

THE IMPACT OF GENDER DIFFERENCES IN SOCIAL NETWORKS ON
MICROENTERPRISE PERFORMANCE

BY

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DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Social Work
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2013

Urbana, Illinois

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ABSTRACT

This study examined how gender differences in social networks affect microenterprise performance. Microenterprise is defined as small-scale businesses that hire fewer than five employees, including the owner. Microenterprise development programs (MDPs), which provide capital, business training, technical support, and access to social networks, were introduced to the United States as an alternative strategy for providing low-income women with economic opportunities. One of the important strategies for U.S. Microenterprise Development Programs (MDPs) is to improve female participants' social networks for microenterprise start-up and maintenance by providing mentoring, networking services, and referrals to specialized business professionals. However, from the perspective of evidence-based practice, the social networking intervention programs of U.S. MDPs need to be based on rigorous evidence from empirical research.

This study sampled 979 nascent micro-entrepreneur cases from the Panel Study of Entrepreneurial Dynamic (PSED) Wave II (2005-2011), which is a longitudinal dataset. This study tested two research models: A) the mediation effect of social networks on the relationship between gender and microenterprise performance, B) the moderation effect of gender on the relationship between social networks and microenterprise performance. This study measured social networks as network size, strength (weak/strong ties), and gained network resources. Microenterprise performance was measured by business profitability and survival.

This study found that gender functions as a moderator on the relationship between gained network resources and microenterprise performance (i.e. business profitability and survival). While male micro-entrepreneurs receive significant benefits from their weak ties and gained network resources for improving business performance, female micro-entrepreneurs do not gain

enough benefits from their networks to improve their business performance. In addition, this study found that while network structure (i.e. size and strength) is not associated with business performance (i.e. profitability and survival), gained network resources is significantly associated with business performance (i.e. business profitability and survival). However, since there was no association between gender and social network structure and gained network resources, this study did not find a mediation effect of social networks on the relationship between gender and microenterprise performance.

The findings of this study mainly imply that a gender-sensitive social networking intervention in a U.S. context should concentrate on creating good-quality social networks that can provide valuable business resources for female participants. In addition, this research also asks government to supply funds for U.S. MDPs to develop gender-sensitive social networking intervention programs for women in order to improve female participants' microenterprise survival rate.

ACKNOWLEDGEMENTS

For the last five years, I have received exceptional support and encouragement from a great number of individuals at the University of Illinois. I would like to express my deepest appreciation to my advisor, Dr. Min Zhan, for her excellent guidance, immense knowledge, caring, and unending encouragement. I would also like to thank my dissertation committee, Dr. Chi-Fang Wu, Benjamin Lough, Seonhee Jeong, and Saijun Zhang for their support and excellent comments as I moved from an idea to a completed study. Special gratitude goes to the Dean of the School of Social Work, Wynne Korr, and to Dr. Steve Anderson, for their unwavering support and encouragement over the years. I would never have been able to finish my dissertation without the support and care of Dr. Pallassana Balgopla and his wife Shyamala Balgopal, who have always been willing to give their kindest support and love to me.

My sincere thanks also goes to Tracy Satterthwaite and Sten Johansen, who have worked with me to establish a local currency system (UC Smiles) in Urbana-Champaign, IL. I could not have imagined having better mentors and co-workers. I am very grateful for the friendship of all of the PhD students at the School of Social Work, especially Jun Sung Hong, Peiling Chiang, Chennan Liu, Meng-Jung Lee, Minli Liao, and Misa Kayama. Additionally, I would like to express my gratitude to the members of the Kouksundo Meditation Club and Friends' Meeting, in particular, Sue, Soyun, Lisa, Bobby, Maggie, Mary, and Dale. Without these friends, my life in Urbana-Champaign might have been lonely.

Finally, and most importantly, I would like to thank my family: my mother, Jung Ae Ki, is my role model, as she has shown her great passion and sincere efforts for learning and life. I believe that my father is so proud of me in heaven. My parents always expressed their faith in me and encouraged me to be as ambitious as I wanted. I would give my special thanks to my

husband, Jeonghwan Choi. He was always there and beside me, giving me sincere caring and support.

Great support from many individuals has enabled me to become a doctor and professor. I would like to express my gratitude to them through my life by dedicating myself to the empowerment of women and the community, as a scholar and activist.

To my parents, Kim Kwang Gin and Ki Jung Ae

and

my husband, Choi Jeong Hwan

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CHAPTER 1

INTRODUCTION AND RESEARCH QUESTIONS

Microenterprise (ME), once a promising approach to poverty alleviation, has taken on new meaning in the context of worldwide economic recession and governments' decreasing capacity (Dumas, 2010). MEs, defined as small-scale businesses that hire fewer than five employees including the owner (Schreiner, 2003; Solomon, 1992), were introduced to the United States in the late 1980s as an alternative strategy for providing low-income people with economic opportunities (Chen & Rasmussen, 2010; Edgecomb & Klien, 1996). ME success in developing countries, such as the Bank Rakyat Unit Desa program in Indonesia and the Grameen Bank in Bangladesh, encouraged the United States to examine the potential of microenterprise for business development, job creation, and community development.

The focus of the ME approach is quite different from traditional welfare approaches to poverty alleviation in that it aims to improve the capability of the poor to achieve their goals in the economic mainstream through business development rather than providing direct cash benefits (Mi Kim, 2012; Rhyne, 2001; Sherraden, Sanders, & Sherraden, 2004). U. S. microenterprise development programs (MDPs) provide capital, business training, technical support, and access to social networks (Schreiner, 2003). They have a special focus on women from economically and socially disadvantaged backgrounds (Jurik, 2005; Servon, 1999). Many women choose microenterprise due to gender inequality in labor market, and time-flexibility and economic opportunities in business (Dumas, 1999; Lin, 1999).

This study examines the empirical evidence to determine if the social networking intervention programs of U.S. MDPs are effective ways to improve female participants' business performance. The social networking intervention programs of U.S. MDPs aim to include

economic benefits for women's businesses from their social networks. For instance, 55 Women's Business Centers (WBCs) provide low-income women with referrals to specialized business professionals in a variety of fields such as accountancy, law, and sales consulting (Langowitz & Sharpe, 2006). Additionally they organize peer-support groups for small businesses (WBDC, 2011). This approach underscores the importance of increasing linkages between female micro-entrepreneurs and community members for women's business development (Sanyal, 2009; Sherraden et al., 2004).

However, from the perspective of evidence-based practice, social networking intervention programs for women in U.S. MDPs need to be based on rigorous evidence from theories and empirical research. In particular, under the budget deficit, the U.S. government has increased the call for evidence about the impact of intervention on the reduction of social problems (Michelle & Michael, 2005). Evidence to verify the effectiveness of social networking intervention programs for women, also can contribute to developing gender-sensitive programs for MDPs.

This research asks three central questions. First, what kinds of gender differences exist in terms of network size, strength, and gained resources? Second, do these gender differences in social networks mediate and/or moderate the relationship between gender and microenterprise performance? Microenterprise performance will be measured by business profitability and survival. Third, what kinds of social network building strategies are effective in improving women's microenterprise performance?

CHAPTER 2

LITERATURE REVIEW: THEORY AND EMPIRICAL RESEARCH

This chapter discusses theoretical perspectives and empirical research on the relationship across gender, social networks, and business performance. Based on literature review, I discuss the gap between theoretical perspectives and research findings.

Gender and Social Networks

The relationship between gender and social networks has been investigated in social capital theory. Social capital is generally defined first as the ability of actors to receive economic benefits by acquiring membership in a social network or other social structure (Portes, 1998; Seibert, Kraimer, & Liden, 2001), and second, to gain access to actual or potential resources that shape people's social interactions, such as social norms, trust, and information (Granovetter, 1973; Sanyal, 2009). A social network is defined as the system of individuals' organized relationships with others (Donckels & Lambrecht, 1995; Ibarra, 1993). A social network is the necessary condition that generates source of social capital (Lin, 2005). Without social network, actors are unable to access to social capital for generating economic benefits. In other words, social network creates social capital (Coleman, 1988) Therefore, social capital theory analyzes social network in which social capital is located so as to investigate social capital (Adler & Kwon, 2002).

Gender differences in social network are based on two main theoretical frameworks in social capital theory: a) the social network *structure* approach, and b) the social network *resource* approach. The network structure approach primarily focuses on understanding the network mechanisms and structures that affect the paths for converting individual interpersonal relationship into economic benefits (Campbell, 1988; Klyver & Terjesen, 2007; Lin, 1999;

Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; L. A. Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2011). A social network's structure is measured using indicators such as size, density, range, diversity, and composition.

The network resource approach analyzes the nature of resources embedded within a network that may assist in microenterprise development (Campbell, 1988; Klyver & Terjesen, 2007; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2011; Seibert et al., 2001). A social network's resources are measured by indicators such as the number of accessible resources, best resources, variety of resources, the socio economic status of network members (Lin, 1999). Individual research studies typically do not use all indicators.

Gender Differences in Social Network Structures

A key concept in the *social network structure* approach is the extent to which an individual is linked to others in their social networks (Seibert, 2001). These links – or ties – may be “strong” or “weak”. The strength of a tie refers to a mixture of the emotional bond, the amount of time spent on the relationship, frequency of interaction, intimacy, and mutual services (Granovetter, 1973).

Weak ties are infrequent and restricted to one type of relationship. Strong ties are frequent, emotionally close, and represent relationships that involve reciprocity (Granovetter, 2005). Somewhat counter-intuitively, weak ties are often more important in terms of linking people with valuable information and resources than strong ties, according to Granovetter (2005), author of a seminal piece on the “strength of weak ties”. He explains that since weak ties are more likely to reach outside of one's social clique to make a bridge from a possibly disconnected group to individuals in an organization, they provide members with unique

information and resources for a job search or entrepreneurial activities (Granovetter, 1973; Lin, 2000; Molyneux, 2002). In contrast, strong ties exist between people who already have similar information and qualities. Thus, information obtained through these ties is more likely redundant (Ibarra, 1993; Munch & McPherson, 1997). Exceptions include situations in which strong ties assist people in insecure positions to handle crisis and uncertainty by obtaining emotional supports and urgent aid (Granovetter, 1983, Krackhardt, 1992).

Some empirical studies examine gender differences in social network structures. In particular, most studies investigate gender differences in network strength and diversity (Bourdieu, 1986; Campbell, 1988; Klyver & Terjesen, 2007; Lin, 2005; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2011). Most empirical studies verify that business women's social networks are less likely to have 'weak ties' than business men's social networks. In particular, women's job or business related networks include higher proportions of kin, families, and female neighbors. Men's networks consist of fewer kin and neighbors but include more professional acquaintances and consultants affiliated with formal associations (Campbell, 1988; Klyver & Terjesen, 2007; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Rankin, 2001; Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2011). Based on these findings, researchers (Lin, 2000; Molyneux, 2002; Seibert et al., 2001) maintain that women are less likely to receive benefits from their networks for job searches, business start-ups, and job promotions since their networks consist of kin rather than business associates. At the same time, men are more likely to receive additional benefits such as business information from male dominant larger networks. Gender differences that favor men's business success are rooted in gender based structural inequality. In particular, women's child care and housekeeping responsibilities imposed by

gender segregated roles tend to focus women's social network around family and kin (Cromie, 1992; Loscocco, Monnat, Moore, & Lauber, 2009; Munch & McPherson, 1997).

Not all studies confirm gender differences in social network structures. Two empirical studies find no gender difference in terms of the percentage of kin and business contacts in women's and men's networks. Loscocco and colleagues (2009) and Cromie (1992) report that women's business networks are no more likely than men's to have families and friends in their business social networks. However, with respect to network activities, Cromie (1992) does find that male entrepreneurs put more efforts into both social and professional clubs and societies, and women spend less time developing new contacts and have less frequent contacts with their network members than do men. The possible reason for the different findings among the empirical research could be related to different geographical characteristics of the samples. According to Campbell (1988), the geographic and ecological areas affect the pool of social networks. For example, female entrepreneurs who live in a big metropolitan city may have equal opportunities and contact pools to develop social networks as male entrepreneurs due to enough networking resources. Since the geographic areas of the data samples, which were used for the studies, are diverse, the findings could be different. In addition, the time period of data collection time could affect the results. Women's social conditions and rights, which influence their network-creating ability, have changed as time has passed.

Although there have been inconsistent outcomes in empirical studies, relative larger number of studies have explored that, compared to men, women have fewer weak ties in their networks, which would be more beneficial for their businesses than strong ties.

