We provide a rare economics-based view into how immigrant entrepreneurs network and how their networking behavior differs from that of native entrepreneurs. We further compare immigrant entrepreneurs to natives working in the same facility, which is a new empirical approach in this research space. Our CIC sample is both large and focused on companies that tend to be very innovative and growth-oriented, which is difficult to accomplish in many settings. Finally, we complement earlier analyses on the successful ability of immigrant entrepreneurs to network by providing evidence that links the networking behavior to personality traits and other characteristics of the individual and the firm.⁹

6. For example, see Aldrich and Waldinger (1990); Wilson and Martin (1982); Ruef, Aldrich, and Carter (2003); Hegde and Tumlinson (2014); and Gompers, Huang, and Wang (2017).

7. For example, see Light, Bhachu, and Karageorgis (1989); Saxenian (2002); Kalnins and Chung (2006); Chand and Ghorbani (2011); Aliaga-Isla and Riap (2013); Kloosterman, van der Leun, and Rath (1998); Salaff et al. (2003); Kremel (2016); and Kerr and Mandorff (2015). Immigrant clustering for innovation is also observed in Hunt and Gauthier-Loiselle (2010); Kerr and Lincoln (2010); Peri, Shih, and Sparber (2015); and Kerr (2018).

8. Summaries include Branstetter, Gandal, and Kuniesky (2017); Cisi et al. (2016); and Hoang and Antoncic (2003). Recent studies have, for example, focused on the relationship between network structure and behavior (Ballester, Calvó-Armengol, and Zenou 2006; Calvó-Armengol and Jackson 2004; Goyal, Van Der Leij, and Moraga-Gonzalez 2006; Jackson and Yariv 2007; Karlan et al. 2009) as well as the relationship between network structure and business performance (Ahuja 2000; Calvó-Armengol, Patacchini, and Zenou 2009; Fershtman and Gandal 2011; and Gandal and Stettner 2016).

9. See Åstebro et al. (2014) and Kerr, Kerr, and Xu (2018) for reviews of literature.

7.3 CIC and Survey Instrument

7.3.1 CIC History and Operations

CIC was founded in its present format in 2001, known then as the Cambridge Innovation Center. The first facility, known by its address of One Broadway, is in a building adjacent to and owned by MIT. The founders, Tim Rowe and Andy Olmsted, had previously established a “foundry” incubator at the spot. While the foundry model was unsuccessful, Rowe and Olmsted pivoted into what is now often labeled a coworking model, being among the first of its kind.

CIC today offers clients office management services that are flexible in design and month-to-month in duration. CIC rentals include access to “hardware” features such as fully stocked communal kitchens, regular and 3D printing, hardware tool shops, conference rooms, and IT and communications infrastructure. CIC also encourages extensive “software” features for its clients through formal and informal networking opportunities, lectures on topics related to start-ups and innovation, recreational classes like yoga, and proximity to funders, law firms, and other service providers. A complete history of CIC and its present operations are included in the Kerr, Kerr, and Brownell (2017a, 2017b) case studies.

The closest comparison to CIC are coworking spaces like WeWork that have risen to popularity with the “sharing economy.”¹⁰ Relative to an operation like WeWork, CIC has both higher-touch services and typically greater price points. The model of CIC also emphasizes a growth in a company’s spaces over time (reconfiguring offices during expansions or contractions) and serving a broader population of clients. CIC houses start-ups, single individuals in coworking spaces, not-for-profit organizations, law firms, venture investors, and satellite offices for large corporations. Amazon, Apple, Bayer, Google, PwC and Shell are examples of current and past larger clients. The for-profit CIC is widely recognized as the anchor for Boston’s entrepreneurship and innovation ecosystem, with its weekly Venture Café happy hour regularly drawing several hundred participants.

CIC prides itself on housing “more start-ups than anywhere else on the planet.” The company now has three locations in the Boston area along with independent entities connected to wet lab spaces and civic meeting spaces. At the One Broadway location, CIC has grown from one floor to its current seven. CIC expanded to St. Louis in 2014, and it has recently opened facilities in Miami, Rotterdam, and Philadelphia. It will open a Providence center in 2019 as part of an aggressive growth plan to reach 50 cities by 2026 (Kerr et al. 2017a, 2017b).

10. Related literature on incubators and accelerators includes Aernoudt (2004), Bruneel et al. (2012), Colombo and Delmastro (2002), Gandini (2015), and Grimaldi and Grandi (2005).

CIC's clients are substantially more innovative and high potential than the average venture in the Boston area. Guzman and Stern (2016, 2017) measure the likely potential of start-ups using digital signals available in their incorporation documents. Ventures registering as C-Corps or in Delaware are more likely to be targeting rapid growth than other companies, and the names of ventures also indicate their aspirations—for example, a venture named “Infinity Global Technologies” is more likely to target growth than one named “Billy’s Bicycle Shop.” During the 2010–12 period, the ventures registered at CIC had a growth potential score using this technique that was eightfold higher than the average Boston-area firm, and CIC ventures were tenfold more likely to have a patent at the outset or be a Delaware-incorporated firm.¹¹

7.3.2 CIC Survey Design

The scale and diversity of CIC offer a unique platform to study entrepreneurs, inventors, and employees working in innovative enterprises. We conducted a survey in 2017 of clients at four CIC locations, pulling from Cambridge, Boston, and St. Louis. The survey was designed in collaboration with the leadership team at CIC. CIC's client agreement allows them to survey tenants once per year, with responses being voluntary, and this survey served this function. It was launched during spring 2017 and remained open for 13 weeks.

In an effort to increase participation, CIC sent out one reminder email per location to clients encouraging them to participate. CIC also hosted a pizza lunch at Cambridge's 101 Main Street location, where one researcher handed out fliers, discussed the survey's goals, and had laptops available to fill out the survey. Reminders tended to increase participation for a short while, and CIC leadership made the decision to not send further inquiries and decided when to end the survey.

Table 7.1 describes the surveyed locations. The survey was sent to 5,645 individuals, of which about 20 percent were identified by the firms as “Heads” to CIC (e.g., for the purposes of directing official correspondence). The average firm has 4.8 people and has been at CIC for 2.8 years, with clients in the longest-running One Broadway and 101 Main Street locations in Cambridge having stayed longer on average. St. Louis houses larger firms on average, reflecting its lower use of individual coworking spaces. Fifty Milk Street, a location in the financial district of Boston, contains the largest share of nonprofit companies, about 19 percent of all clients.

A total of 1,334 people participated in the survey for a 24 percent response rate. The first survey question required respondents to categorize themselves as an employee, founder and/or CEO, owner, or other (e.g., board member, advisor). Those who designated themselves as an employee received a

11. We thank Jorge Guzman for these calculations.

Table 7.1 Descriptive statistics for CIC locations

| | All | 50 Milk | One Broadway | 101 Main | St. Louis |
|---------------------------------------|---------|---------|--------------|----------|-----------|
| Year opened | | 2014 | 2001 | 2012 | 2014 |
| Individuals | 5,645 | 1,236 | 2,467 | 464 | 1,478 |
| Heads | 1,168 | 346 | 577 | 59 | 186 |
| Nonheads | 4,477 | 890 | 1,890 | 405 | 1,292 |
| Footprint (sq. ft.) | 422,177 | 93,410 | 155,147 | 52,465 | 121,155 |
| Average firm tenure at CIC in years | 2.8 | 2.3 | 4.4 | 4.4 | 1.6 |
| Average firm size at CIC in employees | 4.8 | 3.6 | 4.6 | 4.6 | 7.9 |
| Percent of firms that are nonprofits | 10.5 | 19.1 | 7.1 | 7.1 | 10.0 |

Note: One Broadway is the original CIC building at the edge of MIT. Boston-area expansions are 101 Main (one block away from One Broadway) and 50 Milk Street (Boston financial district).

shorter set of questions than the other three categories, which were given the same question set. The full survey instrument is included in the appendix (<http://www.nber.org/data-appendix/c14107/appendix.pdf>).

