ABSTRACT


Social networks are an important element of entrepreneurship because entrepreneurs consistently rely on those networks to access ideas, information, and resources to facilitate the entrepreneurial process. Social capital is defined as the collective linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks. Extensive social capital is argued to have significant positive impact on entrepreneurial success, in part because dimensions of cognitive social capital, such as trust, reciprocity, and togetherness are expected to enhance cooperation among network ties. Moreover, network structures themselves foster the development of different forms of social capital (i.e., bonding and bridging).

The literature on small-scale tourism enterprises is limited, although they are prevalent globally and often touted as a critical strategy for natural resource-rich communities to pursue endogenous economic development. This study was carried out in North Carolina’s Pamlico Sound region, a region with rich wildlife resources yet with high economic disparity, to examine the network developed among local wildlife tourism (WT) microentrepreneurs. Specifically, this study examined the WT microentrepreneurs’ network structure based on the types of support exchanged with each other; the forms of bonding or bridging network structure and key influencers within the network; the extent and type of network ties (strong versus weak ties) developed among them; the process they use to form and nurture those ties; and the effect of social influence on trust, reciprocity, and togetherness exerted through network structure.
Results revealed that, in the studied WT microentrepreneur network, there is a prevalence of business ties (i.e., weak ties) over family and friends ties (i.e., strong ties). WT microentrepreneurs reported to receive support from each other in terms of marketing and advertising, information sharing, and product support. Business connections were established and nurtured primarily through face-to-face interactions in professional workshops and seminars, as well as working in the same natural areas, or in informal meetings at the local supply stores. Dimensions of cognitive social capital, such as reciprocity, togetherness, and trust were found to play a critical role in the maintenance of these business connections, but the level of reciprocity, togetherness, and trust were found to diminish with increased number of business ties. Further, microentrepreneurs’ level of trust and reciprocity in the network was influenced by the levels of trust and reciprocity reported by their direct ties. Lastly, the structure of the network revealed that the members were aggregated into loosely formed subgroups connected with each other by redundant bridging ties. Those bridging ties consisted of influential members in the network recognized for providing much support to their peers and for preventing network fragmentation.

Overall, this study contributes towards a better understanding of the networking behavior of WT microentrepreneurs, revealing that social networking, social capital, and social influence theories apply partially to the context of microentrepreneurship. Further, the study provides specific actionable insights for organizations working in the area of microentrepreneurial tourism development, wildlife or coastal resource management, and endogenous rural development.
Examining Networks, Social Capital, and Social Influence among Wildlife Tourism Microentrepreneurs in Coastal North Carolina

by
Birendra KC

A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy

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DEDICATION

This dissertation is dedicated to my family for their unwavering love, support, and encouragement.
BIOGRAPHY

Birendra KC is originally from Pokhara, Nepal. He received his Bachelors’ of Science degree in Forestry from Institute of Forestry, Tribhuvan University, Nepal. He received his MS degree in Forestry from University of Kentucky. In 2012, he joined the Department of Parks, Recreation and Tourism Management at NC State University to pursue his passion for research and teaching. His broad research interests include sustainable tourism, community sustainability, and natural resource management.
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CHAPTER 1: Introduction

Background

Wildlife tourism (WT), as a subset of nature-based tourism is becoming an increasingly important component of tourism globally (Reynolds and Braithwaite 2001, Rodger et al. 2009, Wolter 2014). With the growing demand for the niche market of WT, there should be increasing opportunities for local communities to participate in the WT industry. Microentrepreneurial development is often touted as an effective way to improve rural livelihoods. Since rural areas are rich in wildlife resources, WT microentrepreneurship is often advocated as a means to advance the dual goal of economic development and wildlife conservation (Udaya Sekhar 2003, Wilson and Tisdell 2003, Morais et al. 2015). Wildlife resources are valuable for biodiversity but they are also an important tourist attraction that create a platform for economic revitalization (Pienaar et al. 2013). Wildlife-based enterprises are argued to foster the diversification of income sources and are considered a strong tool for supporting sustainable rural livelihoods (Zander et al. 2014). Thus, WT microentrepreneurship can be used as a tool to promote community well-being and resource conservation through sustainable use of local natural/wildlife resources (Turner et al. 2012, Morais et al. 2015).

Literature suggests that economic benefits coming from wildlife resources help to create human empathy for wildlife, and therefore make local communities more supportive for wildlife conservation (Udaya Sekhar 2003, Wilson and Tisdell 2003, Morais et al. 2015). Moreover, the consensus about the mutualistic relationship between WT and conservation is
widely documented in the literature (e.g., Orams 1997, Udaya Sekhar 2003, Morais et al. 2015). Nevertheless, WT microentrepreneurship itself is not a panacea to address the dual goal of economic development and resource conservation. Often opportunities created by the WT industry are dominated by outside investors, and only a small proportion of the benefits go to the rural communities (Manyara and Jones 2007, Morais et al. 2015). First, rural communities are obligated to compete with profit driven large-scale companies, while there are several obstacles specific to small and medium-scale tourism enterprises (Mueller 2006, Rogerson 2006, Manyara and Jones 2007, Cooney and Shanks 2010). Therefore, localization of economic benefits coming from the WT industry is constrained by many factors.