Gender Differences in Social Network Resources

The other theoretical approach to understanding gender differences in social networks is

the *social network resource* approach. This approach contends that it is not network structures but network resources embedded in the networks that influence business performance. In addition, resources embedded in networks is determined by individual social position, not generated by individual choices (Bourdieu, 1986; Lin, 2005; Molyneux, 2002). Therefore, social capital is inherently unequal and contradictory in nature (Beggs, 1997; McPherson & Smith-Lovin, 1982; Rankin, 2001). The social network resource approach sheds light on women's inequality. Even though some studies report that women's networks are largely similar to men's networks in terms of size, density, and activities (Cromie, 1992; Loscocco et al., 2009; Seibert et al., 2001), women's networks contain fewer viable economic resources. For example, studies indicate that men are more likely to be affiliated with core associations which have more information and resources such as economic institutions (Beggs, 1997; Davidsson, 2003; McPherson & Smith-Lovin, 1982). In contrast, women tend to be located in smaller and more peripheral organizations, which are associated with domestic and community affairs. Therefore, even when women develop networks typified by weak ties, they do not deliver as many economic returns. In other words, it is not the weakness of a social tie but the embedded resources that convey benefits (Lin, 2000).

This approach highlights how an individual's networks are associated with structural inequality and shed light on the impacts of gender inequality in terms of resource distribution on gender differences in social networks.

Integration of the Two Approaches

Although Lin (2002) asserts that the social network resource approach is a better approach compared to the social network structure approach, integration of the two approaches provides a more useful theoretical framework for analyzing gender differences. The integration

of the two approaches can help explain how “the configuration” and “the content” of a network influence the quality of resources embedded in networks. In other words, structure and resources are complementary approaches for analyzing gender differences in social networks. The next section examines theories and empirical research on how social networks affect business performance.

Social Network Structure and Resources and Business Performance

Business performance is measured by a broad range of objective and subjective measures such as business start-up, sales growth, profitability, business survival, and satisfaction on business outcomes (Watson, 2007). In existing research, there are two main hypotheses on the relationship between social capital and business performance: (a) the network founding hypothesis, and (b) the network success hypothesis.

The Network Founding Hypothesis

The network founding hypothesis investigates how social networks influence the business start-up (Brüderl & Preisendörfer, 1998). It consists of the discovery and exploitation of entrepreneurial opportunities (Shane, 2000). This hypothesis assumes that social network resources, networking activities, and network support positively influence the process of business start-up (Hite, 2005).

With respect to the impacts of social network structures on business start-up, both strong and weak social network ties affect business start-up by providing necessary information (Brüderl, 1998; Davidsson, 2003; J. Sanders, 1996; Seibert et al., 2001; Wagner, 2004). Weak ties stimulate entrepreneurship and facilitate the discovery of opportunities by exposing nascent entrepreneurs to new and different ideas, worldviews, and advice (Aldrich & Zimmer, 1986). Strong ties also assist nascent entrepreneurs by providing unpaid family work and emotional

support (Brüderl, 1998; Hite, 2005; J. Sanders, 1996). For example, inexperienced nascent entrepreneurs are more likely to depend on the advice of their close friends than someone unknown or not trusted, and their friends may offer an opportunity or resources that influence the nascent entrepreneurs' choice (Burt, 1998a; Butler & Hansen, 1991; Casson, 2007; Granovetter, 1983; 1973; Hite, 2005; Woolcock, 2001). Micro-entrepreneurs rely on the advice of friends and relatives in order to maintain confidentiality and control of the business (Bryson & Daniels, 1998; Burt, 1998a; Davidsson, 2003; Granovetter, 1973; Portes, 1998).

Social networks also provide nascent entrepreneurs with resources to leverage critical resources for establishing businesses, including information, advice, and access to financial capital (Brüderl, 1998; Brüderl & Preisendörfer, 1998a; Davidsson, 2003; E. Hansen, 1995; Ostgaard & Birley, 1994; J. Sanders, 1996; Seibert et al., 2001). For emerging firms, these social network resources are critical because they might not otherwise be available or affordable (Aldrich & Reese, 1993; Hite, 2005; Johannisson, 1996; Littunen, 2000).

Despite these theoretical assumptions, only a few empirical studies substantiate positive effects of social networks on business start-up. Hanen (1995) and Lee and Tsang (2001) find that the size of social networks, the degree of interconnectivity, and the frequency of interaction have significant and positive correlation with business start-up success. In addition, Davidsson and Honig (2003) find that both strong and weak ties are positively associated with business start-up success. With regard to impacts of social network resources on business start-up, Aldrich and Rosen (1987) find that accessibility of network resources is positively correlated with business start-up.

The Network Success Hypothesis

The network success hypothesis suggests that weak ties are most likely to assist inexperienced entrepreneurs by providing links to organizations and people who have valuable information and resources in the growth and survival of businesses (Brüderl & Preisendörfer, 1998a; Burt, 1998a; Butler & Hansen, 1991; Casson, 2007; Granovetter, 1983; 1973; Woolcock, 2001). Similarly, Hite (2005) and Fischer and Reuber (2003) argue that if the emerging firm depends heavily on close personal relationships that do not have resources, early growth would be at risk.

However, empirical research has produced inconsistent results with respect to the relationship between entrepreneurs' social networks and business growth and survival. Watson's study (2008) supports the network success hypothesis by indicating that more weak network ties increase the probability of business survival and growth. However, some findings contradict the network success hypothesis. Brüderl and Preisendörfer (1998) find not weak ties but strong ties have positive influence on sales growth. More specifically, these scholars report more strong ties lead to higher chances of business survival, whereas more weak ties have little survival effect. In terms of the impact of network resources on business performance, Aldrich and Rosen (1987) find that accessibility of network resources is also positively correlated with business profit.

Other researchers (Aldrich & Reese, 1993; Johannisson, 1996; Littunen, 2000; Tata & Prasad, 2008) find no significant positive effect of network size, activities, and resources on business performance. In fact, Bates (1994) finds that heavy use of social networks is more likely to result in less profitable and failure-prone businesses. However, he does not identify the types of social networks. Brüderl and Preisendörfer (1998) propose two reasons for these inconsistent findings. The first reason is related to measurement error. They argue that instead of measuring

network structures or accessible resources, research should measure actual utilization or support from networks because entrepreneurs can improve success only if they use their social networks for their business. The second reason is that entrepreneurs are more likely to compensate for their lack of financial and human capital by utilizing their social networks. Despite entrepreneur efforts to extract capital from social networks, studies tend to show no or even negative effects of social network on business performance (Brüderl & Preisendörfer, 1998a). In order to overcome measurement error and compensation effect, these scholars suggest controlling other critical variables, such as human capital and financial capital.

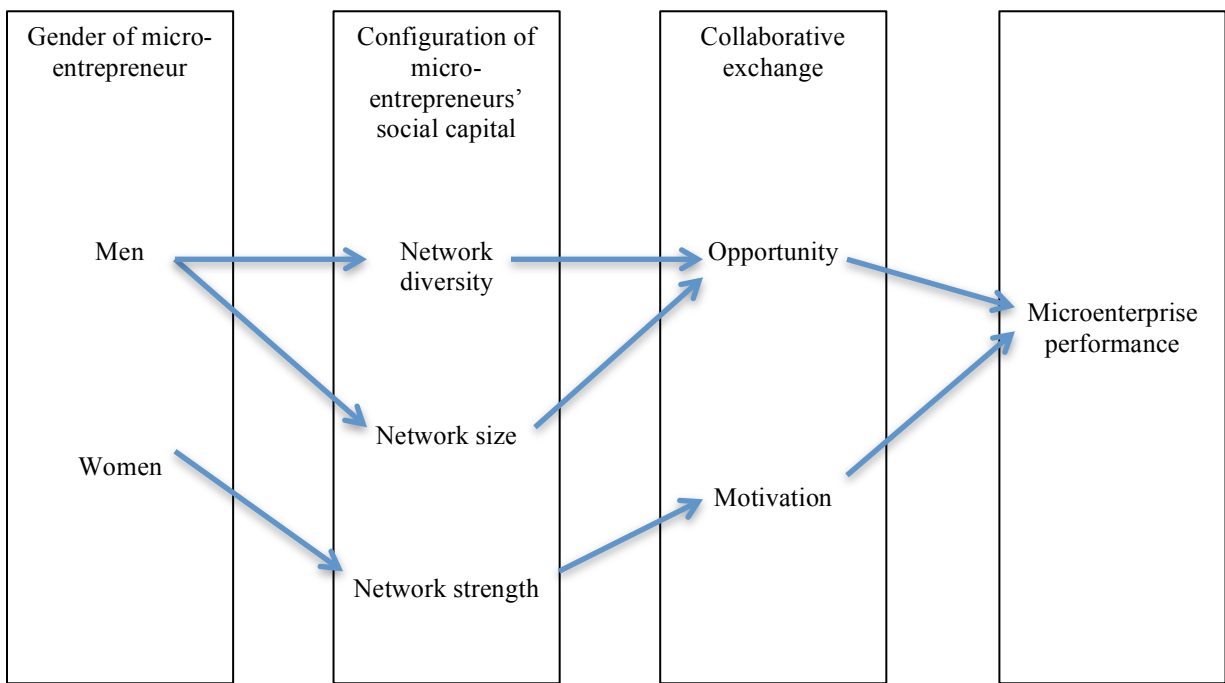
Thus far, I have reviewed the studies that examine the relationships between gender and social networks and between social networks and business performance. In order to fully understand how gender differences in social networks may affect business performance, the next section reviews the few existing studies that examine relationships among all three factors: gender, social networks, and business performance.

Role of Gender on Social Networks and Business Performance

Tata and Prasad (2008) propose a theoretical framework that addresses the relationships among gender, social networks, and microenterprise performance (See figure 1). Using six propositions, they investigate the social network structure of micro-entrepreneurs, including network diversity, network size, and relationship strength. They hypothesize that female and male micro-entrepreneurs have different network structures. Specifically, men's networks have more diverse, larger, and weak tie relationships while women's networks are more likely to be in the form of less diverse, smaller networks, and strong tie relationships. They hypothesize that the greater diversity and larger network size will increase opportunity to engage in collaborative exchange. In addition, stronger network relationships will increase micro-entrepreneurs'

motivation to engage in collaborative exchange. Finally, more opportunity and higher motivation to engage in collaborative exchange will positively influence ME performance. In other words, Tata and Prasad (2008) argue, on one hand, that men’s greater opportunity to engage in collaborative exchange will improve their business performance, and on the other hand, women’s higher motivation to engage in collaborative exchange will enhance business performance.

Figure 1: Tata and Prasad’s conceptual model: the paths that gender affects microenterprise performance



Source: Tata & Prasad, 2008, p. 376

Tata and Prasad’s theoretical framework contributes to understanding different paths through which gender influences microenterprise performance. However, this framework has a couple of limitations. First, it overlooks resources embedded in social networks. Tata and Prasad (2008) assume that women’s stronger network relationships and higher engagement in collaborative exchange will automatically increase ME business performance. My review of research, however, suggests that both structure and resources are important and have greater

explanatory value when they are both included. If women's social networks do not contain sufficient resources connected to business opportunities, we suggest that women's higher engagement in collaborative exchange will not increase business success.

Second, Tata and Prasad's framework does not explain how men's and women's social network structure influences the different stages of business performance: start-up, growth, and survival. According to the network founding and success hypotheses, strong ties could positively influence business founding but not growth and survival (Brüderl & Preisendörfer, 1998a; Campbell, 1988; Klyver & Terjesen, 2007; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2011). In this regard, compared to men, female micro-entrepreneurs' strong ties could be beneficial for business start-up but not for business growth and longer-term survival. Therefore, the variable of microenterprise performance in this model needs to be diversified in order to measure the gender effect on different stages of business development.

There are only a limited number of empirical studies that explore relationships among gender, social networks, and business performance. Renzulli and colleagues (2000) find that women are more likely to have homogeneous networks with a high proportion of kin, compared to men. Given the importance of diverse social networks on business start up, this creates significant disadvantages for women in business start-up. Chowdhury and Amin (2011) find that the more social capital that female micro-entrepreneurs have, the more likely they are to intend to start up a business. They measure strong ties in social networks by asking if family members share and take interest in the business plan. The value of strong ties also comes out in Yetim's (2008) study of female migrant entrepreneurs. Yetim (2008) shows that the structure of women's social networks depends on immigrant status, ethnicity, and economic status. For example,

migrant women, who have strong ethnic networks, utilize the strength of strong ties in their businesses more than non-migrant women (Yetim, 2008).

In contrast to weak tie theory, Chowdhury and Amin (2011) and Yetim (2008)'s studies imply that strong ties are a positive factor for business motivation and start-up for women, a finding supported by the network founding hypothesis and Tata and Prasad's theoretical framework. However, Renzulli and colleagues' (2000) study shows that women have more strong ties (a higher proportion of kin), which significantly and negatively influence business start-up. This finding contradicts the networking founding and Tata and Prasad's theoretical framework – but supports weak tie theory.