First, we use the term *entrepreneur* as shorthand to group all nonemployee responses, whether founder, CEO, or owner. Going forward in this analysis, we exclude those reporting their role as “other” for a sample size of 1,222 responses. This latter category is harder to define and frequently captures people with relatively limited day-to-day activities at CIC (e.g., an MIT professor who mostly remains on campus). Second, we use the term *inventor* for those who report having personally filed a patent, and this trait is orthogonal to the entrepreneur-versus-employee distinction. Approximately 31 percent of respondents are entrepreneurs, and 22 percent are inventors.

Our analysis focuses on differences between natives and immigrants, and we define immigrants as those who report that they were born outside of the United States. The overall immigrant share is 26 percent in the sample. This definition includes individuals who arrived in the country as children as well as those who came to the United States later in life to study, work, or directly start a business. The total number of immigrant respondents is 262, with 82 identified as entrepreneurs and 180 as employees. Of the 262 immigrants, 85 are inventors.

Table 7.2 describes survey responses by location. Response rates were between 16 percent and 24 percent across locations. We later learned that some individuals in nonprofit firms felt the survey did not apply to them, which is one reason for the lower response rate at 50 Milk Street. The immigrant share of respondents is approximately one-third for all three Boston facilities and much lower at 5.5 percent in St. Louis. The immigrant share of the CIC sample is about double their 13 percent share of the US population, reflective of their greater role in innovation and entrepreneurship.¹²

12. For example, see Singer (2013), Kerr and Kerr (2017, 2018), and Brown et al. (2018).

Table 7.2 Descriptive statistics on survey responses by facility

| | All | 50 Milk | One Broadway | 101 Main | St. Louis |
|-------------------------|-------|---------|-----------------|----------|-----------|
| Number of recipients | 5,645 | 1,236 | 2,467 | 464 | 1,478 |
| Number of respondents | 1,222 | 199 | 493 | 86 | 348 |
| Entrepreneurs | 378 | 55 | 184 | 14 | 114 |
| Employees | 844 | 144 | 309 | 72 | 234 |
| Entrepreneur share | 30.9 | 27.6 | 37.3 | 16.3 | 32.8 |
| Response rate | 21.6 | 16.1 | 20.0 | 18.5 | 23.5 |
| Age | | | | | |
| Percent aged < 25 | 8.7 | 11.1 | 8.5 | 10.1 | 7.2 |
| Percent aged 25–34 | 37.2 | 37.2 | 35.5 | 48.1 | 36.5 |
| Percent aged 35–44 | 24.5 | 30.0 | 21.2 | 26.6 | 25.9 |
| Percent aged 45–54 | 17.4 | 13.3 | 22.5 | 6.3 | 14.7 |
| Percent aged > 54 | 12.3 | 8.3 | 12.3 | 8.9 | 15.7 |
| Percent immigrant | 26.0 | 33.7 | 34.8 | 33.8 | 5.5 |
| Percent women | 40.1 | 45.3 | 38.6 | 42.3 | 38.7 |
| Percent advanced degree | 19.0 | 8.0 | 25.8 | 11.3 | 17.7 |

Note: See table 7.1. Some respondents do not designate themselves as being at one of the four facilities.

The shares are also in keeping with their local areas: using the 2014–16 American Community Surveys, the immigrant shares in Boston and St. Louis among employed, college-educated workers aged 20–60 are 18.4 percent and 7.6 percent, respectively; narrowing to those in science, technology, engineering, and mathematics (STEM) fields, the shares increase to 33.5 percent and 17.8 percent, respectively. The overall CIC sample is about 60 percent male, 61 percent between the ages of 25 and 44, and 19 percent holders of advanced degrees.

7.3.3 Survey Responses and Sample Comparisons

Table 7.3 provides detailed demographics and backgrounds for the whole sample and also splits by immigrant versus native respondents. In some cases, the overall average will not exactly match the weighted average of the two groups due to individual respondents choosing to not report specific variables. Differences do emerge immediately, with natives being slightly more likely to be entrepreneurs at CIC companies and immigrants almost twice as likely to be inventors.

In terms of demographics, natives are more likely to be female, white, at either extreme of the age distribution, a bachelor's or master's degree holder, and with degrees in business and economics. They also are slightly more likely to have prior industry experience but less likely to have previous start-up experience as either an employee or a founder. In comparison, immigrants tend to be clustered between ages 25 and 54, are more likely to have a doctorate and to have studied in STEM fields, and also more likely

Table 7.3 Descriptive statistics for immigrants versus natives

| | All | Natives | Immigrants |
|-------------------------|-------|---------|------------|
| Respondents | 1,222 | 744 | 262 |
| Percent of sample | | 74.0 | 26.0 |
| Role and background | | | |
| Entrepreneur | 30.9 | 33.2 | 31.3 |
| Employee | 69.1 | 66.8 | 68.7 |
| Inventor | 21.5 | 17.5 | 32.9 |
| Female | 40.2 | 42.0 | 35.1 |
| Age | | | |
| Under 25 | 8.7 | 9.7 | 5.8 |
| 25–34 | 37.2 | 36.3 | 40.3 |
| 35–44 | 24.5 | 23.3 | 26.7 |
| 45–54 | 17.4 | 16.5 | 20.2 |
| Over 55 | 12.3 | 14.2 | 7.0 |
| Race and ethnicity | | | |
| Asian | 12.8 | 5.7 | 33.5 |
| African American | 3.5 | 4.6 | 0.8 |
| Hispanic/Latino | 5.5 | 3.0 | 13.1 |
| White | 73.5 | 83.8 | 48.5 |
| Other responses | 3.8 | 3.8 | 4.2 |
| Education | | | |
| BA/MA | 75.3 | 76.4 | 70.9 |
| PhD | 19.0 | 17.4 | 24.5 |
| Other | 5.7 | 6.2 | 4.6 |
| Field of Education | | | |
| STEM | 36.0 | 31.3 | 49.8 |
| Business or economics | 29.3 | 31.0 | 24.9 |
| Other | 34.6 | 37.7 | 25.3 |
| Experience | | | |
| Prior work in industry | 62.6 | 62.8 | 61.8 |
| Prior work in a startup | 47.9 | 45.3 | 53.8 |
| Prior entrepreneur | 32.3 | 31.0 | 36.3 |

Note: Some respondents do not designate themselves as being immigrants or natives. Entrepreneurs are defined as those who identify their position as Founder, CEO or Owner. Inventors are defined as those who report having personally filed for a patent.

to have previous start-up experience, especially as an employee. Using the National Survey of College Graduates, Hunt (2011) links the higher rates of immigrant inventiveness especially to their fields of study and educational attainment.

CIC itself does not collect similar demographic information on its client population, but CIC's leadership believes that our survey respondent demographics reflect the overall population of their facilities very well. Some greater insight does exist for the gender dimension. A 2015 CIC study found that 28 percent of company heads were women, which is roughly on par with the 24 percent among our respondent entrepreneurs. Similarly, a 5 per-

cent random sample of CIC clients in 2017 showed that 35 percent of all CIC-based company employees were women, which closely compares to the 40 percent share in our sample. To put things into a broader context, other comparison points for women's leadership include 5.4 percent of Fortune 500 CEOs, 24 percent of congressional representatives, and 12 percent of executive officer positions in the top 15 Silicon Valley firms.¹³

Conditional on starting the survey, response rates were high for most questions. Questions regarding experiences at CIC and demographics had response rates of over 80 percent, while questions regarding personality had response rates of over 75 percent. Questions with the lowest response rates included those related to patents associated with the firm and interest in future CIC events. We believe that response rates for patenting activity of the firm were lower because the question lacked a “do not know” option. These fields are not used in the present study.

