

Nascent Women Entrepreneurs and the Influence of Social Networks on Small Business Outcomes

Rebecca L. Upton¹, PhD, MPH, Emma J. Broming², CVA & Lee O. Upton³, MS, MBA, CVA

Abstract

Nascent entrepreneurs must leverage valuable resources, including human, financial, intellectual, and social capital in order to increase the likelihood of success. With the rise of networking technologies such as LinkedIn, Biznik, Cofoundr, and Facebook, social network analysis, long utilized as a method for organizational analysis, has taken center stage in popular understanding of entrepreneurial success. The composition and quality of social networks, however, varies among male and female entrepreneurs and can have a direct impact upon the business outcomes for each. Using PSED data, this research investigates the gendered differences and structural disparities in the networks of early entrepreneurs.

Keywords: Gender, work/family, entrepreneur, social networks

Introduction

Nascent entrepreneurs must leverage valuable resources, including human, financial, intellectual, and social capital in order to increase the likelihood of success throughout the entrepreneurial process. There is growing and demonstrated interest in understanding the role of social networks in the firm and job creation process. While popular usage and understandings of social networks have burgeoned in the past few years concurrent with the rise of networking technologies such as LinkedIn, Biznik, Cofoundr, and Facebook, social network analysis (SNA) has long been utilized as a theoretically driven tool and method for organizational analysis.

Analysis of the structural characteristics of social networks and investigation into how entrepreneurs use social relations to leverage social capital in order to access other resources is a critically important issue for researchers, policymakers, and entrepreneurs (Granovetter 1985, Granovetter 1992, Nohria & Eccles 1992). Not all networks or network paths are created or accessed equally. Of particular importance is the role that social networks play in facilitating the growth and success of female entrepreneurs versus male entrepreneurs given the importance of women-owned businesses to job creation and the American economy (Blank 2010, Ahl 2006).

In the context of entrepreneurship, social networks provide the channels through which private information flows and facilitate information exchange that is beneficial, even essential, to the entrepreneurial process (Stuart & Sorenson 2005, Sharafizad and Coetzer 2016). Following recent reviews of the literature too, social networks act as aspects of the micro-environment in which nascent entrepreneurs operate and grow (Cabrera and Mauricio 2017). Greve and Salaff (2003) demonstrate that entrepreneurs talk with more people during the planning phase than all other phases of business development. A focus at the outset of an entrepreneurial endeavor and on the structural components, process and people within an entrepreneurial social network is therefore a useful means of examining business success and network dynamics particularly using PSED II data.

¹DePauw University, Greencastle, IN, 221 Asbury Hall, 100 Seminary St., DePauw University Greencastle, IN 46135, raption@depauw.edu, 765.247.8416

²Premier Quantitative Consulting, Inc., Orlando, FL

³Premier Quantitative Consulting, Inc., Orlando, FL

Entrepreneurs depend on their networks of personal and professional relationships to make decisions and solve problems within their businesses and to strategize for success. The composition and quality of social networks, however, varies among male and female entrepreneurs and can have a direct impact upon the business outcomes for each. Men for example, are more likely to have worked previously in managerial or executive positions prior to starting their own businesses. This creates an asymmetry with respect to the resources, information, and advice that female and male entrepreneurs can draw from their respective networks. Men's social contacts have traditionally led to information or assistance in propagating business success. According to Robinson and Stubberud (2009), "if an entrepreneur's network is limited to a group of people who cannot provide valuable information about business, the performance of his or her firm is likely to suffer in comparison to that of a company whose owner is able to take advantage of a diverse, high quality network." Understanding the factors that contribute to successful network usage, growth and sustainability for women entrepreneurs in particular is essential given the deficiencies acknowledged by Stuart and Sorenson (2005) and more recently by Sharafizad and Coetzer (2016).

Social networks facilitate economic activity that encourages entrepreneurial efficiency and increases business opportunities (Fornoni et al. 2011). They represent a network of people with whom an acting or potential entrepreneur interacts regardless of his or her business activity (Hansen 1995). These networks have the ability to provide valuable resources that are not necessarily "owned" by the entrepreneur, but play a critical role in assisting the entrepreneur in achieving their business goals and objectives. For example, women business owners often have less diverse business networks and encounter greater challenges accessing and deploying their networks than their male counterparts (Blank 2010). Further, the networks that women possess provide fewer contacts to clients and less entrepreneurial and managerial knowledge, putting women entrepreneurs at a disadvantage from a resource standpoint at the outset of the entrepreneurial endeavor (Diaz & Carter 2009).

Members of an entrepreneur's social network provide support for both financial and human capital. Members of the entrepreneurial social network may also provide support by sharing their experiences and expertise with the nascent entrepreneur (McQuaid 1996; Kuhn, Galloway and Collins-Williams 2016). A common example includes an entrepreneur taking advantage of a social network to seek potential funding sources. Indeed, one of the most tangible benefits of programs such as incubators and accelerators is the increase in networking opportunities that can lead to seed funding or additional equity investments to help the nascent entrepreneur grow his or her business. Nevertheless, research shows that women entrepreneurs often start with significantly lower levels of financial capital than men (Robb 2013). In addition, women appear to have depressed access to existing personal and professional networks than men (Blank 2010). This raises questions as to whether structural differences between female and male entrepreneurs' social networks limit the development and growth potential of female entrepreneurs and whether certain structural components of effective networks at the nascent stage can be isolated and observed.

Insufficient or inadequate networks can be devastating for a business and can serve as a barrier by preventing entrepreneurs from securing capital from optimal sources. Informal contacts are instrumental in establishing mutual trust, which is particularly important in securing financing (Blank 2010, Loscocco 1991, Loscocco and Smith-Hunter 2004). Given the critical issue of access to capital for entrepreneurs, particularly women entrepreneurs, understanding the characteristics of strong social networks, both informal and formal, and their impact on business outcomes is paramount. From a financial capital standpoint, investors often prefer to take an equity stake in a business to which they are connected. Stuart and Sorenson (2005) hypothesize that social structures safeguard investor interests in this regard by reducing information asymmetry. Overlapping social networks for investors and entrepreneurs provide a bridge of trust and information, allowing the investor to assess the entrepreneur's endeavor and integrity in more detail than a standard application process. This is particularly true of venture capitalists, which generally prefer to invest in nascent firms they learned of through referrals and close contacts. This paper investigates whether there are structural differences in the nature of entrepreneurial networks between male and female entrepreneurs and to what extent these differences manifest disparities in the effective development and success of female entrepreneurs. We concentrate on social network analysis at the nascent stage of entrepreneurial development, where entrepreneurs seek to develop, plan, and launch a business and ask what are the relevant factors in a entrepreneurial network that will most benefit women business owners?