As mentioned, there are two possible reasons for these inconsistent findings: errors in measuring social networks or social capital or failure to control for other key variables. Chowdhury and Amin (2011) and Yetim's (2008) studies measure social capital in terms of respondent's subjective self-evaluation, including responses such as “members of my family share many of my interests” (Chowdhury & Amin, 2011, p. 142) and “I can use relationships in my social milieu to initiate and maintain an enterprise” (Yetim, 2008, p. 873). These self-evaluations do not measure either objective network structure and resources or actual utilization of networks. Furthermore, Yetim (2008) and Renzulli and colleagues' (2000) studies do not control for financial capital, which significantly affects business performance (Brüderl & Preisendörfer, 1998a; E. Hansen, 1995; Ostgaard & Birley, 1994; Watson, 2007a). Therefore, these study limitations prevent a full understanding of the relationships across gender, social networks, and business performance. More rigorous research designs and measures are needed. For example, more objective measures for social networks or social capital need to be employed for empirical research. Tata and Prasad's theoretical framework (2008) contributes to decreasing

measurement error of social networks by providing objective criteria to measure social network structures, such as network size and diversity and relationship strength. However, their theoretical framework should articulate other possibly confounding factors that affect the relationship across gender, social network, and micro-entrepreneurs' performance. Especially, financial capital (i.e. start-up capital), human capital (i.e. education, business experiences, managerial experience, parents' self-employment experience, etc.), and business location and industry that existing research have verified their influence on business performance should be controlled in research models (Davidsson, 2003; Dixon, 2003; Schmalensee, 1984).

Research Gaps

This section has reviewed theories and empirical research in order to explore the ways in which gender differences in social networks may affect women's and men's business performances.

Existing theories and empirical research provide limited answers for the research questions of this study. First of all, only a few studies measure how gender differences in social networks affect business performance. Most previous studies investigate either gender differences in social networks or the impact of social networks on business performance. When some studies explore the relationship between social networks and business performance, they include gender as a control variable or only includes sample of women (Chowdhury and Amin, 2011; Yetim, 2008). Therefore, the systematic examinations on the impact of gender differences in social networks on business performance is lacking in this research field.

Second, the exiting evidence with respect to the relationship between gender differences in social networks and business performance is less robust. Some studies contend that women's strong ties significantly contribute to improving their business motivation and performance

(Chowdhury & Amin, 2011; Yetim, 2008). In contrast, other studies show that women's greater number of strong ties (homogeneous networks having more kin) significantly negatively influences business start-up (Renzuli et al., 2000). Inconsistent outcomes are likely due to measurement errors and lack of controlling for critical confounding factors. These inconsistencies do not permit a clear answer about the relationship. Third, most studies do not account for the size of the business. Network activities may be more important for ME performance than for larger businesses. For instance, lacking resources for advertising, micro-entrepreneurs' network members can be the first customers and suppliers and can assist in marketing a new business to other potential customers and suppliers. Fourth, most of the research on this issue uses cross-sectional data that cannot track changes in business status over time. Since the effect of social networks on business performance could be different as businesses grow, longitudinal data analysis can reveal the dynamic impact of social networks on business performance.

Strengths and Contributions of the Research

This study has considerable strengths and contributes to knowledge building on the impacts of gender on social networks and microenterprise performance. First, this study provides new analyses about how gender differences in social networks affect microenterprise performance by testing correlations among gender, social networks and microenterprise performance. Second, this study provides more rigorous measures for social networks for empirical research, which decrease measurement error of social networks. This study includes social network structure and resource variables for measuring social networks, such as network size, relationship strength, and gained network resources. Especially, this study measures the actually accessed (used) resources of social networks for respondents' businesses (i.e. making

introductions, providing advice, training, physical resources, business services, or personal services). Measuring actually accessed resources of social networks may improve the measurement of embedded networks in social networks because entrepreneurs can improve their business performance only if they use their social networks for their business. Third, this study controls critical human and financial capital variables and resolves the issue of the compensation effect. Brüderl and Preisendörfer (1998) point out that entrepreneurs are more likely to compensate for their lack of financial and human capital by utilizing their social networks. That's why many previous studies do not find any effects or may even find negative effects of social networks on business performance. By controlling critical human and financial capital (i.e. education, business experience, managerial experience, parents' business experience, and start-up capital), this study improves the internal validity of the study. Third, this study indicates how gender differences in social networks affect micro-entrepreneurs' business performance by sampling only micro-entrepreneurs. Fourth, this study tracks how social networks in wave 1 affects business status over time by using a longitudinal data and measuring different business stages such as business profitability and survival. This longitudinal analysis thus reveals the dynamic impact of social networks on business growth.

This study contributes to providing better scientific understanding on how gender differences in social networks affect microenterprise performance differently in the U.S. This understanding may enable U.S. MDP agencies and policy makers to establish evidence-based practice for social networking interventions. In particular, if this study provides empirical evidence to support the assumption that gender differences in social networks influence microenterprise performance differently, it provides U.S. MDPs with practical implications to develop gender-sensitive social networking interventions for female participants in order to

satisfy women's different needs in social networking and microenterprise practice.

CHAPTER 3

METHODOLOGY

Research Models and Hypotheses

In light of the research gaps, this chapter proposes two research models and research hypotheses for an empirical research. The figures 2 and 3 present research models that build on the social network structure theory, the social network resource theory, the network founding and success hypotheses, and Tata and Prasad's conceptual model.

The research models suggest measuring how gender differences in social networks affect microenterprise performance. First, the model measures both network structure and network resources. In regards to *network structure*, the size and strength of social networks should be measured. *Size* is measured by the total numbers of people within the social network. *Strength* is measured by the number of strong and weak ties. Strong ties are measured by the proportion of kin, family members, close friends, and neighbors within the social network. And weak ties are measured by the proportion of acquaintances from work and strangers before joining the business team. Unlike to the conceptual model of Tata and Prasad, this model does not measure *diversity*. Previous studies have measured network diversity by calculating the composition of networks. For example, Dixon (2003) measures network diversity by making up the absolute composition of six categories such as “kin, friends, workers, business associates, consultants, and group or associate members” (Dixon, 2003, p. 14). This measurement of diversity is overlapped with the measurement of weak and strong ties in this study's model. Therefore, in order to avoid redundant measurement, this study does not include diversity for measuring network structure.

Network resources is measured as resources actually gained from networks for entrepreneurial activities (Brüderl & Preisendörfer, 1998a). Network resources can be measured

by the number of the resources (i.e. advice, financial support, information, etc.) gained from networks for entrepreneurial activities.

Second, the model measures microenterprise performance based on: a) profitability, and c) survival over time. These research models do not include microenterprise start-up variable to measure microenterprise performance. Since this research uses a longitudinal study, which measures business performance for six years, more than 98 % of nascent micro-entrepreneurs who participated in the survey in 2004 successfully started up their businesses within six years. Therefore, business start-up is not a good indicator to measure microenterprise performance in this study. These two factors allow for assessing business success over time. The reason for using these two factors is that gender differences in social network structure and resources are able to influence the performance of each factor differently as businesses grow.

This model develops Tata and Prasad's conceptual model mainly in terms of three points. First of all, this model examines both social network structure and resources in order to figure out "the configuration" and "the content" of social networks. Especially, this model measures gained network resources in order to examine the actual utilization of social networks, which can decrease measurement errors of social networks (Brüderl and Preisendörfer, 1998). Therefore, this model could indicate what components of social networks (e.g. network size, strength, and gained resources) are associated with gender and microenterprise performance. Second, this model indicates how gender differences in social networks influence different stages of microenterprise performance as businesses grow, such as revenue growth and survival. Therefore, this model requires researchers to use a longitudinal data in order to reveal the impact of social networks on microenterprise performance. Third, this model controls for major human and financial capitals as well as business location and industry, which have been verified as

influential factors on business performance from previous studies (Davidsson, 2003; Dixon, 2003; Schmalensee, 1984).

In detail, the following two models, mediation and moderation models, propose specific paths and hypotheses to indicate how gender, social networks, and microenterprise performance are associated with one another.

Research Model 1: A Mediation Model

In this model, social networks are hypothesized as mediators between gender and social networks. A mediator variable helps explain the mechanism through which one independent variable impacts dependent variable and allows researchers to understand whether a third variable can account for the relationship between these variables (Rose, Holmbeck, Coakley, & Franks, 2004). So, in this mediation model, this study attempts to explore whether social networks influence the relationship between gender and microenterprise performance.

Figure 2 depicts the mediation model of social networks between gender and social networks. Based on existing theories and empirical research, the mediation model provides several hypotheses regarding relationships across gender, social networks, and microenterprise performance. First, female micro-entrepreneurs are more likely to have smaller networks, more strong ties, and less gained resources in their networks compared to men. Second, network size and gained resources in social networks are positively associated with profitability and survival. Third, being female micro-entrepreneurs is negatively associated with business profitability and survival due to their smaller networks and fewer weak ties and gained resources in their networks. Male micro-entrepreneurs are positively associated to profitability and survival due to larger networks and more weak ties and gained resources in their networks.

The summary of the hypotheses of the mediation models is followings:

The hypothesis of a mediation model (Figure 2)

H1. Effects of gender on business performance (Direct effect)

H1-A. Being female micro-entrepreneurs will be negatively associated with growth of profitability of microenterprise compared to male.

H1-B. Being female micro-entrepreneurs will be negatively associated with business survival of microenterprise compared to male

H2. Effects of gender on social networks

H2-A. Female micro-entrepreneurs will be more likely to have a smaller network size compared to male.

H2-B. Female micro-entrepreneurs will be less likely to have weak ties in their networks compared to male.

H2-C. Female micro-entrepreneurs will be less likely to gain resources in their networks compared to male.

H3. Effects of social networks on business performance

H3-A. Network size will be positively associated with microenterprise performance.

H3-B. Network strength (weak ties) will be positively associated with microenterprise performance.

H3-C. Gained network resources will be positively associated with microenterprise performance.

H4. The mediating role of social networks between gender and business

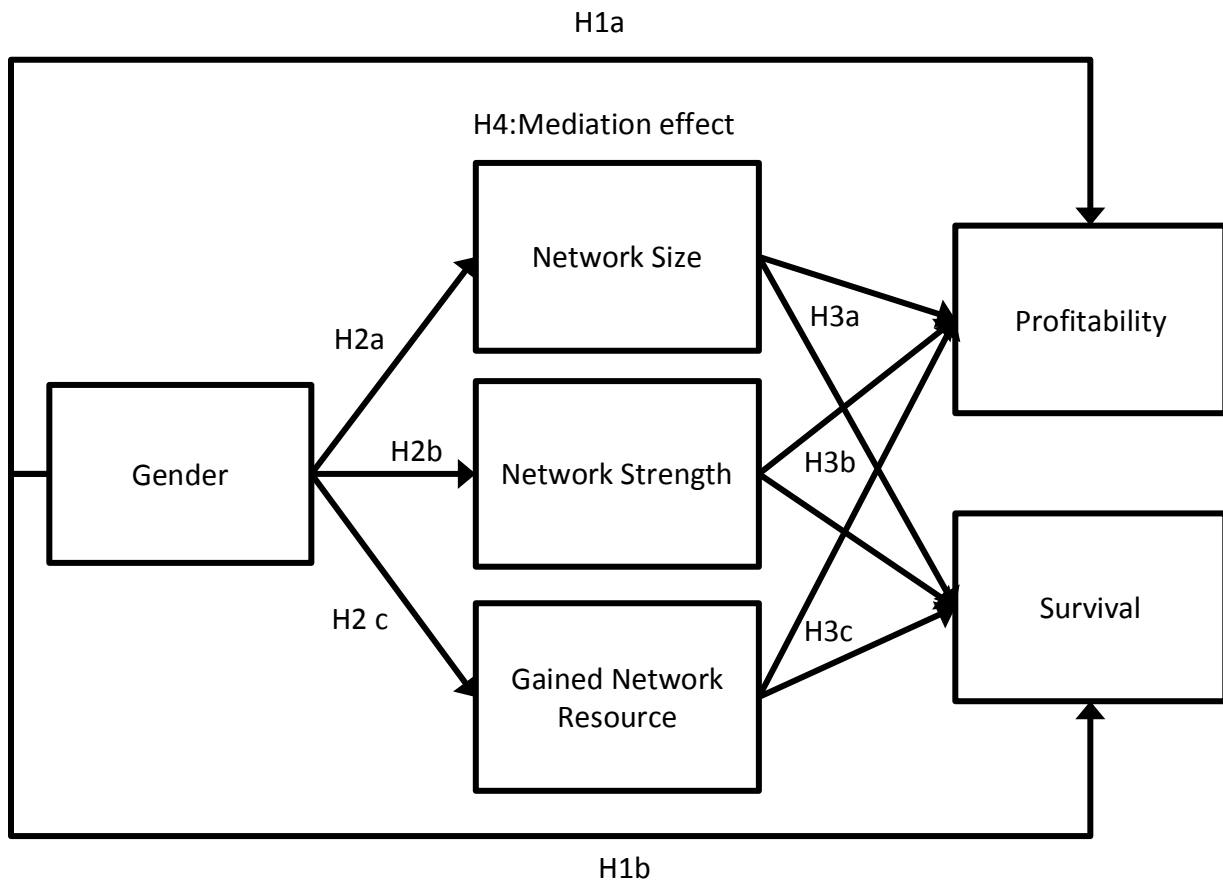
performance

H4-A. Network size mediates the relationship between gender and microenterprise performance.