7.4 Survey Results

7.4.1 Measuring Networking Attitudes and Behaviors

We next describe how the survey captured attitudes toward networking and the importance of networking opportunities in the choice to locate the company within CIC. Table 7.4 provides the survey questions used to calculate the values for most of the variables analyzed below, and the appendix (<http://www.nber.org/data-appendix/c14107/appendix.pdf>) has the full survey instruments for additional reference. Figures 7.1–7.3 display the response patterns by immigrant status. We group questions into three sets; these sets rely on questions from different parts of the survey and are not necessarily sequentially presented in this chapter.

We group the first set of questions around the respondents' self-reported perceptions of CIC's networking benefits. Respondents were asked to rate aspects of CIC in terms of their importance to the decision to locate the company there, with value one (1) being “not very important” and value five (5) being “very important.” A related question asked respondents how being located at CIC actually helped their business “better network among other businesses,” on a scale from “not at all” (1) to “very much” (5). Similar five-point scales were used to gauge the purposefulness of individuals' networking; to measure perceptions of how CIC helped them access companies at CIC, within the vicinity of CIC, or in the greater Boston or St. Louis area; and to measure whether respondents see a premium in CIC value-added compared to costs and over other competitors' offerings. In all cases, the raw average for the immigrant respondents exceeds that of the

13. For example, see Zarya (2016), Brown (2017), and Bell and White (2014). See also Desilver (2018).

Table 7.4 Networking baselines for immigrants versus natives

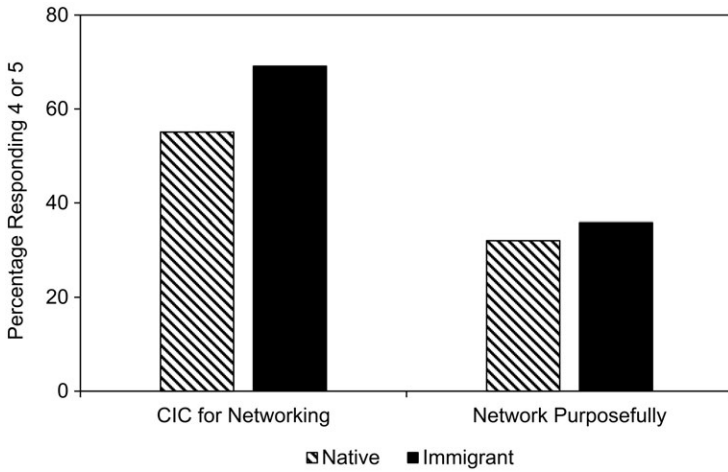
| | All | Natives | Immigrants |
|---|-------|---------|------------|
| Respondents | 1,222 | 744 | 262 |
| Located in CIC for networking opportunities? | 3.63 | 3.62 | 3.79 |
| Does CIC networking environment help your business? | 3.67 | 3.65 | 3.76 |
| How purposeful are you in building your business network? | 2.85 | 2.80 | 3.03 |
| CIC is important because of access to other companies within CIC | 3.26 | 3.22 | 3.36 |
| ... within the vicinity of CIC | 3.40 | 3.34 | 3.57 |
| ... in the greater Boston / St. Louis area | 3.63 | 3.57 | 3.78 |
| CIC's value outweighs the cost to tenants? | 3.67 | 3.66 | 3.72 |
| CIC offers more valuable connections than other co-working facilities? | 3.78 | 3.77 | 3.86 |
| Person count: people in other CIC firms who could benefit your business in the next six months? | 4.53 | 4.45 | 4.89 |
| Person count: people in other CIC firms whose name you would remember in six months? | 5.91 | 5.89 | 6.13 |
| Measure of unique locations a respondent listed for where they network | 2.90 | 2.92 | 2.90 |
| Frequency of advice (1–4) | | | |
| Provide advice: business operations | 2.02 | 1.97 | 2.17 |
| Provide advice: venture financing | 1.69 | 1.64 | 1.81 |
| Provide advice: technology | 2.05 | 1.99 | 2.23 |
| Provide advice: suppliers | 1.69 | 1.64 | 1.81 |
| Provide advice: people to recruit | 1.87 | 1.83 | 1.98 |
| Provide advice: customers | 1.87 | 1.82 | 2.01 |
| Receive advice: business operations | 1.89 | 1.83 | 2.06 |
| Receive advice: venture financing | 1.66 | 1.58 | 1.84 |
| Receive advice: technology | 1.98 | 1.94 | 2.10 |
| Receive advice: suppliers | 1.68 | 1.64 | 1.79 |
| Receive advice: people to recruit | 1.80 | 1.76 | 1.89 |
| Receive advice: customers | 1.83 | 1.77 | 2.00 |

Note: See table 7.3.

natives. Immigrants are more likely to consider networking opportunities an important factor in choosing to locate at CIC and to report having benefited from CIC in this regard.

A second group of questions uses survey responses to infer information on the types of networks possessed by individuals. Respondents were asked to estimate the number of people at CIC (outside of the employees/investors of their own company) that they know well enough to believe that these people could be of benefit to their business over the next six months. Again, the scale had five options ranging from “none” to “over 20.” Similarly, respondents estimated how many people at CIC they knew well enough to believe they would remember the respondents’ names in six months if they left CIC today. The response options were the same as in the previous

A Importance of CIC Networking



B Location of Most Important Connections

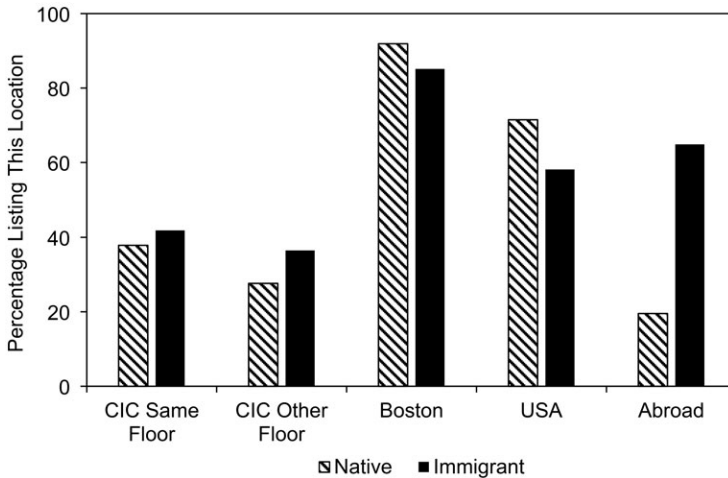
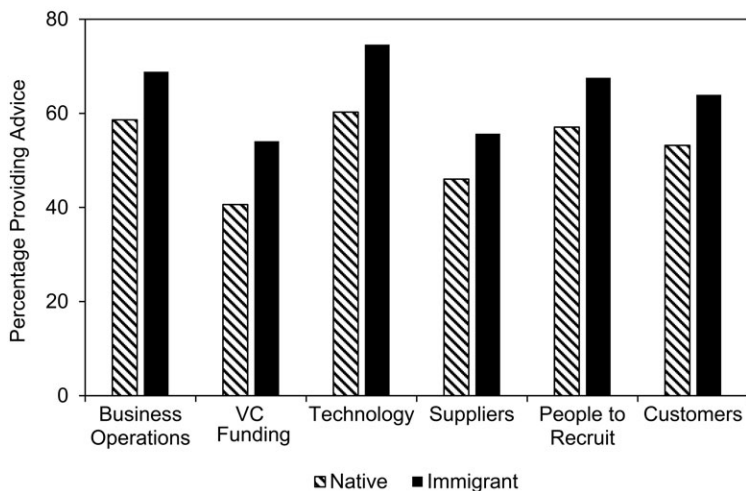