Review of the Literature

Early research by Granovetter (1973) and more recent work by Kuhn, Galloway and Collins-Williams (2016), Kuhn and Galloway (2015) and Sharafizad and Coetzer (2016)

Suggests that social networks are critically important to the entrepreneurial process and are central to business venture success and for women in particular (Cabrera and Mauricio 2017). Social network characteristics include network size, network density, network diversity, the balance of strong and weak ties, and network redundancy (Licht & Siegel 2006). Both the quality and quantity of network ties is important to the entrepreneurial process (McQuaid 1996). So too is the investigation of the gaps or structural holes that may exist in an entrepreneur's social network. Bridges between gaps or holes and the significance of social capital in building network relationships are critical to the nascent entrepreneur and are important factors that have been well-considered in the social network analysis literature (Burt et al. 2013).

Researchers have also studied the properties associated with networks and posit several useful facets of a successful entrepreneurial network. For example, some argue that the size of a network is important. Entrepreneurs, particularly those in the nascent stage, may want to be aware of the current size and the potential to expand and enlarge their network in order to obtain critical information from others who are well-positioned and intentioned to assist (cf. Kwapisz and Hechavarria 2016). While awareness of the extent of the network at an early stage is important, as Greve and Salaff (2003) and Blau (1977) suggest, it is more essential that the entrepreneur is well positioned within the network and that paths to resources are easily navigable (Greve & Salaff 2003). Lastly, research on social network components emphasizes the relational structure of the social network itself. It is important to recognize the value of some network ties over others and the inherent potential for those ties to shift over time.

The importance of social networks and their involvement in the entrepreneurial process differs by phase. Butler and Hansen (1991) and Greve and Salaff (2003) found that social networks were especially critical during the pre-startup phase. To that end, social networks play a different role during the three stages of enterprise establishment. During the initial mobilization phase, entrepreneurs discuss their preliminary ideas and develop their business concept, relying on a small network of trusted ties. In the planning phase, where entrepreneurs prepare to set up their firms, entrepreneurs access the largest network, relying on weak ties in an attempt to access necessary financial and human capital. Finally, during the establishment phase, entrepreneurs shift their focus to the daily activities of running their firms and rely less on their social networks (Greve & Salaff 2003). The critical nature of social networks during the planning phase is central to firm survival and growth and yet continues to be under-researched in terms of women business owners' early success and strategies.

Building on Burt's pioneering and ongoing research, Davidsson and Honig (2003) examined the influence of human capital and social capital on entrepreneurs. They found that social capital was significantly higher in the nascent group, indicating that during the startup phase, social capital is critical. Networking facilitates the development of social capital, defined as the "resources individuals obtain from knowing others, being part of a social network with them, or merely being known to them and having a good reputation" (Baron & Markman 2000, 107). Well-developed social capital and social networks may promote the survival and growth of emerging firms (Robinson & Stubberud 2009). Entrepreneurs relied on strong ties as well as weak ties, which were found to be a strong predictor of a startup's success, including the business's first sale and profit. The study further concluded that for women, education was significant in accumulating resources and knowledge throughout the entrepreneurial process. In another study, Davidsson & Honig (2003) determined that increased social capital was positively correlated with successful resource exploitation and viable business outcomes. In particular, the research noted the importance of education to women in accumulating resources throughout the entrepreneurial process. Given the importance of social networks in an entrepreneurial context via the provision of information, access to capital, access to skills, knowledge, advice, emotional support and social legitimacy, the literature indicates that as entrepreneurs progress towards operating established and successful businesses, their social networks tend to have the same proportion of men and women. That is, the social networks of surviving business owners tend to be gender-balanced and not operating within gendered silos (Klyver 2011).

It is therefore important to investigate how this network balance is achieved. Previous research indicates that quantity of network members and the gender bias may indeed be significant. However, it is possible that a focus on the quality of network connections may be most useful and a greater predictor of future sustained success. Hanson and Blake (2009) conducted exploratory research on the importance of entrepreneurial identity to entrepreneurial networks, hypothesizing that gender is a critical component of identity. They posed two hypotheses: (1) gender influences the construction and use of networks, and (2) trust and legitimacy, which contribute to the value of networks. The gender effects study explored the literature in detail, noting, “entrepreneurial networks are themselves embedded in place-based social, economic, cultural, and political structures that shape entrepreneurs’ identities and affect access to resources” (Hanson & Blake 2009, 135). This research highlights the importance of the social network in business outcomes and success.

As Kane (2011) suggests too, gender and cultural norms can both hinder as well as facilitate the ability to utilize and maximize network advantages that are already present. Kane demonstrates that a key facet to this observation is that network change, the flexibility of a network and of an entrepreneur, the ability to be both savvy and facile in navigating a network, and being an early or interested adopter (particularly in terms of technology for example) remains rather understudied in the SNA literature. Research indicates that networks can act as stages upon which ideas of gender are crafted and performed. Far from being a static means of analysis or social construct for the entrepreneur, social networks and their gendered characteristics may be important factors in the long-term outcomes for both men and women (Kane 2011). Greve and Salaff’s 2003 study examines social networks and entrepreneurship with a secondary focus on women entrepreneurs, a facet to early research that has not been uncommon (cf. Ahl 2002, 2006) but has meant that little attention has been given to placing women entrepreneurs at the center of analyses. According to the Greve and Salaff for example, although entrepreneurs may have the requisite ideas and knowledge to run a business, they require complementary resources such as financial, human, and social capital, usually obtained via social networks. This is logical given the role of social networks as the critical component of entrepreneurial capital and know-how acquisition. As Kane suggests too, this “network know-how”, itself a product of cultural context, is in turn shaped by a variety of other social forces and the most relevant factors are the culturally based gender norms that may influence network transition and ability to access and achieve favorable outcomes (Kane 2011). Successful entrepreneurs often tailor their social networks to supplement their knowledge, education, skills, and expertise such that the success of their business ventures is more likely (McQuaid 1996). Social networks are dynamic and can both influence and be influenced by particularly gendered variables or individuals but if the context is not carefully examined through the lens of gender inequity, the success of those networks will be hindered (Ahl 2006, Berglund 2018).