H4-B. Network strength mediates the relationship between gender and microenterprise performance.

H4-C. Gained network resource mediates the relationship between gender and microenterprise performance.

Figure 2: The Mediation Model of Social Networks between Gender and Microenterprise Performance



Research Model 2: A Moderation Model

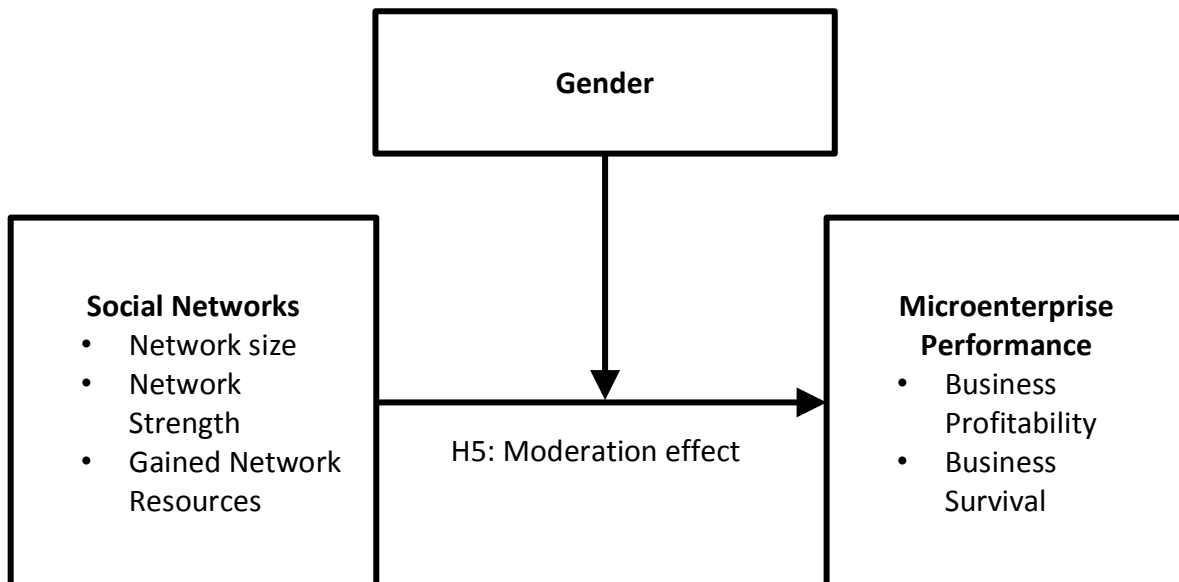
Figure 3 depicts the hypothesized moderation model. A moderator is a variable that effects the strength or the direction of a relationship between a dependent and an independent variable (Rose et al., 2004). This model indicates gender as a moderator between social networks and business performances. It is hypothesized that social network structure or resources would be different between women and men, and this gender differences in social networks affect successful business profitability and survival. Except paths, the hypothesis between social network, gender, and business performances in this moderator model are same to those in a hypothesized mediation model.

The summary of the hypotheses of the moderation model is followings:

The hypothesis of a moderation model (Figure 3)

H5. Gender will moderate the relationship between social networks and business performance, in situations for women, a weaker effect will be found.

Figure 3: The Moderation Model of Gender between Social Networks and Microenterprise Performance



Method

Data Description

This study uses the Panel Study of Entrepreneurial Dynamic (PSED) II data set (2005-2011). PSED is a longitudinal national database, which provides information on the characteristics, and activities of individuals involved in the process of starting businesses, as well as characteristics and activities of individuals who successfully started an infant enterprise between 2005 and 2011(Reynolds & Carter, 2002). PSED data have been divided into two large phases (PSED I and II). The PSED I resulted in a data set of 1,261 cases (830 nascent entrepreneurs and a 431 comparison group) with four waves (2000-2004), and the PSED II resulted in a data set of 1,214 cases (all nascent entrepreneurs) with six waves thus far (2005-2011). This research uses the PSED II data set because it is more recent and has a larger number of cases.

PSED data fit this research well in four ways. First, PSED data is a significant resource for understanding of business growth and survival. PSED provides over eight thousand variables that track the path of inception, early stage of new firm growth, or termination process of new firms. Second, PSED data provide information on social networks possessed by respondents, which includes number and characteristics of their business networks, resources getting from their business networks, and their activities for business networks. Third, PSED data provide various measurements for business performance, such as business profitability and survival. Fourth, PSED data provide rigorous research design based on a nationally based random sampling. A rigorous random sampling method can justify that the PSED II cohort represents the entire population of 12 million nascent entrepreneurs in the United States (P. D. Reynolds &

Curtin, 2007). Therefore, the PSED findings could provide valid implications for U.S. public policy and practice related to business creation.

Sampling strategies of the PSED II

In the first stage of sampling of PSED II, a random digit dial (RDD) methodology was used for contacting 31,845 individuals, within 48 states in the United States from September 2005 to February 2006. Through the screening process, individuals aged 18 or older who responded to the phone interview were identified as respondents. Individuals who meet all four criteria were invited to the research: 1) they consider themselves involved in the firm creation process, 2) they have engaged in some start-up activity in the past 12 months, 3) they expect to own all or part of the new firm, and 4) the initiative has not progressed to the point that may be considered an operating business (Curtin, 2012). Through these screening processes, 1,214 nascent entrepreneurs who met the four criteria were invited to the research, which consisted of a 60-minute phone interview. The screening and six waves of the PSED II resulted in a data set of 1,214 cases (all nascent entrepreneurs) and over eight thousand variables in 2005 (P. Reynolds & Curtin, 2011).

Wave A interviews were conducted from September 2005 to March 2006 and the follow-up interviews (Wave B, C, D, E, F) were conducted once a year from October to March in every year between 2006 and 2011 (n=1,214) (Curtin, 2012). The response rates of the follow-up interviews were 80% (Wave B, n=972), 77% (Wave C, n=746), 71% (Wave D, n=527), 83% (Wave E, n=435), and 86% (Wave F, n=375) compared to the sample size of the previous interviews.

Research sample

This study sampled nascent micro-entrepreneurs who already involved in the conception

process of starting-up new business or started-up micro-entrepreneurs in the wave A, B, C, D, E, F. Nascent micro-entrepreneurs or started-up micro-entrepreneurs were defined as entrepreneurs who want to hire or already hired less than five employees for their businesses in the wave A (N=979, 80% of the total sample) (Edgcomb & Klein, 2007).

Variables and Measures (see Appendix 1)

Independent or potential moderator variables (gender) and potential mediating or independent variables (social networks) were measured in wave A. Dependent variables (business profitability and survival) was measured by counting up the total years of achieving profit and any sale respectively in wave A, B, C, D, E, F. The control variables were measured in wave A.

Independent or potential moderator variable: Gender.

In the mediation model, the independent variable is gender. Gender is dummy coded with male being the reference group in this study. In the moderation model, gender is a potential moderator variable.

Dependent variables: profitability and business survival.

The business life course can be conceptualized as conception, start-up process, new firm birth, firm growth (new firm and established firm), and termination (P. D. Reynolds & Curtin, 2008). This research aims to track performance of each stage of business life course after the start-up process because most of the PSED sampled nascent entrepreneurs successfully started up their businesses within 6 years (2005-2011). Therefore, this study included only business growth and survival indicators in order to measure the performances of growth and termination stage of business life course.

Business profitability. Business profitability was defined as monthly revenue had ever

exceeded monthly expenses for the new business for more than six of the past twelve months. Asking the amount of profit or sales can directly measure business growth. However, given the sensitivity in providing profit or sales numbers, profit or sales growth have seldom been used in research to measure business growth due to their low response rates (Watson, 2007a). Therefore, this study attempts to indirectly measure business growth by identifying whether monthly revenue has ever exceeded monthly expenses for the new business for more than six of the past twelve months.

At the first step of coding, business profitability for each year was dummy coded (0: non-profitability, 1: profitability). At the second step, profitability for six years (2005-2011) was measured by counting up the total years that the respondents self-reported their monthly business revenue had ever exceeded monthly expenses for the business for more than six of the past twelve months. In case somebody re-started his/her business after closing, this study counted up the total years that achieved profitability regardless of sorts of businesses. The range of profitability was from 0 to 6 (skewness: 1.44). At the third step, in order to handle the distribution skewness of profitability, it was re-coded 0 (0 year of profitability) and 1 (more than one year of profitability). Thirty-three percent of the sample reported 0 year of profitability within 6 years. The missing value of profitability was 307 out of 979 (31%). This research imputed the missing values by using the multiple imputation procedure in SAS 9.1 program.

Business survival. Business survival means that the firm did not stop its operation (Brüderl & Preisendörfer, 1998b). At the first step, business survival for each year was coded as a dichotomous variable (0: stop, 1: survival). At the second step, total business survival within 6 years was measured by counting up the total survival years that were self-reported between 2005 and 2011. In case somebody re-started his/her business after closing, this study counted up the

total years that achieved survival regardless of sorts of businesses.

The variable of survival ranged from 0 to 6 (skewness: 1.04, non-missing value). Lastly, in order to handle the distribution skewness of survival, some codes were combined (range 1-5, continuous variables). Then, the distribution skewness became 0.43.

Potential mediating or independent variables: Social Networks.

Social network variables are potential mediating or independent variables in the mediation and moderation models respectively.

The PSED data set used egocentric network data, which provides information on the nature of the local social networks surrounding an actor (J, 1993). In the PSED II paradigm, respondents' social networks were measured by asking information on their other owners, key non-owners, and helpers. The respondents were asked to provide names and information of up to ten persons for other owners, six persons for key non-owners, and three persons for helpers in their social networks. Owners include those expecting to own part of the new business; key non-owners include active participants in start-ups who are responsible for a distinctive contribution to the founding of the new business but not expecting to own part of the new business; helpers include those not expecting to own part of the business and not responsible for distinctive contribution but who provided support, advice, or guidance on a regular basis to the respondents (book, 2012). Therefore, this research measures the variables in owners, key non-owners, and helpers for identifying social network variables.

This research measures size and strength of respondents' social networks and resources gained from social networks. All social network variables are measured in Wave A (2005).

Network size. The respondents were asked specifically to indicate the total number of people who shared ownership of the business and had provided significant support, advice, or

guidance on a regular basis to the business. This number includes people who were not reported for the owners, key non-owners, and helper's categories. Network size is therefore the cumulative number of all active social networks that were instrumental for the business. The actual range for this variable was from 1 to 101 (a continuous variable, skewness 8.55, non-missing value). Natural logarithms were applied to handle the distribution skewness of network size.

Network strength. The strength means the strength of relationship and is measured by counting on the number of weak ties. The relationship with a network member who is a spouse, partner sharing a household, relatives, or friend or acquaintance having not worked with was categorized as a strong tie (code 0). The relationship with a network member who is a friend or acquaintance from work or a stranger before joining the (new) business team was categorized as a weak tie (code 1). For example, if three persons of the networks belong to weak ties, then the value of this variable is 3. The actual range of this variable was from 0 to 3 (skewness: 2.49, non-missing value). In order to handle the distribution skewness of survival, it was recoded 0 (0 weak tie) and 1 (more than one weak ties). Then, the distribution skewness became -0.71.

Network resources gained from social networks. Network resources gained from social network is measured by the primary contribution of the person of respondents' network to their business. The PSED II data categorized the resources gained from respondents' social network as seven: financial (1), making introductions (2), providing advice (3), providing training (4), physical resources (5), business services (6), personal services (7), all of the above (8). This study counted the total number of gained network resource regardless of its different category and measures it as a continuous variable. The actual range of this variable was from 4 to 12 (a continuous variable, skewness: 0.78, non-missing value).

Control variables.

This research controls several variables that previous studies indicate might affect structure and resources of social network and business performance. All control variables are measured in Wave A (2005).

Ethnicity. This research will control ethnicity. Ethnicity is dummy coded with White being the reference group. Research has indicated that minority entrepreneurs were systematically denied access to the formal and informal networks related to business, which limited business opportunities, the overall profitability, and the survival of their businesses (Feagin & Imani, 1994; Ibarra, 1993; Young, 1998).

Marital status. This research will control marital status. Marital status is dummy coded with married status being the reference group. Previous research indicated that being married increased strong ties to a spouse who can provide the nascent entrepreneurs with financial, emotional, and other resources and finally contribute to improving business performance (Semrau & Werner, 2009).

Age. This research will control age, which indicates that older nascent entrepreneurs are more likely to have more job experience and a larger network, which are helpful for their business (Dixon, 2003; L. Renzulli, 1998). Age is treated as a continuous variable.

Human capital factors. This research will control human capital factors: a) education (High-school degree=0, Non-high school degree=1), b) prior self-employment experiences (yes=0, no=1), c) management experience (yes=0, no=1), d) parents' self-employment experiences (yes=0, no=1) Many researchers have indicated that these human capital factors of respondents and their parents affect social network as well as business performance by influencing the amount of knowledge and information, as well as the ability to attract more partners and

resources (Davidsson, 2003; Diochon, Menzies, & Gasse, 2008; Mosey, 2007; Semrau & Werner, 2009; Yoo, 2000).