Fig. 7.1 Networking importance, location, and advice

question. For analysis, we converted the binned values into the midpoints of their range, except for the bottom/top category: “none” coded as zero, “1–4 persons” coded as three, “5–10 persons” coded as eight, “11–20 persons” coded as 15, and “more than 20 persons” coded as 20. Immigrants report knowing more of both types of individuals at CIC, especially those who are likely to be beneficial to their business (4.9 versus 4.5). Figure 7.3 plots the cross-sectional pattern of networks by time in CIC. For all respondents who

C Providing Advice at CIC by Topic



D Receiving Advice at CIC by Topic

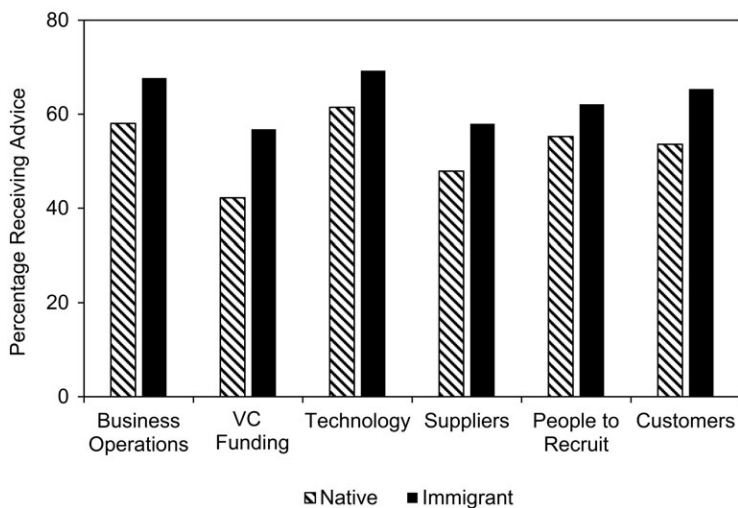
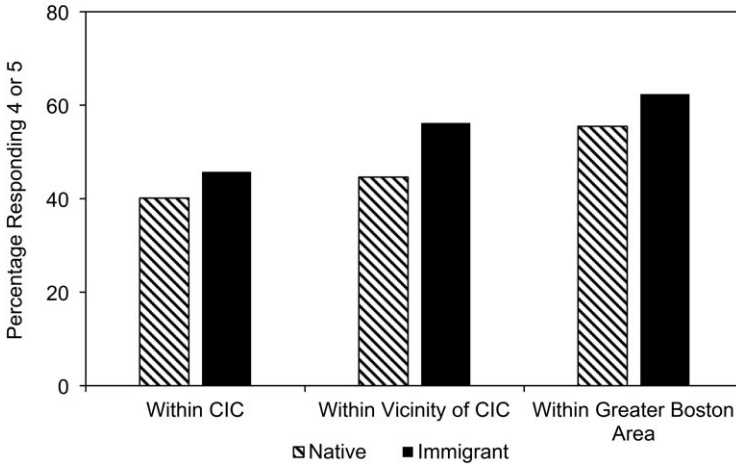


Fig. 7.1 (cont.)

answered that they knew at least one such person, we further asked whether these connections were made before or after joining CIC.

We constructed another measure of networking through the responses of individuals regarding where exactly they networked at CIC. This question was asked of people indicating that CIC helped their business network at a level of three or higher on a five-point scale. Respondents could choose one

A CIC is Important because of Access to Companies...



B To What Extent Do You Agree with the Following about CIC?

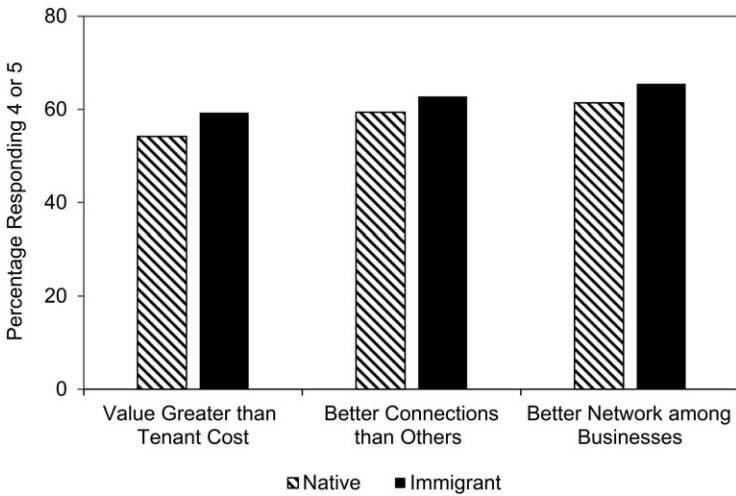
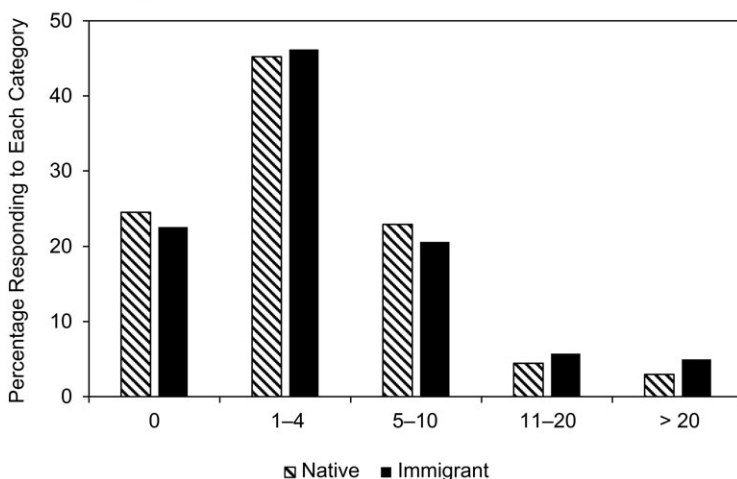


Fig. 7.2 CIC importance and number of beneficial contacts

or more of the following possibilities: (a) Informally: Conversations or introductions at Venture Café; (b) Informally: Conversations or introductions in a CIC kitchen; (c) Other public spaces at CIC; (d) Other informal channels; (e) Purposefully seek out meetings with firms located inside CIC (ask via email, phone, LinkedIn, . . .); (f) Purposefully seek out meetings with firms located nearby / outside CIC (ask via email, phone, LinkedIn, . . .); (g) Other CIC-based firms purposefully ask to meet with me; and (h) Other. When we