Given the dynamic nature of entrepreneurial social networks, Klyver, et. al. used Global Entrepreneurship Monitor (GEM) data to examine the influence of social networks on entrepreneurial participation across gender. This study found that men and women have structurally different social networks, where women’s networks typically include more women. Further, women were less likely to have entrepreneurs in their network, an important fact given their finding that personally knowing an entrepreneur was a significant predictor of entrepreneurial participation. As such, women were less likely to report entrepreneurial networking than men, an attribute that persisted across all phases of entrepreneurship. Among the study’s chief conclusions, the researchers found that the effect of entrepreneurs in a social network is similar for both men and women. Robinson and Stubberud(2009) studied the gender differences in entrepreneurial social networks using European Union data on entrepreneurs’ sources of advice. The study highlighted the importance of social networks to business success, noting that “networks provide business owners with direct access to the resources necessary to establish and grow a business” (Robinson & Stubberud 2009, 84). Further, the authors stressed that social networks may provide indirect access to third party connections and their resources. Robinson and Stubberud’s results indicated that women are more likely than men to list friends and family as advisors and men were more likely than women to list professional acquaintances and consultants as sources of business advice. The authors note that this difference has implications for gender-segregated business performance outcomes as the informal networks most used by women entrepreneurs are likely to be less useful than the professional networks utilized by male entrepreneurs. Burt (1999), building on Granovetter, writes about social capital and the strategy of “borrowing” social capital through the use of network relations. Burt captures the importance of social capital and suggests as other researchers have that contacts that lead to successful outcomes are social capital in and of themselves – they are the set of “tangible or virtual resources that accrue to actors through the social structure” (Greve & Salaff 2003,4).

Burt's (1999) research posits that if borrowing social capital is a strategy through which new entrepreneurs gain access to resources, social and financial capital, those entrepreneurs are perceived as less established, riskier and potentially less successful. Analyzing the exchange of social capital, according to Burt, provides more than a method of identifying groups of people described as outsiders or who are trying to jump-start their entrepreneurial endeavor. Rather, he argues that cultural assumptions about broad attributes of age, race, and gender could be ameliorated by an examination of other social network components and the social context in which networks are immersed. The focus on gender composition and diversity in entrepreneurial networks and the use of SNA itself to investigate the strength and efficacy of those networks to enhance outcomes is an essential factor in any contemporary research on these issues. Based upon existing research, it is less clear how different forms of social capital affect existing gender differences. Important insight has come from knowledge generated from case-study research in particular industries (Grugulis & Stoyanova 2012), but quantitative accounts examining how exposure to different types of network structures affect gender disadvantages in career advancement remain limited in studies of nascent entrepreneurial endeavors. Petersen, Saporta, and Seidel (2000) reviewed the empirical literature on networks and gender segregation and observe that systematic knowledge is still very limited. They cite Granovetter (1995), who notes in his review that this research gap is the most pressing. Peterson et. al. (2000) argue that the few existing studies that deal explicitly with the differential returns of social capital (as understood in particular with respect to entrepreneurship and startup careers for men and women) are mixed and inconclusive in their findings.

While Burt has argued that women are more successful with a small network of interconnected contacts and do not profit from brokerage per se (as men do), women can benefit indirectly from brokerage through strong ties to established business and network sponsors. Others, however, argue that women's close circles are detrimental to their careers. As Lutter (2015) cites, "women's gender-homophilous ties (i.e., exchange occurs mainly through ties with the same sex) create stronger disadvantages because they tend to be lower in status and consist of fewer connections to important sponsors" (Lutter 2015, 332). While contemporary research recognizes the need to investigate context and to be cautious about "essentializing" any characteristics of women in business, certain key factors seem particularly relevant to their success as entrepreneurs. Social networks are critical to gaining access to valuable resources and secondary knowledge. According to Shirokova and Arepieva, social networks "provide entrepreneurs with a vast range of valuable resources that are not owned by the entrepreneur but may help achieve entrepreneurial goals" (Shirokova & Arepieva, n.d., 2). Social networks open entrepreneurs to new information, financial resources, and professional advice. However, gender differences remain. In examining the expectations of nascent entrepreneurs, Manolova et al. (2007) found that men-owned and women-owned firms differed in terms of human capital, social capital, financial capital, strategy, industry sector, and personal motivations. In our research, we build upon this observation and utilize the entrepreneurial expectancy framework as outlined in their study.

Yang and Aldrich (2014) examine how achieved status and ascribed attributes such as gender, jointly affect the successful outcomes of the entrepreneurial endeavors of teams. The authors conclude that even when merit is a significant consideration, gender stereotypes continue to constrain female entrepreneurs' access to leadership positions, power, social capital, and resource availability. One critical conclusion is that these disadvantages and the effect of gender are heightened when spouses are involved in the nascent firm as well as the presence and timing of children. This study is informative for our own as the authors note two mechanisms that could enhance the context and social network in which women entrepreneurs are immersed. Specifically, new businesses may be seen as offering a better balance between work and family for women and therefore more opportunities for women may exist. Secondly, this research builds on others to suggest that formal sector wage penalties may exist for women who have children, thus motivating women to pursue careers and the establishment of new businesses. Yang and Aldrich utilize the Panel Study of Entrepreneurial Dynamics (PSED) in order to investigate the interplay between concepts of merit and gender in entrepreneurial team leadership. Their study is a contemporary and fundamental step in analyzing the role of gender in organizational research.

Entrepreneurs require a host of information, skills and access to labor in order to start a business and sustain firm activities over the long-term. While a nascent entrepreneur will ideally possess the financial capital to launch the venture, complementary resources and contacts are essential. These resources are embedded within the multi-faceted social network in which the entrepreneur is immersed, but are neither static, nor comprised solely of ties with solitary

meanings. Social network analysis is by its very nature the investigation of dialectical relationships that are in themselves, immersed in wider, contextual and historical processes.

In this investigation, we have examined one the most influential and yet still understudied factors via structural equation modeling – the role of gender in crafting strategies for entrepreneurial success using social network analysis.

Data and Methods

Data

This research study utilizes public Panel Study of Entrepreneurial Dynamics (PSED) II data, which include characteristics of startup efforts that become firms. The Panel Study of Entrepreneurial Dynamics is the first full scale realization of a longitudinal approach to the systematic, large scale study of entrepreneurs and the process of venture startup (Davidsson & Gordon 2012). The PSED covers two different survey cohorts, PSED I and PSED II. PSED I began screening in 1998-2000 to select a cohort of 830 firms with three follow-up interviews. The PSED II began screening in 2005-2006 to select a cohort of 1,214 firms with five follow-up interviews. The PSED II is a nationally representative dataset offering systematic, reliable, and generalizable data on how businesses form (Reynolds & Curtin 2007).