Start-up capital. This research will control start-up capital because initial financial capital highly influences business performance (Brüderl & Preisendörfer, 1998a; Cooper, Gimeno-Gascon, & Woo, 1994). It was measured as the actual dollar amount of start-up capital (a continuous variable). Natural logarithms were applied to handle the distribution skewness of start-up capital.

Business location and industry. This research will control firm location, size, and industry. Dixon (2003) indicated that entrepreneurs who live in a metropolitan area with a growing population should have larger social networks and higher growth rates. Following Dixon's suggestion, this research will control business location. Business location is dummy coded with metropolitan area being the reference group.

Furthermore, researchers have indicated that the profitability of the industry of a business accounts for almost all the variance in business unit performance and moderated the correlation between entrepreneurs' networks and their businesses' performance (Schmalensee, 1984; Witt, 2004). In particular, since women and minorities are more likely to start up their businesses in service sectors which have lower profits and higher failure rates (Theodore, 1995), controlling industry variable will allow this research to measure the effects of gender on business performance separately from industry effects. Since the literature reviews identify that gender difference in business industry lies in between service and non-service industry (Jiang, Zimmerman, Guo, 2012), this study coded business industry as a dummy variable with non-service industry being the reference group categorized industry variable as a dichotomous variable: Service industry=0, Non-service industry=1).

Method of Data Analysis

Descriptive and a series of regression analysis were used. All analyses were conducted using SAS 19.1. For the descriptive analysis, the mean or percentage and standard deviation were calculated for all variables in the models (Table 1). Their correlations were checked (Table 2).

This research used the multiple imputation procedure for dealing with missing values. This research used the PROC MI and PROC MIANALYZE procedures in SAS for creating and analyzing multiply imputed data sets for incomplete multivariate data.

In order to test the mediation model of social networks variables between gender and microenterprise performance, the multiple OLS or logistic regressions were used in this research in order to examine the relationship across gender, social networks, and microenterprise performance. The first set of analysis included several regression models to examine the relationship between independent variables (i.e., gender) and the mediating variables (i.e., network size, network strength, gained network resources). The OLS regression was used for the network size variable and the gained network resources, which are continuous variables. The logistic regression model was used for the network strength, which is a dichotomous variable. Each of the three social network variables was regressed separately on gender and control variables.

The second set of analyses included logistic and OLS regression models to examine the relationship between gender and microenterprise performance (business profitability and business survival). The business profitability and survival variable were regressed sequentially on gender and the control variables respectively. In the third set of analyses, each group of mediators (i.e., network size, network strength, and gained network resource) was entered

sequentially into the logistic and OLS regression models on business profitability and survival variables respectively. In order for social network variables to function as mediators, gender must be associated with social network variables as well as microenterprise performance variables. In addition, the social network variables must be significantly related to microenterprise performance variables. Furthermore, when the social network variables were added to the models, the effect of gender on microenterprise performance variables must be eliminated or reduced significantly (Baron & Kenny, 1986).

In order to test the moderation model of gender between social networks and microenterprise performance, the separated logistic (business profitability) and OLS (business survival) regression models for the whole sample and for each gender group were used. According to Baron and Kenny (1986), when the moderator is a dichotomous variable like gender, the typical way to measure the moderator effect is to regress the dependent variable on the independent variable separately for each gender and then test the difference. The total sample was divided into two sub-groups in terms of gender. Then, microenterprise performance variables (i.e. business profitability and survival variables) were regressed on the social network variables (i.e. network size, network strength, gained network resource) with other control variables for each gender group respectively.

CHAPTER 4

FINDINGS

This chapter reports descriptive and multivariate OLS and logistic regression results. The descriptive results section reports percentage, means, standard deviations, and correlations of the variables in the models. Then the multivariate regression results, which test the hypotheses of this study, are reported.

Descriptive Results

Table 1 shows the demographic and social characteristics of the sample (N=979). The sample contains more female (about 60%) and White (about 75%). Approximately 70% of the respondents had high-school degree, and about half of the respondents (53.37%) were married. The sample is relatively old. The average age of the sample is 44 years old (SD: 13.9). About half of the respondents reported that their parents had business experience (51.99%). The larger number of the respondents had managerial (70.95%) and full-time work (77.63%) experience. Approximately 44% of the respondents already had business experience before joining the PSED II research. About more than two third of the respondents had their business in a service sector (78.55%) and lived in non-metropolitan areas (70.38%). The mean for the start-up capital was \$28,073 (SD: 141,827).

Table 2 shows the means and standard deviations of the potential mediators and dependent variables. The mean value for network size was 3.56 (SD: 10.54). The mean values for network strength and gained network resources were 1.20 (SD: 0.55) and 7.55 (SD: 1.97) respectively. With respect to dependent variables, the mean value for business profitability was 1.18 years (SD: 1.23). The mean values for the business survival was a little bit higher than that of business profitability: 1.56 (SD: 1.53)

Table 1: The Characteristics of the Independent Variables

Variables	Respondents' characteristics	Mean or Percentage
Gender (Male)	Men	39.53%
	Women	60.47%
Ethnicity	White	75.49%
	Non-White	24.51%
Education (High school diploma)	High school degree	69.49%
	Non-high school degree	30.54%
Marital Status (Married)	Married	53.37%
	Not married	46.63%
Age	Actual age	Mean: 44 SD: 13.9
Parents' business experience	Having experience	51.99%
	No experience	48.01%
Managerial experience	Having experience	70.95%
	No experience	29.05%
Full-time work experience	Having experience	77.63%
	No experience	22.37%
Business experience	Having experience	44.02%
	No experience	55.98%
Business Industry	Service	78.55%
	Non-Service	21.45%
Business area	Metropolitan	29.62%
	Non-Metropolitan	70.38%
Start-up capital	\$28,073	\$141,827

Table 2: The Means and Standard Deviations of Potential Mediators and Dependent Variables

Variable	Mean	SD
Network size (The number of people)	3.56	10.54
Network strength (The number of weak ties)	1.20	0.55
Gained network resources (The number of resources)	7.55	1.97
Business profitability (The number of years achieving profits)	1.18	1.23
Business survival (The number of years having sales)	1.56	1.53

Table 3 represents the bivariate correlation between the variables in this study. The test shows that the highest correlation among the variables is 0.392, which is the correlation between network size and gained network resource. The correlation between network strength and gained network resource is 0.147; the correlation between network size and strength is 0.100. The correlation between dependent variables (business profitability and survival) is 0.292.

Table 3: Correlations of the Independent and Dependent Variables

	1	2	3	4	5	6	7	8
1. Gender	1							
2. Ethnicity	-0.018	1						
3. Marital status	-0.048	0.090**	1					
4. Age	-0.021	0.101**	0.109***	1				
5. Education	-0.110**	0.019	0.056	0.121***	1			
6. Parents' business exp.	-0.033	0.084**	0.016	0.002	0.002	1		
7. Managerial exp.	0	0.014	0.090**	0.098**	0.147***	0.057*	1	
8. Full-time work exp.	0.097**	-0.015	-0.116**	-0.002	0.039	0.035	0.035	1
9. Business exp.	0.052	0.031	0.080**	0.269***	0.110***	0.045	0.169	-0.008
10. Industry	-0.127***	-0.119	0.019***	0.059	0.059	-0.002	-0.024	-0.024
11. Location	0.04	-0.234***	-0.021	0.085	0.085**	-0.093**	0.002	0.042
12. Start-up capital	0.16	0.070*	0.091	0.089	0.054	-0.039	0.134**	0.044
13. N size	0.044	-0.023	0.084**	-0.063**	0.015	0.015	0.01	-0.028
14. N strength	0.008	0	0.018	-0.032	0.034	-0.043	0.029	0.023
15. Gained N R	0.048	0.075**	0.265	-0.027	0.037	0.062	0.126	0.034
16. Profitability	0.044	0.096**	-0.039	0.024	0.082	0.028	0.126	0.034
17. Survival	-0.05	-0.095	0.126***	0.085**	0.139***	0.046	0.078	0.069**

(Continued)

	9	10	11	12	13	14	15	16	17
1. Gender									
2. Ethnicity									
3. Marital status									
4. Age									
5. Education									
6. Parents' business exp.									
7. Managerial exp.									
8. Full-time work exp.									
9. Business exp.	1								
10. Industry	-0.062	1							
11. Location	-0.057	0.116***	1						
12. Start-up capital	0.075	-0.017	-0.001	1					
13. N size	0.020	0.036	-0.024	0.135***	1				
14. N strength	-0.009	0.057*	0.039	-0.004	0.100**	1			
15. Gained N R	0.027	-0.050	-0.030	0.195***	0.392***	0.147***	1		
16. Profitability	0.121	0.127	-0.022	0.088**	0.023	0.044	0.061	1	
17. Survival	0.083	-0.032	-0.050	0.181***	0.001	-0.001	0.125***	0.292**	1

*P<.01, **P<.05 ***P<.001 (2-tailed)

Multivariate Model Results

This section provides the results of the multivariate analyses for verifying each hypothesis of this study. This section reports the results of the mediation and the moderation model respectively.

Mediation Model

Effects of gender on business performance.

Hypothesis 1-A: Being female micro-entrepreneurs will be negatively associated with profitability of microenterprise compared to male.

Hypothesis 1-A is not supported. The results from the logistic regressions of gender on business performance are presented in Table 4. After controlling for demographic and other control variables, being female is very weakly and negatively associated with business profitability ($b = -.061$, OR: .920, 95% CI: .856~1.490). Among control variables, ethnicity ($b = .460$, $p < .5$), education ($b = .458$, $p < .05$), managerial ($b = .415$, $p < .05$), full-time work ($b = .573$, $p < .05$), and business experience ($b = .080$, $p < .05$), and start-up capital ($b = .138$, $p < .05$) are significantly associated with business profitability. In other words, the micro-entrepreneurs who are white, having high-school degree, having managerial, full-time work, and business experiences are significantly more likely to achieve business profitability compared to the counter parts. Interestingly, the micro-entrepreneurs who have more start-up capital are less likely to achieve profitability of their businesses.

Hypothesis 1-B: Being female micro-entrepreneurs will be negatively associated with business survival of microenterprise compared to male.

Hypothesis 1-B is supported. The results from the OLS regression of gender on business survival are presented in Table 4. Gender is significantly and negatively related to business

survival. Female micro-entrepreneurs are significantly less likely to survive compared to male counterparts at 0.1 level ($b = -.189, p < .05$). Therefore, the second condition of mediation testing is met (Baron & Kenny, 1986).

Among demographic variables, the non-white micro-entrepreneurs are statistically less likely to survive compared to the white micro-entrepreneurs ($b = -.164, p < .01$). In addition, marital status ($b = .210, p < .05$), education ($b = .284, p < .001$), full-time work experience ($b = .229, p < .1$), and start-up capital ($b = .093, p < .001$) are significantly associated with business survival. In other words, the micro-entrepreneurs who are single, do not have high-school degree and full-time work experiences, and have more start-up capitals are more significantly likely to survive in their business.

Table 4: Unstandardized Coefficients and Odds Ratio from Regression Models of Gender on Microenterprise Performance

Variable	Business Profitability		Business Survival
	Coeff.	O. R	Coeff.
Intercept	-2.578***		0.805**
Gender (Male) Female	-0.061	0.920	-0.178**
Ethnicity (White) Non-Whites	0.460**	1.581	0.164*
Education (High-school degree)	0.377**	1.470	0.290***
Marital Status (Married)	0.062	1.033	0.222**
Age	-0.006	0.996	0.002
Parents' bus experience (Having Experience)	0.113	1.142	0.085
Manager experience (Having E)	0.415 **	1.564	0.061
Work experience (Having E)	0.573 **	1.732	-0.242*
Business experience (Having E)	0.318**	1.333	0.099
Industry (Non-service industry)	0.069*	1.028	-0.045
Business Location (Metropolitan)	0.080	1.066	-0.065
Start-up capital (Continuous)	0.138**	1.168	0.109***
Adjusted R2			0.14

* $P < .1$, ** $P < .05$, *** $P < .01$

Effects of gender on social networks.

Hypotheses 2-A: Female micro-entrepreneurs will be more likely to have a smaller network size compared to male.

Hypothesis 2-A is not supported. The OLS regression results of the impact of gender on social networks (e.g. network size, network strength, and gained network resource) are presented in table 5. After controlling for other demographic variables, gender is not related to network size ($b=.049$, $p= 0.33$). Among other demographic variables, only age and start-up capital are statistically and significantly associated with network size. Entrepreneurs who are older ($b=-.005$, $p<.05$) and have more start-up capital ($b=.052$, $p<.001$) are more likely to have larger size of networks.

Hypotheses 2-B: Female micro-entrepreneurs will be less likely to have weak ties in their networks compared to male.