C Number of People Who Could Benefit Your Business over Next 6 Months



D Number of People Whose Name You Would Remember in 6 Months

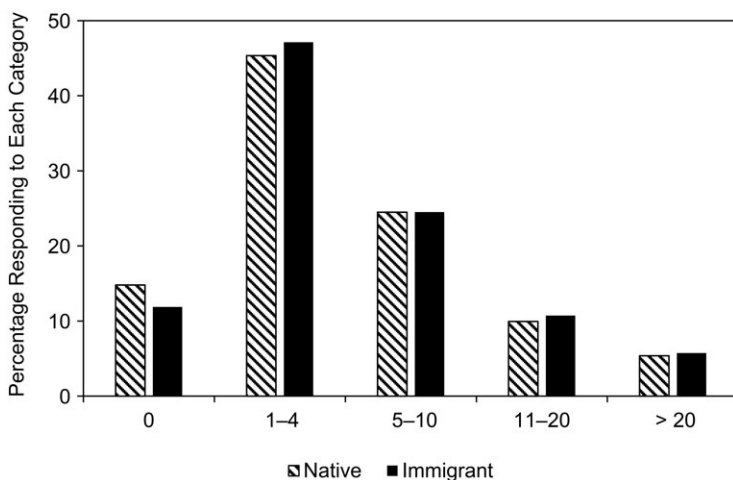
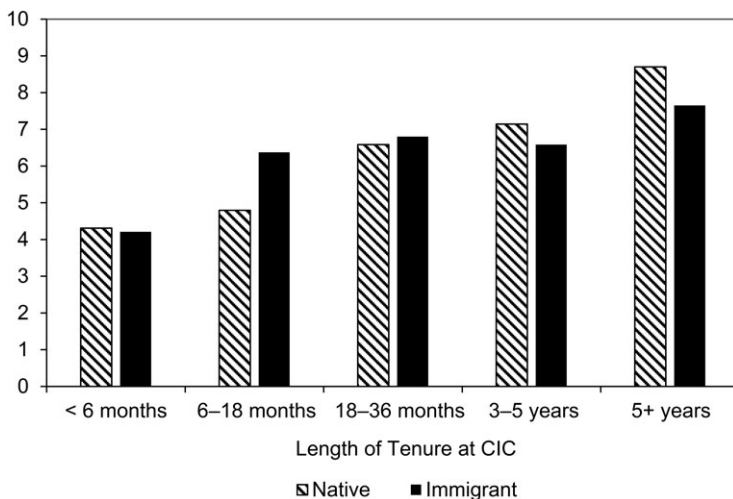


Fig. 7.2 (cont.)

tallied the number of boxes checked, immigrants and natives showed very similar values of about 2.9 unique network locations.

At the very end of the survey, we asked the entrepreneurs a rather detailed question about the locations of their most important contacts (based on Nanda and Khanna 2010): “Please think of 5 people not directly connected with your company with whom you have had important conversations related to your business in the last 6 months. These may be family members, friends, former colleagues, instructors, or other persons with whom you dis-

A Number of People Whose Name You Would Remember in 6 Months
(Full Sample)



B Number of People Who Could Benefit Your Business over Next 6 Months
(Full Sample)

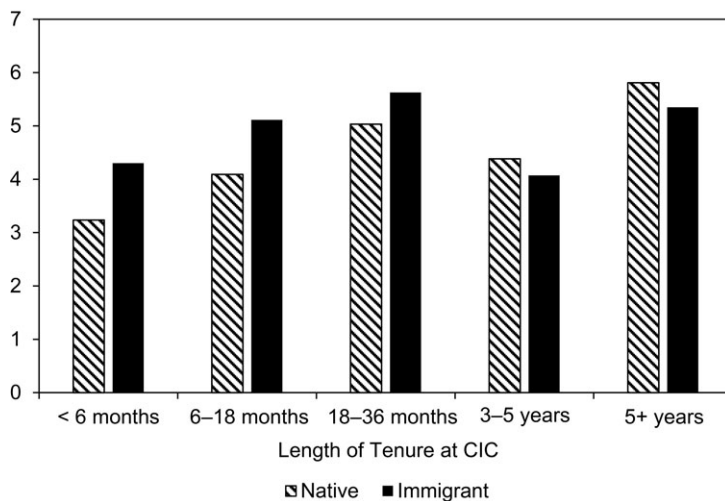
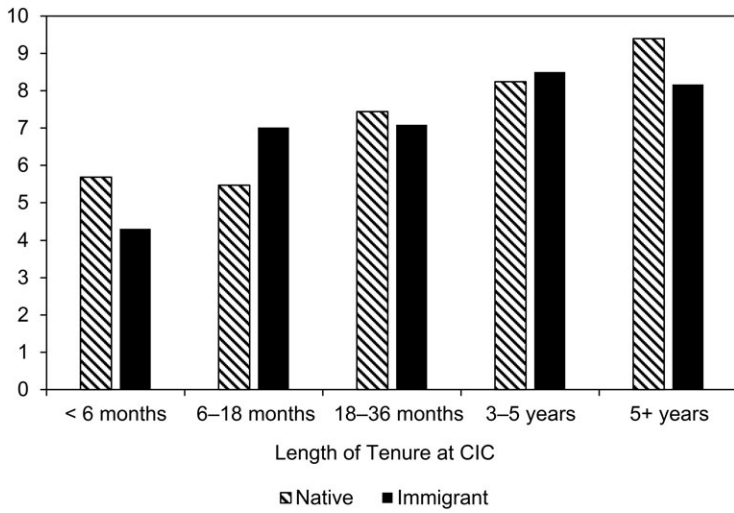


Fig. 7.3 Beneficial contacts by tenure at CIC

C Number of People Whose Name You Would Remember in 6 Months
(Sample without Pre-existing Network)



D Number of People Who Could Benefit Your Business over next 6 Months
(Sample without Pre-existing Network)

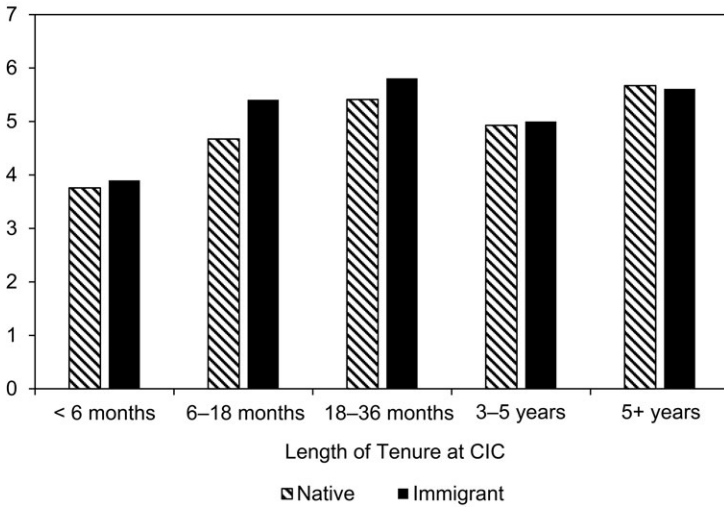


Fig. 7.3 (cont.)

cussed aspects of your business (e.g., strategy, business development, market conditions, financing) but NOT employees, investors, or clients that have a direct stake in the company. Where are these external colleagues located?” The respondent had five options: the same floor at CIC, another floor at CIC, within the Boston (or St. Louis) area, within the United States, and overseas. Natives were significantly more likely to have their most important connections either in the greater Boston (or St. Louis) area or elsewhere in the United States, while immigrants were much more likely to have these important connections abroad.

A third set of questions asked respondents about the frequency at which they either provided or received advice on various aspects of running their business to/from “people outside of your company at CIC.” The frequency options ranged from “never” (1) to “weekly” (4). Six topic categories were considered: business operations, venture financing, technology, suppliers, people to recruit, and customers. Immigrants report substantially higher rates of both providing and receiving advice on all topics.

The full survey asks many more questions about growth expectations, company financing history, personality traits of individuals and their attitudes toward risk, and so on. Participants were also incentivized to complete the survey with a reward that was designed to also capture an element of their risk attitudes by presenting them with a choice between a sure prize and a lottery of known probabilities. These questions are studied in other papers (e.g., Kerr, Kerr, and Dalton 2019).