Variables

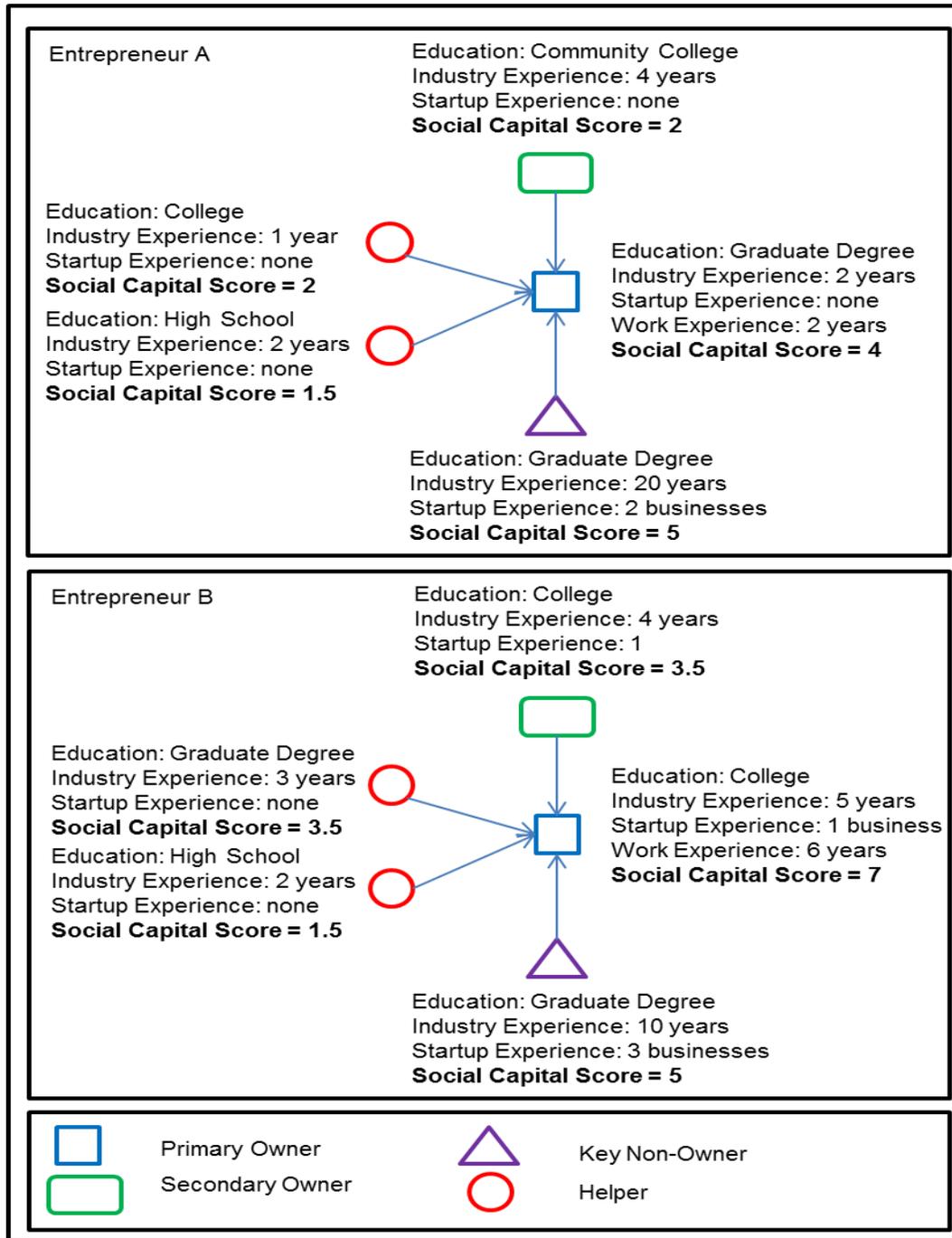
We utilized the language used in the PSED questionnaire to discuss the individuals with which the primary entrepreneur interacts as part of the business formation process (i.e., their social network). Key terms used throughout the paper include:

- **Primary owner:** the individual identified in the PSED data as the leading owner of the business. This is the individual that responded to the survey.
- **Secondary owner:** individual identified in the PSED as an equity holder in the business that is not the primary owner. For example, a business partner that does not lead the everyday operations of the firm is a secondary owner. Other options include family and friends who invested in the business. Not all firms in the sample have secondary owners.
- **Key non-owner (KNO):** individual that does not own an equity stake in the business, but made a distinctive contribution to founding the business. Examples of contributions include planning, development, and provision of financial resources, materials, training, or business services. Not all firms in the sample have key non-owners.
- **Helper:** individual that does not own an equity stake in the business, but provides significant support, advice, or guidance to the owners on a regular basis. The provision of assistance on a regular basis in the form of non-professional services contrasts key non-owners, who provide professional services. Not all firms in the sample have helpers.

When evaluating entrepreneurial social networks, understanding network composition, both in terms of quality and quantity of contacts is germane. For example, an entrepreneur with three contacts, all of which are educated and have substantial industry experience, may have a better entrepreneurial social network than an entrepreneur with ten contacts, none of which have industry or startup experience. To gain a greater understanding of the dynamics of individuals that comprise an entrepreneur's social network, we constructed a social capital score for each owner (primary and secondary), key non-owner, and helper. We define social capital as the combination of industry experience, startup experience, education, and work experience an individual owns.⁴ Figure 1 gives a hypothetical example of social capital scores and network components for two entrepreneurs, A and B.

⁴ Work experience is only available for primary and secondary owners.

Figure 1: Development of Entrepreneurial Social Capital Scores



As shown, both Entrepreneur A and B have one secondary owner, one key non-owner, and two helpers. To that end, Entrepreneurs A and B have the same network size. However, the qualities of Entrepreneurs A and B as well as the individuals that comprise Entrepreneur A's and B's networks differ. First, Entrepreneur A has more education, but less industry and startup experience than Entrepreneur B, resulting in an overall lower social capital score (4 versus 7). In theory, Entrepreneur B's helpers have a higher capability to provide assistance than Entrepreneur A's helpers as they have greater than or equal to social capital scores.

We developed these metrics for the entire sample of 1,214 entrepreneurs. It is critical to note that while an entrepreneur may have a more developed entrepreneurial social network, that individual is not predetermined to success. Despite the quality of the network ties that comprise an entrepreneur’s social network, it is incumbent upon the entrepreneur to effectively leverage the skills and talents of network members. We developed a network number score for each entrepreneur as a means to compare the number of secondary owners, key non-owners, and helpers that contributed to the business in the nascent stage. The final key term germane to our econometric analysis is social network intensity (SNI). Within the PSED data, we define social network intensity as a combination of the number of individuals in an entrepreneur’s network and the owner, key non-owner, and helper social capital. The quantity and quality of individuals within an entrepreneurial social network define its social network intensity. Consistent with prior research, we define the gender-ownership of the firm as the gender of the primary owner. The resulting gender split in the PSED II sample is 37.6 percent women and 62.4 percent men.