Hypothesis 2-B is not supported. After controlling for other demographic variables, gender is not related to network strength ($b=-.086$, $p=.667$). However, according to the odds ratio (OR: .821, 95% CI: .608~1.322), women are less likely to have weak ties in their social networks compared to men. Only business industry variable is significantly related to the strength variable ($b=-.444$, $p<.1$, OR: .640). The entrepreneurs who are running service businesses are less likely to have weak ties in their social networks. In terms of odds ratio, the entrepreneurs who are white (OR: .862, 95% CI: .552~1.345), married (OR: .820, 95% CI: .560~1.202), have high school degree (Odds Ratio: .818, 95% CI: .536~1.250), and have managerial (OR: .823, 95% CI: .536~2.363) and full—time work (OR: .813, 95% CI: .536~1.263) experiences are also more likely to have weak ties in their social networks compared to their counterparts.

Hypotheses 2-C: Female micro-entrepreneurs will be less likely to gain fewer resources in their networks compared to male.

Hypothesis 2-C is not supported. After controlling for other demographic variables, the logistic regression results of the impact of gender on gained network resource shows that gender is not significantly associated with gained network resources ($b = -.152$, $p = .233$). This result does not meet the first condition of mediation that the independent variable is significantly related to the presumed mediator (Baron & Kenny, 1986). Among other demographic variables, age ($b = -.010$, $p < .05$), marital status ($b = .964$, $p < .001$) and parents' business experience ($b = .232$, $p < .1$), and full-time work experience ($b = -.255$, $p < .1$) variables are statistically and significantly related to gained network resources. In other words, the micro-entrepreneurs who are younger, single, not having parents' business experience, and having full-time work experience are significantly more likely to gain network resources compared to counterparts.

Table 5: Unstandardized Coefficients and Odds Ratio from Regression Models of Gender on Social Networks

Variable	Size	Strength		Gained Resources
	Coeff.	Coeff.	O. R	Coeff.
Intercept	0.395	2.373***		5.815***
Gender (Male) Female	0.049	-0.086	0.896	0.152
Ethnicity (White) Non-Whites	-0.058	-0.137	0.862	0.208
Education (High-school degree)	-0.028	-0.192	0.818	0.076
Marital Status (Married)	0.124	-0.190	0.820	0.963***
Age	-0.005**	0.010	1.009	-0.010**
Parents' bus experience (Having Experience)	0.029	0.250	1.290	0.232*
Manager experience (Having E)	-0.014	-0.187	0.823	0.067
Work experience (Having E)	-0.048	-0.197	0.813	-0.255*
Business experience (Having E)	0.046	-0.001	0.996	0.019
Industry (Non-service industry)	0.096	-0.444*	0.640	-0.052
Business Location (Metropolitan)	-0.035	-0.202	0.816	0.102
Start-up capital (Continuous)	0.052***	0.001	1.038	0.171***
Adjusted R2	.103			.100

* $P < .1$, ** $P < .05$, *** $P < .01$

Effects of social networks on microenterprise performance.

Hypothesis 3-A: Network size will be positively associated with microenterprise performance.

Hypothesis 3-A is not supported. Table 6 represents the relationship between social networks and microenterprise performance. When the business profitability and survival variables are regressed on network size, strength, and gained network resource as well as other control variables, network size is not significantly related only to business profitability and survival.

Hypothesis 3-B: Network strength (weak ties) will be positively associated with microenterprise performance.

Hypothesis 3-B is not supported. When the business profitability and survival variables are regressed on network size, strength, and gained network resource as well as other control variables, network strength is not significantly related to any business performance variables.

Hypothesis 3-C: Gained network resource will be positively associated with microenterprise performance.

Hypothesis 3-C is supported. Gained network resource is positively and significantly associated with business profitability ($b=.080, p<.05$) and survival ($b=.090, p<.05$). This means that the micro-entrepreneurs having more gained network resources are more likely to gain business profitability and survive.

Table 6: Unstandardized Coefficients from Regression Models of Social Networks on Microenterprise Performance

Variable	Business Profitability		Business Survival
	Coeff.	O. R	Coeff.
Intercept	-3.054***		0.497***
Gender (Male) Female	-0.072	0.912	-0.182**
Ethnicity (White) Non-Whites	0.435**	1.549	0.147
Education (High-school degree)	0.3667**	1.456	0.284***
Marital Status (Married)	0.014	0.963	0.177**
Age	-0.005	0.997	0.002
Parents' bus experience (Having Experience)	0.117	1.138	0.102
Manager experience (Having E)	0.404 **	1.546	0.057
Work experience (Having E)	0.588 **	1.754	0.102
Business experience (Having E)	0.320**	1.336	0.254**
Industry (Non-service industry)	0.065*	1.019	-0.031
Business Location (Metropolitan)	0.065	1.051	-0.073
Start-up capital (Continuous)	0.129**	1.156	0.103***

(Continued)

Variable	Business Profitability		Business Survival
	Coeff.	O. R	Coeff.
NW Size	-0.060	0.951	-0.089
NW Strength	0.248	1.417	-0.047
Gained NW Resource	0.080**	1.072	0.060**
Adjusted R2			0.13

* $P < .1$, ** $P < .05$, *** $P < .01$

The mediating role of social networks between gender and business performance.

H4-A. Network size mediates the relationship between gender and microenterprise performance.

H4-B. Network strength mediates the relationship between gender and microenterprise performance.

H4-C. Gained network resources mediate the relationship between gender and microenterprise performance.

None of the hypothesis 4 is supported. In order for social network variables to function as mediators, these variables must be significantly related to gender (independent variable) (Baron & Kenny, 1986). Since this condition is not satisfied, this study does not conduct a mediation test. Therefore, this study concludes that none of the social network variables mediate the relationship between gender and microenterprise performance.

Moderation Model

This section tests the moderation effect of gender on the relationship between social networks and microenterprise performance.

H5. Gender will moderate the relationship between social networks and business performance (i.e, social networks have weaker effect for women).

Hypothesis 5 is supported. Table 7 and 8 represent the results of the moderation effect of gender on the relation between social networks and business performance. In table 7-A, in the model 1, for the full sample, the gained network resource is significantly and positively associated with business profitability ($b=.080$, $p<.05$). For the male micro-entrepreneur group, gained network resource is still significantly and positively related to business profitability ($b=.089$, $p<.1$). In addition, network strength becomes newly significantly and positively associated with business profitability ($b=.665$, $p<.05$). That is, for male micro-entrepreneurs, having more gained network resources and weak ties positively increase the probability of achieving better business profitability. On the contrary, for female micro-entrepreneurs, the significance between gained network resource and business profitability disappeared. It implies that the relationship between social networks and business profitability changes as a function of the moderator variable, gender.

In table 8, the gained network resource is significantly and positively related to business survival in the model 1, the full sample ($b=.068$, $p<.05$). For the male micro-entrepreneur group (model 2), this relationship still exists ($b=.084$, $p<.05$). However, for the female group (model 3), the direction of the relationship of gained network resource and business survival is changed ($b=-.020$) and the significance of relationship disappeared ($p=.60$). And marital status ($b=.258$, $p<.05$) and industry ($b=-.373$, $p<.05$) are significantly related to business survival only for female group.

For female group, being single is positively associated with business survival and running a service business is negatively related to business survival.

These significant differences between gender with respect to the relationships between social networks and microenterprise performances (i.e. business profitability and survival) show that gender works as a moderator on the relationships between social networks and microenterprise performances (Graph 3-A, B, C). It implies that the causal relationship between social networks and microenterprise performance changes as a function of the moderator variable, gender.

Table 7: Moderation Effects of Gender on the Relationship btw Networks and Profitability

Variable	Full Sample		Male Group		Female Group	
	Coeff	O.R.	Coeff	O.R.	Coeff	O.R.
Intercept	-3.054***		-3.586***		-2.103**	
NW Size	-0.06	0.951	-0.049	0.958	-0.069	0.950
NW Strength	0.248	1.417	0.665**	2.251	-0.366	0.735
Gained NW Resource	0.080**	1.072	0.089*	1.089	0.052	1.029
Gender (Male) Female	-0.072	0.912				
Ethnicity (White) Non-Whites	0.435**	1.549	0.610**	1.748	0.188	1.319
Education (High-school degree)	0.3667**	1.456	0.450**	1.597	0.164**	1.183
Marital Status (Married)	0.014	1.006	-0.004	0.894	-0.079**	0.950
Age	-0.005	0.997	-0.006	0.996	-0.006	0.996
Parents' bus experience (Having Experience)	0.117	1.138	0.236	1.262	-0.006	0.954
Manager experience (Having E)	0.404 **	1.546	0.484**	1.667	0.303	1.453
Business experience (Having E)	0.588 **	1.754	0.229	1.253	0.507**	1.538
Work experience (Having E)	0.320**	1.336	0.713**	1.982	0.453*	1.547
Industry (Non-service industry)	0.065*	1.019	0.124	1.067	-0.074**	0.954
Business Location (Metropolitan)	0.065	1.051	0.229***	1.253	-0.004	0.945
Start-up capital (Continuous)	0.129**	1.156	0.121**	1.133	0.136*	1.188

*P<.1, **P<.05, ***P<.01

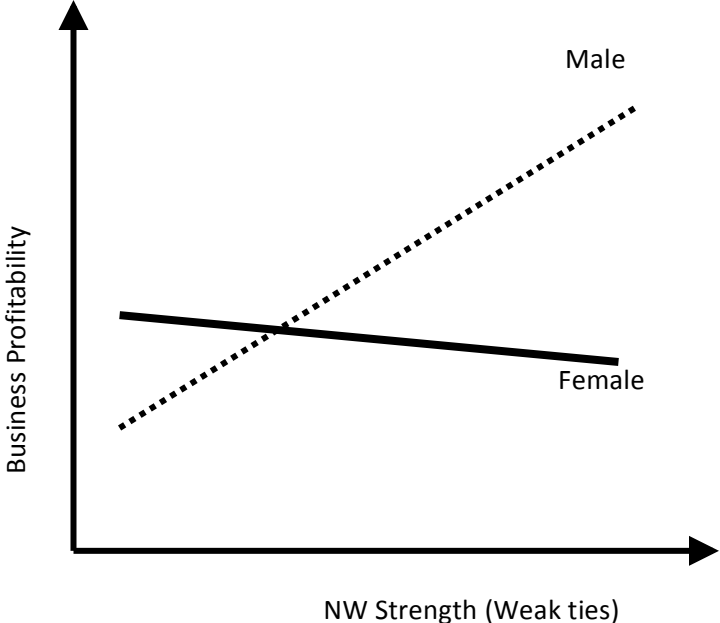
Table 8: Moderation Effects of Gender on the relationship btw Networks and Survival

Variable	Full Sample	Male Group	Female Group
	Coeff	Coeff	Coeff
Intercept	0.497***	-0.016	1.160**
NW Size	-0.089	-0.072	-0.118
NW Strength	-0.047	-0.030	-0.102
Gained NW Resource	0.060**	0.084**	0.020
Gender (Male) Female	-0.182**		
Ethnicity (White) Non-Whites	0.147	0.168	0.091
Education (High-school degree)	0.284***	0.231**	0.332**
Marital Status (Married)	0.177**	0.123	0.262**
Age	0.002	0.008*	-0.005
Parents' bus experience (Having Experience)	0.102	0.178	-0.085
Manager experience (Having E)	0.057	0.076	0.022
Business experience (Having E)	0.102	0.016	0.212
Work experience (Having E)	0.254**	0.302**	0.268*
Industry (Non-service industry)	-0.031	0.126	-0.373**
Business Location (Metropolitan)	-0.073	0.016	0.006
Start-up capital (Continuous)	0.103***	0.078**	0.140**
Adjusted R2	0.13	0.09	0.07

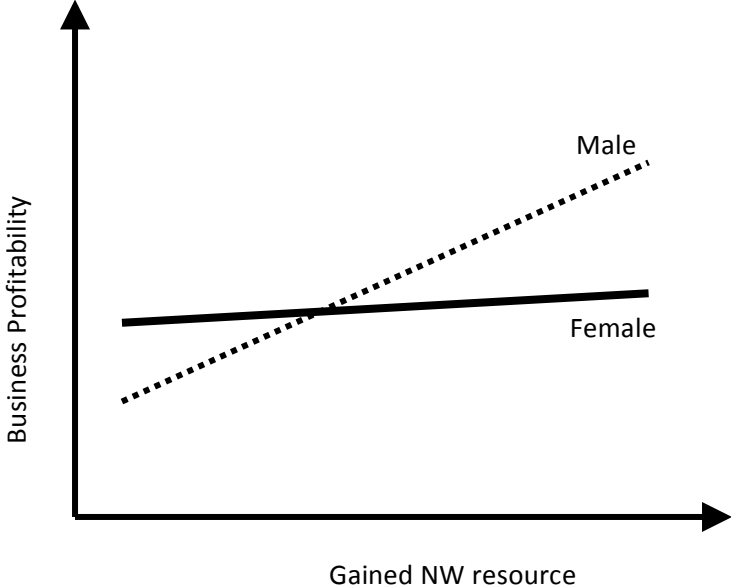
* $P < .1$, ** $P < .05$, *** $P < .01$

Figure 4: Moderation Effect of Gender on the Relationship between Gained Network Resources and Microenterprise Performance