7.4.2 Analytical Results

Tables 7.5–7.9 analyze these survey responses with least-squares regressions. Each row corresponds to a survey question, and we report eight results per question across the columns. In all cases, we only report the coefficient and standard error on an indicator variable for the respondent being an immigrant. Regressions are unweighted and report robust standard errors, and estimations that cluster standard errors at the firm level deliver very similar results. Columns 1–4 report results where we leave the dependent variable in its raw form, while Columns 5–8 consider transformations of the dependent variable to have a binary form of low versus high responses (given unit value). For each question, we describe the scale of the baseline values and their transformation.

The four columns in each set repeat a pattern. Our initial estimation controls for person-level covariates and building fixed effects. Person-level covariates include controls for gender, age, race, educational attainment, full- versus part-time status, prior industry experience, prior start-up experience, and prior patenting history. Covariates are introduced using indicators for value ranges; item nonresponse was grouped into an “unknown” category. The second estimation incorporates fixed effects for individual CIC floors within buildings. Across the four buildings, there are a total of

20 floors in our sample. The third estimation adds an additional firm-level control for the number of the firm's employees working at CIC. The last analysis excludes St. Louis to focus just on Boston given the substantial differences between the two cities in terms of immigrant share and other features. At the right-hand side of each table, we report the observation counts in total and for Boston only.

Table 7.5 considers the perceptions of networking at CIC by immigrants versus natives. The perceptions of respondents have several attractive properties: they capture the benefits and costs known by respondents but unobservable to the researcher or CIC leadership, they measure the saliency of an effect that is otherwise difficult to judge, and (for the purposes of CIC) they are what ultimately matters for the company's location choice at CIC. The downsides of these perceptions are the mirror images of the advantages, most notably that respondents may have an inaccurate understanding of their true networking behavior or that they may engage in "cheap talk."

The variables reported in table 7.5 are measured on a five-point scale ranging from "strongly disagree" (1) to "strongly agree" (5) or comparable wording. For the binary analysis, we group scores of four or five into the high bin that is given a unit value. The first row presents some indication that immigrants may locate their businesses at CIC for better networking opportunities, and this pattern is most evident in the binary analysis. Either way, immigrants in the second row show substantially higher perceptions of CIC helping their businesses via networking than do natives. The differential is on the order of 10 percent of the baseline average of 3.67 in table 7.4. Immigrants show a similarly higher purposefulness in building their networks.

When respondents articulate the location of the other companies that CIC specifically helps them access, a modest edge is given to other companies located within CIC, although an important immigrant differential is also observed for accessing other local non-CIC firms. As the baseline value in table 7.4 is rising from 3.26 for companies within CIC to 3.63 for nonvicinity companies in the greater Boston/St. Louis area, the relative effect for immigrants of CIC-based connections is higher than initially evident in table 7.5. These results are robust in both the baseline and binary analyses. Finally, immigrants are somewhat more likely to consider CIC benefits as outweighing the costs and/or what other local coworking spaces could provide, but these results are not precisely measured.

Table 7.6 turns to measures we can construct of actual networking behavior at CIC. This is a useful complement to the perceptions of networking, given the pros and cons noted above. The first metrics consider the person counts within a respondent's CIC network outside of the respondent's own company. These person count questions allowed for five ranges from "none" to "more than 20." Baseline estimations use the midpoints of these ranges, as described earlier, with 0 for the smallest and 20 for the largest category. The binary analysis combines responses with eleven or more persons as the high category.

Table 7.5 Impact of CIC on perceived networking activity for immigrants versus natives

| Question | Baseline values <i>For immigrant indicator</i> | | | | Binary analysis <i>For immigrant indicator</i> | | | | Sample size | |
|--|---|---------------------|---------------------|---------------------|---|---------------------|---------------------|---------------------|-------------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | Full | Boston only |
| Located in CIC for networking opportunities? | 0.101 (0.191) | 0.068 (0.180) | 0.135 (0.186) | 0.169 (0.189) | 0.144* (0.074) | 0.131* (0.071) | 0.160** (0.074) | 0.182** (0.082) | 326 | 222 |
| Does CIC's networking environment help your business? | 0.331*** (0.108) | 0.339*** (0.108) | 0.341*** (0.109) | 0.338*** (0.116) | 0.130*** (0.040) | 0.129*** (0.040) | 0.130*** (0.041) | 0.125*** (0.044) | 985 | 698 |
| How purposeful are you in building your business network? | 0.292*** (0.098) | 0.303*** (0.099) | 0.323*** (0.100) | 0.291*** (0.105) | 0.050 (0.039) | 0.043 (0.039) | 0.054 (0.039) | 0.045 (0.041) | 1,003 | 712 |
| CIC is important because of: access to other companies within CIC | 0.281*** (0.090) | 0.288*** (0.091) | 0.298*** (0.093) | 0.280*** (0.099) | 0.095** (0.039) | 0.096** (0.039) | 0.095** (0.040) | 0.083** (0.042) | 994 | 707 |
| ... within the vicinity of CIC | 0.208** (0.097) | 0.222** (0.098) | 0.223** (0.098) | 0.193* (0.105) | 0.106*** (0.041) | 0.106*** (0.041) | 0.100** (0.042) | 0.082* (0.044) | 992 | 705 |
| ... in the greater Boston / St. Louis area | 0.233** (0.096) | 0.219** (0.098) | 0.214** (0.098) | 0.214** (0.098) | 0.081* (0.043) | 0.073* (0.043) | 0.071 (0.044) | 0.071 (0.044) | 706 | 706 |
| CIC's value outweighs the cost to tenants | 0.151* (0.081) | 0.122 (0.082) | 0.120 (0.083) | 0.098 (0.087) | 0.089** (0.041) | 0.068 (0.041) | 0.062 (0.042) | 0.050 (0.045) | 986 | 700 |
| CIC offers more valuable connections than other coworking facilities | 0.131 (0.081) | 0.120 (0.081) | 0.122 (0.082) | 0.110 (0.088) | 0.044 (0.040) | 0.041 (0.040) | 0.039 (0.041) | 0.031 (0.044) | 981 | 695 |
| Person-level covariates | X | X | X | X | X | X | X | X | | |
| Building fixed effects | X | X | X | X | X | X | X | X | | |
| Floor fixed effects | | X | X | X | | X | X | X | | |
| Firm-level covariates | | | X | X | | | X | X | | |
| Boston only | | | | X | | | | X | | |

Note: Baseline responses were on a 1 to 5 scale with 1 = strongly disagree and 5 = strongly agree. Binary analysis bins responses with 0 = 1, 2, or 3 and 1 = 4 or 5. Person-level covariates include controls for gender, age, race, educational attainment, prior industry experience, prior startup experience, full-time vs. part-time status, and patenting history. Firm level covariates include firm size. Covariates are introduced using indicators for value ranges; non-response was grouped into an “unknown” category. Regressions report robust standard errors and are unweighted.