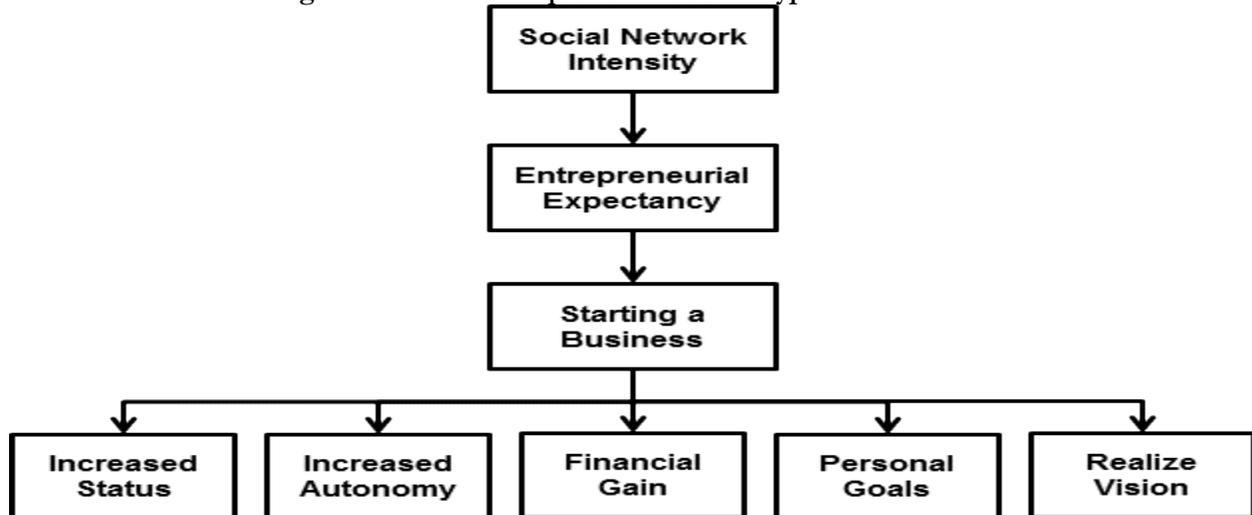
Analysis

Expectancy theory is a dominant theoretical framework for explaining human motivation (Manolova et al. 2007). The theory explains motivation based on three aspects of relationships and outcomes; expectancy (efforts will yield desired goals), valence (the worth and value of those goals), and instrumentality (the effort and outcomes are worthwhile overall) and is well-grounded in empirical research. This study covers two research hypotheses using PSED II data and expectancy theory tailored to an analysis of the structure and role of social networks in assisting nascent entrepreneurs. We present the research hypotheses:

- H1: In the entrepreneurial expectancy framework, desired outcomes for starting a new business are positively influenced by the entrepreneurs’ social network intensity (i.e., motivations using social networks).
- H2: There are significant, observable differences in social network intensity between female and male entrepreneurs when achieving desired outcomes.

In this research, we were interested in the social network component of how women launch their businesses and what they hope to achieve in doing so. Our analysis covered a specific point early in the entrepreneurial process and all results are based on the data contained within the PSED II. For that reason, it is not appropriate to generalize the results or methodology outlined in this paper to entrepreneurs at every stage of their businesses but rather to those in the very nascent steps of the overall process. Figure 2 shows the structural equation model used to test hypotheses 1 and 2. Arrows indicate hypothesized causal relationships; such that social network intensity affects entrepreneurial expectancy which in turn affects starting a business. Starting a business affects desired outcomes, completing the logical and causal chain.

Figure 2: Structural Equation Model – Hypotheses 1 and 2



Structural equation modeling (SEM) is a general term to describe a group of linked statistical models used in hypothesis testing. The theory stipulates that causal relationships exist among multiple variables. To describe relationships between variables, SEM incorporates both a path model and a measurement model. Path models are defined by the hypothesized directional influences or causal relationships between variables.

A key feature of SEM is that variables can serve as both source (independent) and result (dependent) variables at the same time. For example, in our model, social network intensity influences entrepreneurial expectancy which influences starting a business. In this model, entrepreneurial expectancy acts as both a dependent and an independent variable at separate but linked stages in the analysis. In testing each hypothesis with PSED data, key variables include owner gender, type of business, education, legal form, startup experience, work experience, industry experience, and network resource provision. Our dependent variables are desired outcomes, which include increased status, increased autonomy, financial gain, personal goals, and realization of a vision, all of which are developed using several Likert scale variables. In the PSED survey, the entrepreneurs rated their intensity on each outcome on a 1 to 5 scale. We discuss each of these in turn.

- Increased status: the entrepreneur started the business to elevate their social status. The variables used include:
 - To achieve a higher position in society
 - To be respected by your friends
 - To achieve something and get recognition for it
 - To have the power to greatly influence an organization
- Increased autonomy: the entrepreneur started the business in order to increase their personal and/or professional autonomy. The variables used include:
 - To have greater flexibility for your personal and family life
 - To have considerable freedom to adapt your own approach to work
- Financial gain: the entrepreneur started the business to realize a financial gain. The variables used include:
 - To give yourself, your spouse, and your children financial security
 - To earn a larger personal income
 - To have a chance to build great wealth or a very high income
- Personal goals: the entrepreneur started the business for personal and/or family reasons. The variables used include:
 - To continue a family tradition
 - To follow the example of a person you admire
 - To build a business your children can inherit
- Realize vision: the entrepreneur started the business to realize a personal and/or professional vision. The variables used include:
 - To develop an idea for a product
 - To fulfill a personal vision

In this structural equation model, starting a business is a stage 2 dependent and stage 3 independent variable, relating entrepreneurial expectancy and desired outcomes. Consistent with prior research (Manolova et al. 2007), we define starting a business using the Likert scale variable “overall, my skills and abilities will help me start this new business.” In this research, we adopt an expectancy theory framework. Entrepreneurial expectancy (EE) is the belief that a particular action will be followed by a particular outcome. Previous research (Manolova et al. 2007) used PSED I data to explore the effect of expectations on starting a business and the effect of starting a business on desired outcomes and defined a particular entrepreneur’s entrepreneurial expectancy. In this research, we define entrepreneurial expectancy using Likert-scale responses to three PSED II variables:

- Overall, my skills and abilities will help me start this new business.
- My past experience will be very valuable in starting this new business.
- I am confident I can put in the effort needed to start this new business.

Results

Social capital is an essential construct for understanding an entrepreneur’s social network intensity in the framework of the PSED. Table 1 contains summary statistics for all social capital components by network participant (owner 1, key non-owners, helpers) by primary owner gender (WOB, MOB). On average, owner 1 has over 19 years of work experience whether female or male. A difference in owner 1 social capital contributions is industry experience, where men have higher average industry experience. The average owner education score is between 5 and 6 for all network members, corresponding to the “some college” and “community college degree” categories in the PSED II codebook.