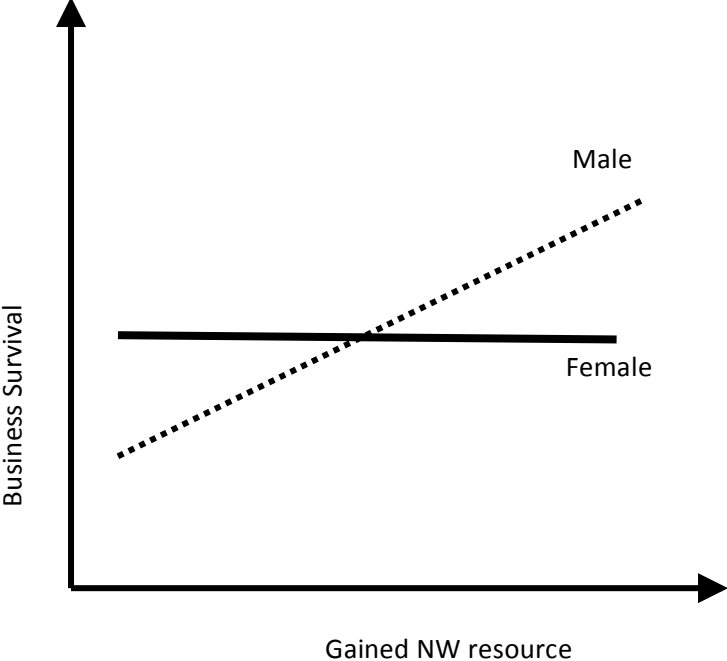
A. Moderation Effect of Gender on the Relationship between NW Strength (Weak ties) and Business Profitability



B. Moderation Effect of Gender on the Relationship between gained NW resource and Business Profitability



C. Moderation Effect of Gender on the Relationship between gained NW resource and Business Survival



Summary of Results

The first hypothesis examined the relationship between gender and microenterprise performance controlling for demographic variables. Only hypothesis 1-B regarding the relationship between gender and business survival is supported. Female micro-entrepreneurs have significantly worse business survival outcomes. In contrast to the hypothesis 1-A, gender is not significantly related to business profitability but negatively associated with business profitability (OR: 0.920).

The second hypothesis examines the relationship between gender and social networks controlling for demographic variables. None of the hypothesis 2 with respect to the relationship between gender and social networks is supported. However, according to the odds ratio, female micro-entrepreneurs are less likely to have weak ties in their networks compared to male micro-entrepreneurs.

The third hypothesis tests the relationship between social networks and microenterprise performance after controlling for demographic variables. Only hypothesis 3-C with respect to the relationship between gained network resource and microenterprise performance is supported. Specifically, the gained network resource variable is significantly and positively associated with both of business profitability and survival. Contrast to the hypothesis 3-A and B, the network size and strength variable is not significantly associated with either business profitability or survival.

The fourth hypothesis examines the mediating role of the social network variables on the relationship between gender and microenterprise performance. The fourth hypothesis is not supported. Since the relationship between gender and social networks is not found, this study does not conduct a mediation test.

Finally, the fifth hypothesis tests the moderating role of gender on the relationship between social networks and microenterprise performance. Hypothesis 5 is supported. For the male micro-entrepreneur group, the gained network resource variable is significantly and positively associated with business profitability and survival. On the contrary, for the female micro-entrepreneur group, the significant relationship between gained network resource variable and business profitability and survival is gone. In addition, the network strength variable becomes newly significantly and positively associated with business profitability only for the male group compared to the full and female group. Therefore, these results verify that gender works as a moderator between social networks and microenterprise performance.

CHAPTER 5

DISCUSSION

This chapter discusses the research findings of this study in relation to other existing studies and proposes the implications of the study for social work research and practice. Then, the limitations and strengths of it will be discussed.

Research Model Test Results

This section discusses the research model test results in relation to other existing studies.

First, this study finds that gender functions as a moderator on the relationship between gained network resources and microenterprise performance (i.e. business profitability and survival). The finding implies that while male micro-entrepreneurs significantly receive benefits from their weak ties and gained network resources for improving business performance, female micro-entrepreneurs do not gain enough benefits from their networks for improving their business performance. The effects of weak ties and gained network resources on business performance are even negative and almost zero respectively for female micro-entrepreneurs.

Since the PSED II dataset provides only quantitative information on gained network resources, it is impossible to test what other differences in gained network resources between genders may influence the relationship between social networks and microenterprise performance. However, since there is no difference in terms of quantity of social networks (i.e. the number of weak ties and gained network resource), this result implies that the quality difference of social networks between genders could affect business performance. The quality of weak ties and gained network resources of female micro-entrepreneurs could be lower than males. The existing studies support the assumption of gender inequality in quality of social networks. Studies show women tend to be located in smaller and more peripheral organizations,

which are associated with domestic and community affairs whereas men are more likely to be engaged in core associations having more information and resources for economic activities (Beggs, 1997; Davidsson, 2003; McPherson & Smith-Lovin, 1982). Therefore, women's networks contain less viable economic resources than men. Even though female micro-entrepreneurs gained the same amount of weak ties or resources from their networks as males, those weak ties or network resources would not be as beneficial for their businesses as males. For example, in terms of business information, both female and male micro-entrepreneurs could have the same amount of information for their businesses. However, males could acquire more unique and valuable business information compared to females. Again, the social position in a patriarchal society may determine the quality of resources embedded in social networks of individuals (Bourdieu, 1986; Lin, 2005). Therefore, female micro-entrepreneurs may find it hard to receive similar benefits from their weak ties and network resources for their businesses compared to what male micro-entrepreneurs receive.

The other possible reason of gender difference in terms of the effect of social networks on business performance is that women's ability to produce business benefits from their networks or network resources could be lower than males. Even if women have similar weak ties or gain similar resources from their networks with males, women's childcare and housekeeping responsibilities imposed by gender-segregated roles could prevent them from making efforts for activating their networks or network resources for their businesses. For example, although women have some business information received from their networks, that information would not improve their business performance if they do not have enough time to utilize those information for their businesses.

Second, this research provides evidence to support the *social network resource* approach,

which argues that it is not network structures but network resources embedded in the networks that influence business performance. This research found that while network structure (i.e. size and strength) is not associated with business performance (i.e. profitability and survival), gained network resource is significantly associated with business performance. Especially, gained network resource is positively and significantly associated with business survival. This finding supports the argument of Lin (2000) that it is not the weakness of a social tie but the embedded resources that convey benefits (Lin, 2000). This finding is also similar to that of Aldrich and Rosen (1987) that accessibility of network resources is positively correlated with business profit. Therefore, this finding does not support the weak tie theory and the network success hypothesis that indicate weak ties provide more useful benefits for entrepreneurs by providing unique information and resources especially in the growth and survival of businesses (Granovetter, 1973; Lin, 2000; Molyneux, 2002). This study does not find any significant relationship between network strength (the number of weak ties) and business performance in growth and survival levels (i.e. profitability and survival).

Third, this research finds that female micro-entrepreneurs are significantly less likely to survive in their businesses in U.S.. This finding is consistent with other empirical evidence in the U.S. The studies in the U.S. reveal that female owned businesses are more likely to close than those owned by males in the U.S. (Fairlie & Robb, 2009; Robb & Wolken, 2002). Interestingly, however, in terms of business profitability, no gender difference is found, and even female micro-entrepreneurs slightly perform better in terms of business profitability (OR: 1.129). It means that women seem to be able to accomplish similar success in achieving profitability but do not survive as well as males. These findings are consistent with the outcomes of some existing studies. Kalleberg and Leicht (1991) also find no gender difference in terms of business

profit in the U.S. The same outcomes were found in Australia as well. Johnsen and McMahon (2005) and Watson (2002) report that gender difference in financial performance and business growth among small to medium-sized businesses does not exist in Australia (Johnsen, 2005; Watson, 2007b).

However, it is hard to directly compare the outcomes of existing studies to the outcome of this study because of different research designs and measurements. For instance, while this study controls human and financial capital in measuring the impact of gender on business performance, some existing studies do not control for them (Fairlie & Robb, 2009; Kalleberg & Leight, 1991). In addition, this study measures profitability by counting the number of years that achieve profit (whether the revenue is beyond the costs each year) whereas some studies measure the total amount of profit. Therefore, a direct comparison among studies does not provide meaningful information. The merits of this study lies in the fact that it provides information on the impacts of gender on business performance in more recent years (2005-2011) in the U.S. context after controlling other demographics as well as human and financial capital.

Fourthly, this study does not find a mediation effect of social networks on the relationship between gender and microenterprise performance. Even though there is a significant relationship between gender and business survival, there is no significant association between gender and the social network variables (i.e. network size, strength, and gained network resources). This result does not provide support for Tata and Prasad's conceptual model of the relationship among micro-entrepreneurial gender, social networks (network structure), collaborative exchange and microenterprise performance (2007). According to their model, gender affects microenterprise performance through network structure and collaborative exchange. While this current study does not include collaborative exchange, it does not find

statistical evidence that gender influences microenterprise performance through network structure.

The finding that there is no significant association between gender and social networks are not consistent with some of empirical studies. Existing studies have indicated that women's social networks are significantly less likely to have 'weak ties' than males (Campbell, 1988; Klyver & Terjesen, 2007; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2009). The different findings of this study and previous research could be explained by different research contexts and designs. Some studies used the data collected in European countries (Klyver & Terjesen, 2007; Robinson & Stubberud, 2009) or used the outdated data collected before 1992 in the U.S. (Campbell, 1988; Marsden, 1987; McPherson & Smith-Lovin, 1982; Moore, 1990; Renzulli, Aldrich, & Moody, 2000). Since gender difference in social networks is affected by social context and gender politics (Cromie, 1992; Loscocco, Monnat, Moore, & Lauber, 2009; Munch & McPherson, 1997), findings in different social contexts and times could be different. For example, U.S. women's ability to create or be involved in social networks could be enhanced as gender equality has been improved in the U.S.

Furthermore, among the previous studies conducted in the U.S., larger numbers of studies do not use national data (Campbell, 1988; Marsden, 1987; McPherson & Smith-Lovin, 1982; Renzulli, Aldrich, & Moody, 2000). The strength of this study lies in using national data that represent the characteristics of the whole nascent micro-entrepreneurs of the U.S.

Lastly, while this study focuses on social networks of nascent micro-entrepreneurs, most of existing studies with respect to social networks of entrepreneurs do not specify business size that respondents are running (Klyver & Terjesen, 2007; McPherson & Smith-Lovin, 1982;

Renzulli, Aldrich, & Moody, 2000; Robinson & Stubberud, 2009). Since the characteristics or utilization of social networks of entrepreneurs would be associated with their business size (Wiklund, Lumpkin, & Frese, 2013), the findings of this study using the sample of nascent micro-entrepreneurs could be different from other studies. In consistent with the findings of this study, Loscoco and colleagues find that there is no gender difference in network structure of small business owners (Loscocco, Monnat, Moore, & Lauber, 2009). Therefore, the unique contribution of this study is to find that gender difference in terms of social network structure and resource does not exist in the relatively current years (2005~2011) in the U.S among nascent micro-entrepreneurs.

Research Limitations

This section discusses the limitations and strengths of this research. This study has a number of limitations. First, the samples of the PSED II data set do not represent the characteristics of all micro-entrepreneurs in the U.S. Despite the fact that the PSED II data set used a random selection using a random digit dial (RDD) methodology for contacting 31,845 individuals, within 48 states in the United States, this method might select the persons who have a home telephone and strong intention to start-up a microenterprise. Therefore, the study cannot be generalized to all micro-entrepreneurs in the U.S.

Second, this study could not measure changes of social networks. Although the PSED II data set measures social networks in every wave, due to so many missing values (more than 95%) in wave 2, 3, 4, 5, 6, this study used only the values of the social network variables (i.e. size, strength, and gained resources) of Wave I. Even though this research is a longitudinal study, change of social networks was not measured in this study. Actually, micro-entrepreneurs might develop their social networks or change their social networking strategies as their businesses grow. Therefore, changes in their social networks might affect their business performance. However, this study could not measure how changes of respondents' social network as time passed affected their business performance.

Third, this study could not measure quality of social networks. Especially, gained network resources are measured by the number of resources that respondents received from their social networks. However, there would be a difference in terms of quality or effectiveness of resources in producing benefits for businesses. For example, financial support would be more valuable for business than advice. In addition, there would be a difference in terms of quality in a same resource. For instance, advice from business professionals would be more beneficial for

respondents' businesses rather than them from friends who do not have business experience or knowledge. Gender differences in terms of the quality of gained network resources could exist and affect business performance differently. However, due to the limitation of measuring the quality of gained network resource, this study could not measure how gender differences in the quality of gained network resources influence microenterprise performance differently.