Table 7.6 Impact of CIC on measured networking activity for immigrants versus natives

| Question | Baseline values <i>For immigrant indicator</i> | | | Binary analysis <i>For immigrant indicator</i> | | | | Sample size | | |
|--|---|-------------------|-------------------|---|-------------------|-------------------|-------------------|-------------------|-------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | Full | Boston only |
| Person count: People in other CIC firms who could benefit your business in the next six months | 0.664* (0.392) | 0.538 (0.402) | 0.672* (0.400) | 0.497 (0.417) | 0.034 (0.024) | 0.023 (0.025) | 0.029 (0.025) | 0.012 (0.026) | 1,004 | 714 |
| Person count: People in other CIC firms whose name you would remember in six months | 0.371 (0.427) | 0.118 (0.431) | 0.303 (0.431) | 0.170 (0.458) | 0.014 (0.030) | -0.001 (0.030) | 0.009 (0.030) | 0.000 (0.032) | 1,003 | 712 |
| Person count: Sum of the two responses | 0.996 (0.740) | 0.626 (0.752) | 0.951 (0.747) | 0.640 (0.778) | 0.022 (0.021) | 0.012 (0.022) | 0.022 (0.021) | 0.008 (0.022) | 1,005 | 714 |
| Measure of unique locations a respondent listed for where they network | 0.037 (0.150) | -0.007 (0.155) | 0.036 (0.153) | -0.023 (0.168) | -0.014 (0.026) | -0.025 (0.028) | -0.021 (0.028) | -0.037 (0.029) | 791 | 539 |
| Person-level covariates | x | x | x | x | x | x | x | x | | |
| Building fixed effects | x | x | x | x | x | x | x | x | | |
| Floor fixed effects | | x | x | x | | x | x | x | | |
| Firm-level covariates | | | x | x | | | x | x | | |
| Boston only | | | | x | | | | x | | |

Note: See table 7.5. Person count questions allowed for five ranges from none to more than 20. Baseline estimations use the midpoints of ranges and 20 for the largest category; binary analysis bins responses with 0 = 10 or fewer and 1 = 11 or more. Respondents indicated across eight options where they networked, and the metric used in the analyses is the sum of these checked options.

Immigrants report on average a 0.6 person larger professional network at CIC compared to a baseline average of 4.5 persons. This difference is about twice as large as the second form of the question that was designed to elicit familiarity with those around a respondent (baseline average of 5.9 persons). While we do not know the overlaps of these two groups, we also report a regression that sums the two counts. Across all these outcomes, there is some modest evidence that CIC enables a larger professional network for immigrants than it does for natives, perhaps with a total network advantage of 0.5–1.0 person. But these results are not precisely measured and should be treated with caution. By contrast, and reflecting the identical raw responses in table 7.4, we observe no difference between immigrants and natives in terms of the count of locations or the types of networking employed.

In general, the differential in immigrant perceptions of CIC networking advantages in table 7.5 appears a bit more robust than the actual network effects in table 7.6. Two factors, however, should be noted. One is that the relative magnitudes of the point estimates in table 7.6 are substantial for the professional network—on the order of 10 percent to 20 percent of the effect—and comparable to perception differences. Second, the counterfactual for network size is hard to define. It could have been that absent CIC's networking potential, the professional networks of immigrants would have been substantially smaller than those of natives, yet we are only able to measure these differences conditional on being inside of CIC.

Table 7.7 considers immigrant differences using the additional networking questions that were asked of entrepreneurs only. These leaders were first asked to rate the importance of the five most significant people they met at CIC for their businesses. Immigrants suggest that these five contacts are marginally more important, but the differences are far from statistically significant.

Second, we analyze differences in the top five contacts that entrepreneurs have by counting up the number of contacts mentioned in each location. This count can range from zero to five for any one location, and for the binary analysis, we group three or more contacts into the high category. Table 7.7 first analyzes the five options as asked in the survey, and then an additional analysis is provided that groups the same floor and another floor responses at CIC into a single outcome. There are substantial differences in the locations of top entrepreneur contacts, with immigrant entrepreneurs pointing significantly more to overseas contacts versus those in the local area surrounding CIC. Network reliance on CIC itself is comparable for the two groups.

Tables 7.8 and 7.9 turn to our third set of questions on the giving and receiving of advice across six broad topics: business operations, venture financing, technology, suppliers, people to recruit, and customers. Table 7.4 noted that immigrants reported substantially higher rates of exchanging

Table 7.7 Founder networks for immigrant versus natives

| Question | Baseline values For immigrant indicator | | | Binary analysis For immigrant indicator | | | Sample size | | | |
|--|--|---------------------|---------------------|--|--------------------|--------------------|--------------------|-------------------|------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | Full | Boston only |
| Think of the 5 most important people you met at CIC specifically. How important were they for your business? | 0.043 (0.150) | 0.030 (0.149) | 0.061 (0.150) | 0.079 (0.170) | 0.026 (0.076) | 0.030 (0.078) | 0.045 (0.079) | 0.047 (0.086) | 311 | 210 |
| How many of these top five contacts are located on the same floor as you? | 0.118 (0.118) | 0.023 (0.122) | 0.064 (0.128) | 0.131 (0.145) | -0.000 (0.023) | 0.001 (0.024) | 0.005 (0.026) | 0.024 (0.030) | 309 | 209 |
| ... on another floor at CIC? | 0.037 (0.117) | 0.037 (0.120) | 0.036 (0.116) | 0.074 (0.122) | -0.003 (0.022) | 0.002 (0.022) | -0.007 (0.019) | -0.012 (0.022) | 309 | 209 |
| ... within the Boston / St. Louis area? | -0.423** (0.193) | -0.429** (0.196) | -0.389* (0.203) | -0.244 (0.220) | -0.078 (0.072) | -0.078 (0.075) | -0.074 (0.079) | -0.106 (0.087) | 309 | 209 |
| ... within the United States? | -0.356* (0.188) | -0.314* (0.190) | -0.380* (0.193) | -0.526** (0.216) | -0.040 (0.059) | -0.016 (0.059) | -0.021 (0.061) | -0.066 (0.066) | 309 | 209 |
| ... overseas? | 0.748*** (0.127) | 0.695*** (0.129) | 0.686*** (0.133) | 0.573*** (0.148) | 0.083** (0.037) | 0.075** (0.035) | 0.074** (0.034) | 0.066* (0.038) | 309 | 209 |
| Measure for networking on same floor or another floor at CIC | 0.049 (0.166) | 0.060 (0.166) | 0.100 (0.172) | 0.205 (0.187) | -0.029 (0.043) | -0.032 (0.045) | -0.022 (0.045) | 0.028 (0.048) | 309 | 209 |
| Person-level covariates | X | X | X | X | X | X | X | X | | |
| Building fixed effects | X | X | X | X | X | X | X | X | | |
| Floor fixed effects | | X | X | X | | X | X | X | | |
| Firm-level covariates | | | X | X | | | X | X | | |
| Boston only | | | | X | | | | X | | |

Note: See table 7.5. Baseline responses for first two questions were on a 1 to 5 scale with 1 = strongly disagree, 5 = strongly agree. Binary analysis bins responses with 0 = 1, 2, or 3 and 1 = 4 or 5. Lists of important contacts by location were transformed into count variables ranging from zero to five. Binary analysis bins responses with 0 = 2 or fewer mentions and 1 = 3 or more mentions.

Table 7.8 Providing advice at CIC for immigrants versus natives

| Question: How often do you provide advice on the following topics to people outside of your company at CIC? | Baseline values | | | Binary analysis | | | Sample size | | | |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | Full | Boston only |
| Business operations | 0.260*** (0.081) | 0.269*** (0.081) | 0.296*** (0.079) | 0.238*** (0.084) | 0.123*** (0.038) | 0.129*** (0.038) | 0.143*** (0.037) | 0.123*** (0.040) | 994 | 706 |
| Venture funding | 0.176** (0.070) | 0.175** (0.071) | 0.194*** (0.070) | 0.118 (0.072) | 0.117*** (0.039) | 0.120*** (0.039) | 0.125*** (0.039) | 0.094** (0.041) | 987 | 702 |
| Technology | 0.201*** (0.076) | 0.178** (0.077) | 0.188** (0.077) | 0.160** (0.081) | 0.113*** (0.036) | 0.110*** (0.036) | 0.116*** (0.036) | 0.113*** (0.039) | 994 | 706 |
| Suppliers | 0.185*** (0.070) | 0.184** (0.073) | 0.190*** (0.072) | 0.160** (0.073) | 0.102** (0.041) | 0.099** (0.041) | 0.104** (0.041) | 0.082* (0.044) | 984 | 699 |
| People to recruit | 0.214*** (0.070) | 0.233*** (0.071) | 0.250*** (0.070) | 0.195*** (0.073) | 0.120*** (0.039) | 0.125*** (0.039) | 0.131*** (0.039) | 0.098** (0.042) | 992 | 704 |
| Customers | 0.282*** (0.077) | 0.285*** (0.078) | 0.312*** (0.077) | 0.235*** (0.081) | 0.139*** (0.040) | 0.140*** (0.040) | 0.147*** (0.040) | 0.108** (0.043) | 988 | 700 |
| Person-level covariates | X | X | X | X | X | X | X | X | | |
| Building fixed effects | X | X | X | X | X | X | X | X | | |
| Floor fixed effects | | X | X | X | | X | X | X | | |
| Firm-level covariates | | | X | X | | | X | X | | |
| Boston only | | | | X | | | | X | | |

Note: See table 7.5. Baseline responses are on a 1 to 4 scale with 1 = never, 2 = infrequently, 3 = monthly, and 4 = weekly. Binary analysis bins 0 = never vs. 1 = any other selection.