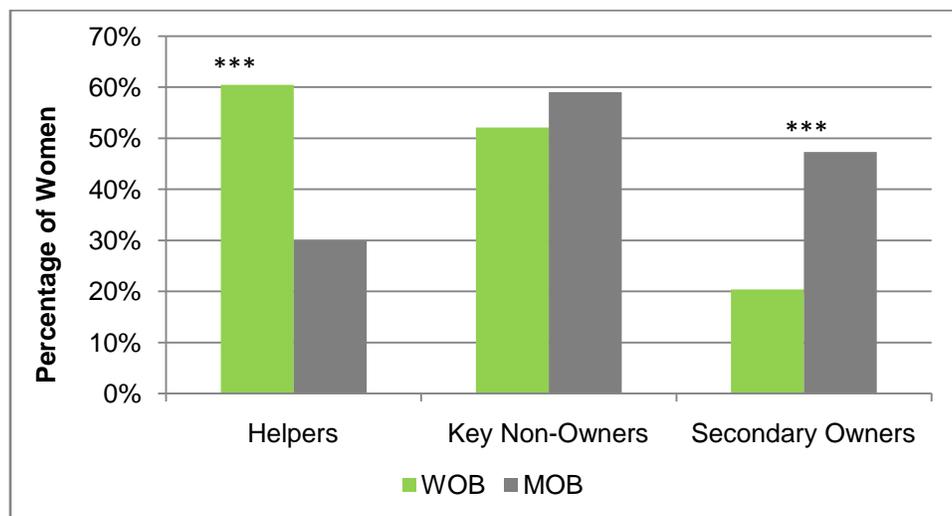
Table 1: Summary Statistics for Social Capital Components by Network Member

	WOB				MOB			
	Mean	Median	σ	n	Mean	Median	σ	n
Primary Owner								
Education	5.66	5.00	1.96	453	5.45	5.00	2.22	759
Industry Experience	7.10	3.00	9.06	449	10.74	7.00	11.20	760
Startup Experience	0.86	0.00	1.69	453	1.11	0.00	2.07	760
Work Experience	19.51	20.00	11.59	451	21.82	21.00	12.92	753
Key Non-owners								
Education	5.53	5.00	2.10	150	5.34	5.00	2.22	217
Industry Experience	7.53	3.33	9.86	154	7.90	4.67	9.65	235
Startup Experience	1.98	1.00	8.04	146	1.30	1.00	1.94	217
Helpers								
Education	5.22	5.00	1.94	107	5.32	5.00	2.26	182
Industry Experience	8.78	3.00	11.97	119	8.27	5.00	10.40	207
Startup Experience	2.10	1.00	9.45	105	1.41	1.00	2.07	186

Note: Industry and work experience are measured in years and startup experience is measured in number of businesses.

In addition to social capital, understanding the composition and dynamics of entrepreneurial social networks along gender lines requires cataloging the gender of not only the entrepreneur, but also the individuals that comprise their social network. Understanding how women entrepreneurs use male helpers and key non-owners and how male entrepreneurs use women helpers and key non-owners is important to evaluating gender differences. We examined the gender of all secondary owners, key non-owners, and helpers for each entrepreneur. Figure 3 shows the distribution of social network members for both male and female entrepreneurs based on the percentage of helpers, key non-owners, and secondary owners that are female.

Figure 3: Gender Representation by Social Network Members



The data indicate that women and men have a preference to use helpers of the same gender when starting their businesses. This contrasts the key non-owner gender distribution, where men are more likely than women to use women as key non-owners. However, the most striking difference exists for secondary owners. Secondary owners are critical to the entrepreneurial process and provide key insights into operation of the business as well as equity funding. In some businesses, secondary owners assist in running the business and providing oversight. In the PSED II, only 20 percent of secondary owners of WOBs were female. For MOBs, 52 percent of secondary owners are male.

Several analyses in our research and the literature focus on social network intensity by the gender of the primary entrepreneur. Table 2 shows difference in means testing results on the social capital components of secondary owners by gender. This analysis answers the question, what differences exist in social capital among network members by gender? An important consideration when reviewing Table 2 is that the PSED has no hierarchy of secondary owners. That is, secondary owners are not ranked by the responding owner. As a result, the structure of owner teams and the order in which the primary owner listed the secondary owners in the PSED could affect the statistical significance of the results. However, because we are unable to ascertain or impute a ranking for the secondary owners, we accept the data as-is. For example, we compare owner 3 to owner 3 in all cases.

Table 2: Social Capital Components by Secondary Owner Gender

	Men	Women		
	Mean	Mean	Count	Difference
Education				
Owner 2	5.29	5.41	547	
Owner 3	5.62	4.71	132	*
Owner 4	5.63	5.34	66	
Industry Experience				
Owner 2	7.70	4.23	542	***
Owner 3	7.90	2.75	136	***
Owner 4	4.57	6.63	66	
Startup Experience				
Owner 2	1.09	0.61	539	***
Owner 3	1.16	0.39	127	***
Owner 4	1.33	0.71	62	
Work Experience				
Owner 2	18.23	15.17	529	***
Owner 3	18.76	15.84	125	
Owner 4	18.12	18.77	62	
Note: Industry and work experience are measured in years and startup experience is measured in number of businesses. *** p<0.01, ** p<0.05, * p<0.1				

As shown in Table 2, there is little difference in the education level of secondary owners by gender. However, in terms of industry experience, the difference in industry experience of owners 2 and 3 based on gender is statistically significant, where the male secondary owners have more industry experience than women secondary owners. Additional gender-based differences exist in terms of startup experience and work experience. Male owners 2, 3, and 4 have more startup experience than their female counterparts. Further, male owners have more work experience than their female counterparts. These results are informative when examining entrepreneurial social network composition, particularly given the gender differences that exist and the hypotheses posed relating to social network intensity and entrepreneurial expectancy and outcomes.