Fourth, this study does not provide a full understanding of the relationship among gender, social networks, and microenterprise performance. Since this study is not an experimental design, causal relationship cannot be established. This study could not control all confounding factors that affect the relationship among gender, social networks, and microenterprise performance; therefore, selection bias might exist. For instance, macro-economic factors in a certain year, such as economic recession, significantly affect business performance. In this case, a decrease in business profits or an increase in business closings may not be associated with micro-entrepreneurs' social networks but with economic conditions.

Implications

The findings of this study provide important implications for social work practice and research by figuring out how gender differences in social networks affect microenterprise performance.

Implications for Social Work Practice

This research provides empirical evidence to support the necessity of social networking intervention for female participants of U.S. MDPs. First of all, U.S. MDPs need to provide gender-sensitive social networking intervention for female participants. This means that U.S. MDPs need to identify female participants' special needs related to social networks compared to their male counterparts and provide them with specific social network interventions to satisfy those needs accordingly. In particular, this research identifies that even in cases where female micro-entrepreneurs gained the same number of weak ties and resources from their networks as their male counterparts, their weak ties and gained resources did not help them to improve their business performance. Therefore, this research indicates that female micro-entrepreneurs seem not to receive similar benefits from their social networks for their businesses compared to males. This finding implies that gender-sensitive social networking intervention in the U.S. context would be to concentrate on bringing good quality social networks that can provide valuable business resources for female participants. For instance, MDPs could provide links to business experts, lawyers, bankers, male business owners, financial institutes, and suppliers that are currently beyond the reach of women's peer groups. These ties could provide valuable resources for improving female entrepreneurs' business performance. MDPs could offer workshops that facilitate women's interactions with business organizations and business experts that may result in more resources, including advice, loans, information, and customer contact.

Second, in order to provide helpful social network resources to female participants, U.S. MDPs need to strengthen their networks with a diversity of community groups, such as business associations, non-profit organizations, financial institutes, and welfare agencies, as well as business professionals in their community. In relation to network development programs, one of roles of MDPs is to coordinate diverse business-related organizations and professionals that have valuable business resources and to connect them to female participants of MDPs. If MDPs do not have links to diverse organizations or professionals who can convey valuable resources, they will be unable to provide female participants with valuable network resources. Hence, the quality or effectiveness of networks that MDPs hold in their community would determine the quality of their network programs for their female participants. In addition, since MDPs are unable to provide female participants with all resources related to business, the joint production of services at the community level would be desirable for satisfying participants' multiple needs (Provan & Milward, 2013). Thus, MDPs should extend their community stakeholders in order to include banks, business associations, local government, business consulting groups, academic entities such as a business school of a university, and other business professionals. By collaborating with diverse community stakeholders, U.S. MDPs could develop their network resources, which would be imperative for improving their service quality for female participants.

Third, US MDPs need to focus on improving women's business survival rate. This research found that female micro-entrepreneurs' business survival rate is significantly lower than males. This finding shows the importance that U.S. MDPs provide female micro-entrepreneurs with long-term supports for their businesses rather than focusing on only start-up process. This means that U.S. MDPs need to strengthen their support programs for established microenterprises owned by women. As businesses grow, female micro-entrepreneurs would have

different needs to manage and develop their businesses. For example, they might need to hone their business skills related to business plan creation, marketing & sales strategies, financial analysis, staff management, etc. In addition, established businesses often confront financial constraints and low cash flow, which significantly and negatively affect business growth and survival (Denis & Sibilkov, 2010). However, although commercial banks are a major financing source for small businesses, a number of studies have found that women are significantly more reluctant to apply for loans at banks than men due to the uncomfortable process of dealing with banks or lending officers (Cole & Mehran, 2008; Coleman & Robb, 2009; Treichel & Scott, 2006). These findings imply that U.S. MDPs need to provide links to business professionals and banks in order to assist female micro-entrepreneurs in acquiring advanced levels of business skills and financial support for their business survival. However, the ability to provide these advanced levels of services is essentially associated with funding and staffing issues of MDP agencies. This leads to the following implication.

Fourth, government should provide more support for MDP agencies to help them provide female participants with gender-sensitive network development programs and other professional supportive services in order to improve women's business survival rate. Providing gender-sensitive network development programs demands greater resources of staff, technical assistance, business association membership fees, and networking events, such as workshops with male businessmen or business experts. According to Langowitz and Sharpe (2006), funding problems are the greatest challenge for Women Business Centers (WBCs) that provide MDPs for women. As non-profit organizations, WBCs highly depend on government funding from the Small Business Administration (SBA). However, government's funding usually has a time-limit and often are made available for new initiatives rather than for current programs (Langowitz &

Sharpe, 2006). This funding constraint is closely connected to the lack of staffing. The survey conducted by Langowitz and Sharpe (2006) shows that WBCs participating in the survey have an average of five full-time and two part-time staff. This survey reports that WBCs do not have enough staff who can develop relationships with banks or raise funds (Langowitz & Sharpe, 2006). In particular, without sufficient staff, it is difficult to develop and provide gender-sensitive network development programs for female participants. Developing gender-sensitive network development programs is a time- and energy-consuming work. Staff members need to invest lots of times and energy in order to identify business associations and professionals in their community and develop relationships with them and link them to the female participants of their programs. Therefore, government needs to provide more funding support so that MDPs are able to provide female participants with better professional support for their business success by hiring more staff.

Implications for Social Work Research

The findings of this research suggest future research directions. First, this research implies the need to develop measurement tools for quality of weak ties and network resources. The findings of this study indicate that weak ties and gained network resources of female micro-entrepreneurs are not as beneficial to improve their business performance compared to males. This could be related to the fact that the quality of women's weak ties and gained network resources is lower than those of males in terms of producing benefits for their businesses. However, this study could not investigate the gender differences in terms of quality of weak ties and gained network resources because the PSED data set provides only the quantity of gained network resources.

Lin (2005) suggested two methods to measure embedded resources in social networks:

capacity (accessible resources) and actual uses for a particular action (mobilized resources).

Capacity of embedded resources in social networks measures the potential pool of resources that can generate returns to the actor. It can be measured by the number of accessible resources, best resources, variety of resources, and the socio-economic status of network members (Lin, 1999).

Actual uses of embedded resources for a particular action could be measured by making an inventory of actually accessed resources of an actor (Lin, 2005). This study measures the number of the actually accessed (used) resources of social networks for respondents' businesses (i.e. making introductions, providing advice, training, physical resources, business services, or personal services). Since entrepreneurs can improve their business performance only if they use their social networks for their business, measuring actually accessed resources of social networks improved the measurement of embedded networks in social networks.

However, how can we measure the quality of each gained or accessed resource of social networks in terms of providing benefits for their businesses? One method would be to check the actual benefits or results of gained network resources for their businesses: Did each gained network resource produce benefits for their businesses or not? What kinds of benefit did the gained network resource provide for their businesses? How much benefit did the gained network resource provide for their businesses? While these measurements would be subjective, they would allow exploring gender differences in terms of quality of gained network resources.

Second, the findings of this research imply that more research should figure out female micro-entrepreneurs' needs for social networks. If women's weak ties and gained network resources do not work well to improve their business performance, what kinds of relationship and network resources are deficient in their networks? What kinds of relationship and network resources do they want to access for their businesses? What are the challenges for female micro-

entrepreneurs in getting actual benefits from their weak ties and network resources for their businesses? What kinds of support do they want to receive in order to gain more benefits from their networks? Finding answers to these questions would be imperative to develop a gender-sensitive network development program for female micro-entrepreneurs in MDPs. These research questions could be better investigated by qualitative research.

Third, more research needs to investigate how the race and economic class of female micro-entrepreneurs influence the relationship between social networks and business performance. Since the main research questions of this study are to figure out the relationships among gender, social networks, and microenterprise performance, this study does not focus on exploring the impacts of race and gender on the relationship among gender, social networks, and microenterprise performance. However, social networks of minority or low-income female micro-entrepreneurs could be different from those of White and high-income women. Moreover, network dynamics related to microenterprise performance could be different among the different race and economic classes of female micro-entrepreneurs. Since a large portion of female participants of U.S. MDPs is minority or low-income women (Langowitz & Sharpe, 2006), figuring out how race and economic class intersect with gender in terms of the impacts of social networks on microenterprise business performance would be crucial for developing more effective network development programs for minority and low-income women.

Fourth, this research indicates the need for developing gender-sensitive social network/capital theory. This study shows that general social network/capital theory such as weak ties and network resource theory do not apply well to female micro-entrepreneurs. This study indicates that both weak ties and network resources are not useful for female micro-entrepreneurs to improve their business survival. How does social network/capital theory explain

this gender puzzle in the relationship between social networks and business performance? The argument by Burt (1998) provides useful explanation for this question. Burt (1998) argues why developing a weak tie is not useful for women in an organization when seeking their promotion. Since women are not accepted as legitimate members of an organization, women should develop different networking strategies in order to access social capital. That is “borrowing the network of a strategic partner” (Burt, 1998, p. 5), which means getting access to useful networks through making a relationship with a strategic person having higher power and legitimacy in an organization (Burt, 1998b). However, since his study was on the job promotion process in the context of a big company, more empirical investigation in diverse contexts including a business context should be done in order to generalize empirical findings and develop the gender-sensitive social network/capital theory.

Fifth, more empirical research on this topic needs to be conducted within global context including in developing countries in order to better understand the relationships between gender, social networks, and microenterprises. In particular, MDPs have been popular strategies to provide low-income women with economic opportunities in developing countries. Especially, organizing peer-groups for group lending is one of the important strategies in MDPs in developing countries (Cassar & Wydick, 2010). In order to understand whether organizing peer-groups is the most effective strategy to improve women’s business performance in developing countries, gender dynamics in social networks and their impacts on female micro-entrepreneurs’ business performance need to be explored in their social contexts. The finding of this study in the U.S. would not be applicable to developing countries. Different gender roles, culture, social norms, and levels of women’s right in developing countries would influence women’s ability to organize their networks and gender differences in network structure and resources would vary

from developed countries. The empirical studies in different social contexts could also help develop gender-sensitive social network/capital theories.

In conclusion, the main implication of this study is to suggest gender-sensitive practice and research in order to assist women in achieving better performance in microenterprise practice for their empowerment. It is important to understand that gender differences in terms of the effects of social networks on microenterprise performance and women's lower business survival rate compared to men might be the outcomes of structural gender inequalities in a patriarchal society, such as women's burdens on domestic and community works and gender discriminations in business fields. Therefore, both U.S. MDPs and social work research need to understand that the strategies to enhance women's microenterprise performance should be connected with feminist politics to overcome women's structural inequalities.

APPENDIX A: RESEARCH VARIABLES

Dependent variable		
Gender		Men=0 Women=1
Outcome variables		
Profitability		<Code of each year> The monthly revenue has not exceeded the monthly expenses: 0 The monthly revenue has exceeded the monthly expenses: 1 <Final code> Final code: the total number of achieving profit within 6 years <Re-code> Having profitability within 6 years: 1 Not having profitability within 6 years: 0
Survival		<Code of each year> Stop business: 0 Did not stop business: 1 <Final code> Final code: the total number of survival within 6 years
Mediating variables		
Network size		Actual numbers of people who share ownership of the business or have provided significant support, advice, or guidance on a regular basis to the business
Network strength		<Code of each network member> The members of start-up team, non-owning founders, and helpers who are spouses, partners sharing a household, relatives, or friends or acquaintances respondents have not worked with were categorized as strong ties (strong ties) : 0 The members of start-up team, non-owning founders, and helpers who are friends or acquaintances from work and strangers before joining the (new) business tea (weak ties): 1 <Final code> Sum of the number of weak ties in social networks
Gained resources		The total number of gained network resources
Control variables		
Race/ethnicity		White: 0 Non-White: 1
Marital status		Married status: 0 Non-married status: 1
Age		Actual age: continuous variable
Human capital factors		
	Education	High school degree: 0 Non-high school degree: 1

	Prior self-employment experience	Having self-employment experiences: 0 Not having self-employment experiences: 1
	Management experience	Having management experiences: 0 Not having management experiences: 1
	Industry specific experience	Having industry-specific experiences: 0 Not having industry-specific experiences: 1
	Parents' self-employment experience	Having parents' self-employment experiences: 0 Not having parents' self-employment experiences: 1
Start-up capital		Actual number Log (capital)
Business location		Metropolitan area: 0 Non-metropolitan area: 1
Industry		<Service industry=0> Wholesale trade Transportation and warehousing: Retail trade Transportation and warehousing Information Finance and insurance Real estate and rental and leasing Professional, scientific, and technical services Administrative and support and waste management and remediation service Education services Health care and social assistance Arts, entertainment, and recreation Accommodation and food services Other services <Non-service industry=1> Agriculture Mining Construction Manufacturing

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