Table 7.9 Receiving advice at CIC for immigrants versus natives

| | Baseline values | | | | Binary analysis | | | | Sample size | |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | Full | Boston only |
| Question: How often do you receive advice on the following topics from people outside of your company at CIC? | | | | | | | | | | |
| Business operations | 0.252*** (0.073) | 0.256*** (0.074) | 0.278*** (0.073) | 0.237*** (0.077) | 0.095*** (0.039) | 0.098*** (0.039) | 0.109*** (0.039) | 0.090*** (0.043) | 990 | 701 |
| Venture funding | 0.257*** (0.068) | 0.276*** (0.069) | 0.293*** (0.069) | 0.264*** (0.070) | 0.133*** (0.040) | 0.149*** (0.040) | 0.158*** (0.040) | 0.151*** (0.043) | 990 | 701 |
| Technology | 0.178** (0.077) | 0.187** (0.080) | 0.212*** (0.080) | 0.194** (0.086) | 0.079** (0.039) | 0.088** (0.040) | 0.101** (0.041) | 0.099** (0.045) | 988 | 702 |
| Suppliers | 0.165** (0.067) | 0.169** (0.068) | 0.185*** (0.068) | 0.154** (0.070) | 0.104** (0.041) | 0.110*** (0.041) | 0.120*** (0.041) | 0.100*** (0.045) | 989 | 700 |
| People to recruit | 0.144** (0.070) | 0.160** (0.071) | 0.173** (0.071) | 0.132* (0.074) | 0.067* (0.041) | 0.080* (0.041) | 0.086** (0.042) | 0.062 (0.045) | 986 | 698 |
| Customers | 0.274*** (0.074) | 0.281*** (0.075) | 0.310*** (0.075) | 0.265*** (0.078) | 0.128*** (0.040) | 0.126*** (0.041) | 0.139*** (0.041) | 0.103*** (0.045) | 989 | 702 |
| Person-level covariates | X | X | X | X | X | X | X | X | | |
| Building fixed effects | X | X | X | X | X | X | X | X | | |
| Floor fixed effects | | X | X | X | | X | X | X | | |
| Firm-level covariates | | | X | X | | | X | X | | |
| Boston only | | | | X | | | | X | | |

Note: See table 7.5. Baseline responses are on a 1 to 4 scale with 1 = never, 2 = infrequently, 3 = monthly, and 4 = weekly. Binary analysis bins 0 = never vs. 1 = any other selection.

advice on all these dimensions. Baseline responses are on a four-point scale from “never” (1) to “weekly” (4). The binary analysis bins responses other than “never” into the high category.

Tables 7.8 and 7.9 confirm that these differences are robust to controlling for the other traits of individuals, companies, and the floors on which respondents work. As the average baseline value for most of these variables is on the order of 1.8 in table 7.4, these quantified differences are often 10 percent or greater. On providing advice, the immigrant differential to natives is highest on business operations and customers and lowest on venture financing. On receiving advice, the differential is highest on venture financing and customers and lowest on suppliers and technology. But these differences are small relative to the larger context of high rates of giving and receiving advice.

We have conducted a number of robustness checks on these analyses. We condensed our regression tables by only showing Boston-specific results for the full specification with person- and firm-level covariates, and the comparability carries through on other regression variants too. Adding St. Louis to the sample tends to raise slightly the immigrant differential, indicating a modestly greater immigrant reliance in St. Louis on CIC networking than in Boston.

We introduce person- and firm-level controls via indicator variables for ranges, and we kept missing values via an unknown category to maintain consistent sample sizes across columns. Our results are robust across these design choices, which is not surprising given the raw effects evident in table 7.4 alongside the substantial coefficients observed in regression analyses.

In terms of additional covariates, we also find very similar results when including the binary response by a respondent if the network was preknown before coming to CIC. We have also run analyses where we control for the tenure of an individual at CIC. These analyses are quantitatively similar in aggregate, with effects growing or shrinking modestly on some outcomes. There is sufficient risk for overcontrolling with these variables (e.g., we do not know what fraction of a respondent’s network is preknown before locating at CIC) that we have left them out of the baseline results reported here.

7.4.3 Extended Analysis

Our last set of analyses is not formally reported but qualitatively described. These analyses consider traits of CIC floors on which immigrants and natives are located to see if they interact differently with floor-level environments. The floors within a CIC facility have different feels or purposes: for example, one floor may be more populated with larger, fixed office spaces suitable for established teams, while another floor is a coworking space designed for very small teams or individual entrepreneurs. Some of these floor-level differences are intentional, while others are due to legacy

layouts of buildings. Conditional on the match of a client's needs to a type of space, allocation to a specific office is otherwise based on availability and often has some randomness.

We measure six traits of each floor: inventor percentage, immigrant percentage, average age, female percentage, average firm size, and total number of firms. The measures are derived from respondent data for floors. We control for floor fixed effects, which captures the main effects of these variables, and we interact these floor-level traits with whether a respondent is an immigrant to observe whether there is heterogeneity in the immigrant differential due to various floor characteristics. We restrict this analysis to floors where 15 or more people responded to the survey. We further drop St. Louis due to some limitations on our floor information for this facility and its overall very different immigrant background.

The most important finding from these analyses are null results for interactions—that is, the immigrant differential captured in this chapter mostly operates independently of the floor environment. As important, we specifically find evidence that the differential for immigrant networking and giving and receiving advice does not depend on the immigrant being on a floor with many other immigrants. Thus while we do not observe the immigrant and native components of a respondent's network, we have reason to believe the networks are not strongly segmented in CIC. There is some evidence that the greater degree to which immigrants give and receive advice is accentuated on floors that have a high fraction of inventors, but the more important finding is that these floor-level shaping factors are second order to the main effects. We conclude that floor traits do not shape the strength of the immigrant differential with respect to networking.

7.5 Conclusion

Networking and the giving and receiving of advice are important for entrepreneurship and innovation. Our analysis of CIC finds that immigrants take more advantage of networking opportunities at CIC, especially around the exchange of advice. This effect is quite robust, holding in the raw data and tightly controlled specifications, and it does not appear to be mediated very much by floor-level traits. We are not able to assess whether this generates long-term performance advantages for immigrants, but it at least leads them to value CIC to a greater extent than natives do.

Looking forward, we hope other researchers continue to examine differences in behaviors of immigrants within entrepreneurship and innovation compared to natives. It is now well established that immigrants are a large and growing component of the US science and engineering workforce, and they have comparable overall quality on many dimensions to natives engaged in the field. But there remains much to explore about how their pref-

erences and interactions shape the communities of which they are becoming an ever-larger share.

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