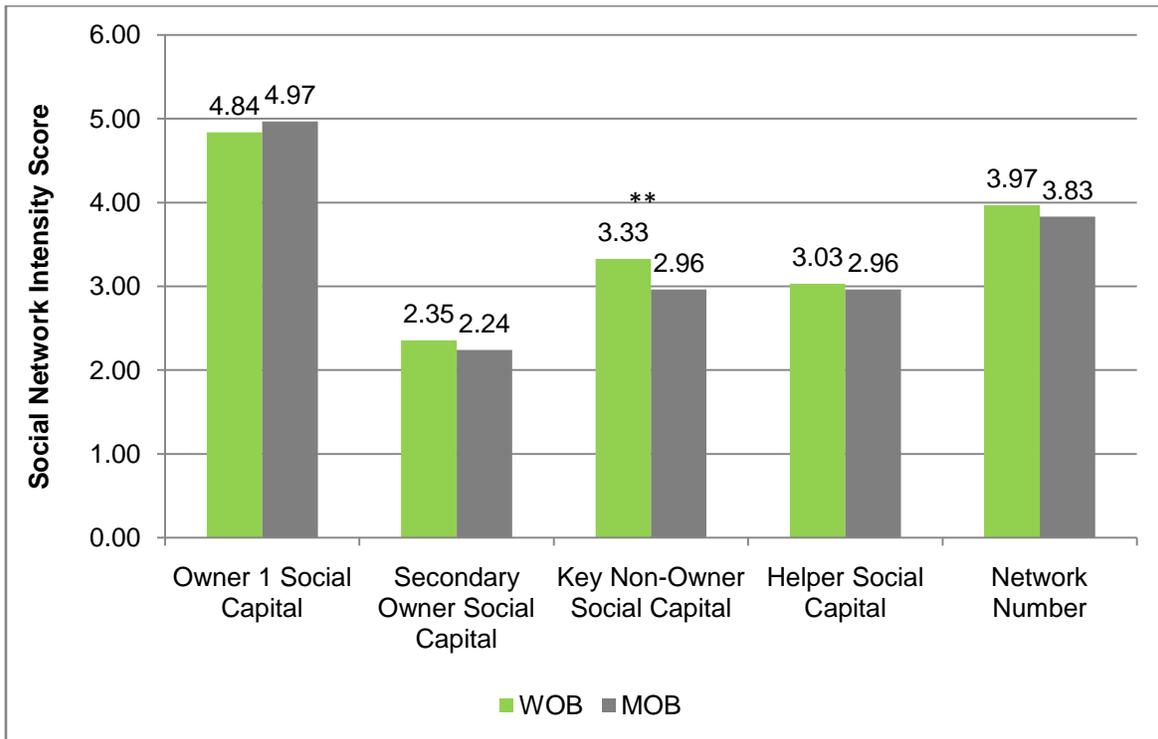
We performed a similar analysis on helpers and key non-owners, searching for statistically significant differences in social capital components of both key non-owners and helpers by gender. Table 3 contains our results. There is no statistically significant difference by gender in education for key non-owners or helpers. Further, there is no statistically significant difference by gender for key non-owners and helpers in startup experience. However, there are statistically significant differences in industry experience for all three key non-owners and helpers profiled as part of the PSED II. Male key non-owners and helpers have more industry experience than their female counterparts, which has important implications for social capital scores and entrepreneurial social network intensity.

Table 3: Social Capital Components by Key Non-owner and Helper Gender

	Men	Women		
	Mean	Mean	Count	Difference
<i>Education</i>				
Key Non-Owner 1	5.29	5.38	355	
Key Non-Owner 2	5.21	5.56	185	
Key Non-Owner 3	5.99	5.82	100	
<i>Industry Experience</i>				
Key Non-Owner 1	8.14	6.01	374	*
Key Non-Owner 2	8.63	5.45	194	**
Key Non-Owner 3	6.58	3.90	100	*
<i>Startup Experience</i>				
Key Non-Owner 1	1.27	2.64	354	
Key Non-Owner 2	3.13	1.17	181	
Key Non-Owner 3	1.15	4.36	95	
<i>Education</i>				
Helper 1	5.37	5.25	288	
Helper 2	5.19	5.17	164	
Helper 3	5.36	4.93	81	
<i>Industry Experience</i>				
Helper 1	9.33	6.20	311	**
Helper 2	8.28	5.01	182	
Helper 3	7.13	4.51	85	
<i>Startup Experience</i>				
Helper 1	1.64	2.01	285	
Helper 2	1.92	2.83	167	
Helper 3	0.73	4.96	81	
Note: Industry and work experience are measured in years and startup experience is measured in number of businesses. *** p<0.01, ** p<0.05, * p<0.1				

Together with Figure 3, Table 3 shows that because women primary owners associate with women helpers, complemented by the fact that women helpers have lower social capital than their male counterparts, women entrepreneurs may not optimize their business opportunities and social networks with respect to helpers by aligning primarily with women helpers. Given the different social capital components by gender, working with secondary owners, helpers, and key non-owners of both genders is beneficial to entrepreneurial endeavors. This lends support to the notion that diverse networks are most advantageous to a nascent entrepreneur as different network ties can provide various services based on their skillsets. In addition to exploring the gender composition of entrepreneurial social networks, we performed difference in means testing on the social network intensity variables. Figure 4 shows that male and female entrepreneurs have nearly identical social capital (owner 1 social capital). However, women leverage key non-owners with greater social capital than those leveraged by men.

Figure 4: Social Network Intensity Variables – Difference by Primary Owner Gender



Hypothesis Testing

As outlined in the methodology section, we employed a three-stage structural equation model (SEM) to test hypotheses 1 and 2. Table 4 contains model coefficients and their significance for hypothesis 1 for the entire sample of businesses.

Table 4: Multivariate Model – Hypothesis 1

All Businesses			Coefficient
Owner 1 Social Capital	→	Entrepreneurial Expectancy	0.0499 ***
Secondary Owner Social Capital	→	Entrepreneurial Expectancy	-0.0016
1 Key Non-owner Social Capital	→	Entrepreneurial Expectancy	0.0215 **
Helper Social Capital	→	Entrepreneurial Expectancy	0.0247 **
Network Number	→	Entrepreneurial Expectancy	0.0021
2 Entrepreneurial Expectancy	→	Starting a Business	0.4556 ***
Starting a Business	→	Increase Status	0.32 ***
Starting a Business	→	Increase Autonomy	0.2901 ***
3 Starting a Business	→	Financial Gain	0.4692 ***
Starting a Business	→	Personal Goals	0.2803 ***
Starting a Business	→	Realize Vision	0.2554 ***

n = 1,203
 Note: *** p < 0.01, ** p < 0.05, * p < 0.1

Examining stage one, owner 1 social capital positively influences entrepreneurial expectancy. This result confirms the notion that increased industry, work, and startup experience are associated with confident entrepreneurs that expect their businesses to succeed. Owner 1 social capital is the key driver of entrepreneurial expectancy. As hypothesized, key non-owner social capital and helper social capital positively influence entrepreneurial expectancy. That is, increased key non-owner and helper social capital scores positively affect entrepreneurial expectations. An interesting result is that the network number, a scaled number representing the number of entrepreneurial network contacts, including secondary owners, key non-owners, and helpers, does not have a statistically significant effect on entrepreneurial expectancy. This suggests that quality is more important than quantity of network connections and that entrepreneurs do not necessarily need to network more, but need to network better and with individuals more equipped and aligned with their entrepreneurial goals.

Stage 2 of the model, the effect of entrepreneurial expectancy on starting a business is positive and significant, consistent with prior research. Increased entrepreneurial expectations lead to increased belief in and propensity to start a business. Stage 3 explores the relationship between starting a business, influenced by social network intensity and entrepreneurial expectancy, and desired outcomes. We find that starting a business positively affects entrepreneurial propensity to seek increased status, increased autonomy, financial gain, achievement of personal goals, and realization of a vision. Together, the three stage SEM model indicates that within the entrepreneurial expectancy framework, desired outcomes are positively influenced by entrepreneurial social network components.

Table 5: Multivariate Model – Hypothesis 2

				WOB		MOB	
				Coefficient		Coefficient	
1	Owner 1 Social Capital	→	Entrepreneurial Expectancy	0.0625	***	0.0429	***
	Secondary Owner Social Capital	→	Entrepreneurial Expectancy	-		0.0012	
	Key Non-owner Social Capital	→	Entrepreneurial Expectancy	0.0381	**	0.0109	
	Helper Social Capital	→	Entrepreneurial Expectancy	0.0345	*	0.0221	*
	Network Number	→	Entrepreneurial Expectancy	-		0.0048	
	2	Entrepreneurial Expectancy	→	Starting a Business	0.496	***	0.4292
3	Starting a Business	→	Increase Status	0.355	***	0.2991	***
	Starting a Business	→	Increase Autonomy	0.3248	***	0.2723	***
	Starting a Business	→	Financial Gain	0.5161	***	0.4422	***
	Starting a Business	→	Personal Goals	0.2341	***	0.3041	***
	Starting a Business	→	Realize Vision	0.3423	***	0.2068	***
				n = 449		n = 754	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1

Table 5 displays the results for hypothesis 2 multivariate testing. Looking at stage 1 in the hypothesis 2 model, the effect of social network intensity on entrepreneurial expectancy, the coefficient on owner 1 social capital for women is higher than that for men, indicating that the effect of owner 1 social capital on entrepreneurial expectancy is greater for women than for men. Said differently, having higher owner 1 social capital impacts entrepreneurial expectations of women more than men. Contrasting the significance of owner 1 social capital, secondary owner social capital does not influence entrepreneurial expectancy for male or female entrepreneurs, indicating that while primary owners may assemble business teams, they do not rely on the credentials and experience of their team members when addressing their expectations for the firm. Delving further into the independent variables in stage 1, non-equity contributors such as helpers and key non-owners are important to nascent entrepreneurs' expectations and aspirations. Key non-owner social capital positively affects entrepreneurial expectancy for women entrepreneurs, but not for male entrepreneurs.

However, helper social capital positively influences entrepreneurial expectancy for male and female entrepreneurs, although the relationship is only statistically significant at the 10 percent level.

The results above confirm hypothesis 2, as in stages 2 and 3, all relationships are statistically significant at the 1 percent level for both men and women entrepreneurs. Further, there exist statistically significant differences in social network intensity between male and female nascent entrepreneurs in the PSED II sample.

Discussion

Existing literature supports the relevance and ongoing importance of social networks. In the entrepreneurial context, social networks enable movement of financial, human, and intellectual capital while facilitating information exchange. However, social network usage and efficacy varies substantially by gender and entrepreneurial phase and are driven by the quality and quantity of network participants. While existing research indicates that strong social networks positively affect overall success, inadequate social networks may act as a barrier to achieving desired outcomes, such as access to capital. As a result, there is a need to understand the dynamics of women's entrepreneurial social networks not only in the nascent phase, as addressed by this research, but also throughout the business lifecycle. A better understanding of the nexus between entrepreneurial efforts and use of social networks can provide critical information to female entrepreneurs in addressing entrepreneurial challenges, particularly for women.

This study used PSED II data to examine social network dynamics by gender for a large sample of U.S. firms that began operations in 2005. Specifically, we analyzed the effect of an entrepreneur's social network intensity on entrepreneurial expectancy and desired outcomes when starting the business via a four-stage structural equation model adopted from Manolova et al. (2007). Key components of social capital that we identified and examined within the PSED were education level, industry experience, startup experience, and work experience to provide a structural and data-based mechanism for evaluating entrepreneurial social networks.

Despite the advances that this work makes, our work has limitations. First, our conclusions are limited to nascent firms as the PSED II only examines entrepreneurs that are just founding their ventures. Second, the analysis of the social network members and components of social capital is limited to the variables and individuals included in the Panel Study of Entrepreneurial Dynamics. Although understanding the effect of entrepreneurial social networks for the entire population of entrepreneurs is germane, we sought to understand what differences exist along gender lines when evaluating causal relationships within the entrepreneurial expectancy framework and what effect those differences have on women entrepreneurs' expectations for their entrepreneurial endeavors. We recognize too the potential limitations of the causal nature of this analysis. Given the causal effects identified herein, it is important for women entrepreneurs to catalog and understand their own social networks and have access to (and be supported by) relevant policy to enhance those networks. This paper raises the critical issue of what services and assistance different network members bring to the entrepreneurial table and how those individuals and their experiences (social capital) influence the primary entrepreneur's expectations and desired outcomes for the business.

Our findings, coupled with existing data and research, reinforce the fact that there remain gender differences in social networking, particularly as it relates to nascent entrepreneurship (Ahl 2006). Women entrepreneurs should leverage targeted opportunities based on gender, but seek to round out their social networks by leveraging the strongest and most advantageous relationships, regardless of gender. This promotes avoidance of the women-only silo and associated stigma as well as promotes the concept of the entrepreneurial ally, whether female or male. Our research indicates that education surrounding these topics is important for women entrepreneurs, regardless of industry or entrepreneurial aspirations but moreover, that the larger social milieu in which they are immersed are fundamentally restructured and gender-biased norms, challenged by those in positions to do so. Thus, another potential avenue for filling identified entrepreneurial social network gaps is promoting programs and organizations that offer mentorship. This includes women's business centers, small business development centers, and local programs, such as accelerators. We explore the concept of a social network mentor that cuts across financial disciplines and is able to offer advice, guidance, and assistance to the entrepreneur when dealing with business-related challenges. Focusing on mentorship of women entrepreneurs will also aid in the critical step of assessing personal and network skills and identifying gaps. To that end, there are business assistive programs that exist, including accelerators that are not women-exclusive.

Highlighting these programs and marketing towards highly qualified women is in the best interest of the entire entrepreneurial community and may address gaps in connections between nascent entrepreneurs and those with greater experience.

Increasing women's awareness of the importance and impact of their entrepreneurial social networks is an important factor for economic growth, increasing entrepreneurial diversity, and fostering successful women-owned and women-led enterprises. But understanding pitfalls and the promises of networking strategies and biases is limited. Rather, understanding the differences in men and women's social networks, as well as the effects, negative and positive, of those differences is essential for nascent entrepreneurs and is a key policy concern as improved entrepreneurial social networks for women will benefit both women-owned businesses and foster greater economic growth overall.

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