Nevertheless, there are alternative ways that WT microentrepreneurs can use to harness economic benefits from the growing WT industry. The existing literature clearly suggests that social networks and social capital are important elements of entrepreneurship, where social capital is often defined as the collective linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks (Putnam 1995, Neergaard et al. 2005, Hoskisson et al. 2011). Developing extensive networks is essential to access ideas and resources required for business growth and success. Social networks act as a platform for interaction and activation of reciprocal relationships with other members in the network to positively influence the entrepreneurial process. Therefore, the way in which the microentrepreneurs positions themselves in the network, as well as the characteristics of the network, determines the microentrepreneurs' success (Burt 1992, Greve and Salaff 2003, Ulhøi 2005).
In order to delve into the issue of rural livelihoods and benefits accrued from the WT industry, it is necessary to understand microentrepreneurship in the context of WT which remains an understudied phenomena. Among the critical factors influencing microentrepreneurial success, networking stands out as a particularly important aspect, especially in geographically dispersed, low-resource, and somewhat informal contexts where microentrepreneurs have limited opportunities for interaction. Accordingly, the purpose of this study was to examine how a WT microentrepreneur network is structured, how resources flow among its members, and how bonding, bridging, and cognitive social capital persist in the network.

Namely, this study examined WT microentrepreneurs’ network structure, as well as the process through which the network ties are created and maintained. Additionally, this study examined dimensions of cognitive social capital (e.g., trust, reciprocity, and togetherness) among WT microentrepreneurs due to its importance in facilitating cooperation among network members (Jones 2005, Light and Dana 2013). An individual adapts one’s behaviors and attitudes based on how other connected peers reciprocate in the network (Leenders 2002), this phenomena is referred as social influence. Therefore, the level of trust, reciprocity, and togetherness among WT microentrepreneurs is likely to have an effect of social influence. Accordingly, the level of trust, reciprocity, and togetherness among WT microentrepreneurs was evaluated for an effect of social influence that occurs through network structure. On the other hand, well-connected network structure (i.e., strong bonding) is considered to promote a close-knit trusted group or often fragmented cohesive sub-groups, with some negative consequences, such as excluding outsider members, while bridging
network structure avoids social fragmentation (Agnitsch et al. 2006, Ramirez-Sanchez and Pinkerton 2009). Consequently, the network structure itself can provide important information about how WT microentrepreneurs are garnering the benefits from WT business network by establishing connections to other similar businesses in the study region. Most importantly, an analysis of the network structure also allows to identify influential members in the network. This study therefore examined bonding and bridging forms of social capital through analyzing the WT microentrepreneurs’ network.

**Entrepreneurship**

Entrepreneurship is a purposeful activity to initiate, maintain, and develop a profit oriented business (Veen and Wakkee 2002). It is perceived as an engine that drives innovation and promotes economic growth (Wennekers and Thurik 1999, Kokkranikal and Morrison 2002, Lordkipanidze et al. 2005, Iakovleva et al. 2012). Entrepreneurship is noted for its positive impact on local economic development by fostering job creation, and enabling use of local knowledge and natural resources (Kokkranikal and Morrison 2002, Valliere 2014). On the other hand, entrepreneurship is considered to be a phenomenon that involves high degree of uncertainty and risk (Morrison et al. 1999, Casson and Giusta 2007, Zhao et al. 2011). Moreover, entrepreneurship is an individual approach, but it is shaped and nourished by socio-cultural environments (Casson and Giusta 2007, Yetim 2008). Therefore, entrepreneurs consistently rely on social networks to gather information and other resources required for the entrepreneurial process (Nahapiet and Ghoshal 1998, Veen and Wakkee 2002, Casson and Giusta 2007). Further, entrepreneurship is regarded as an opportunity seeking behavior (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011).
Social networks are especially important for entrepreneurs to be able to access ideas, information, and resources to positively influence the entrepreneurial process.

Social networks are often considered an important element of entrepreneurship (Hoskisson et al. 2011). Entrepreneurs seek legitimacy as well as a way to reduce unexpected risk by developing a connection with well-regarded individuals in the network (Taormina and Lao 2007). Social networks include both strong and weak ties (Hill et al. 1999, Anderson et al. 2005, Jack 2005), with each network ties having its unique contribution toward business outcomes. Family and friends ties refer to strong ties, whereas business connections indicate weak ties (Hill et al. 1999, Anderson et al. 2005, Yetim 2008). Strong and weak ties are also referred as formal and informal ties because relationships with business ties tend to be more formal than with family and friends (Birley 1985, Yetim 2008). Although strong ties provide valuable information and resources for entrepreneurial growth, these ties belong to the same social circle as the entrepreneur, therefore, strong ties usually do not offer new business opportunities (Anderson et al. 2005). On the other hand, weak ties consist of ties affiliated with the business enterprise; hence, weak ties offer resources and information much needed for the business. However, the extent of these ties might vary in different phases of entrepreneurship, with early entrepreneurship predominantly consisting of strong ties and of limited weak ties (Hill et al. 1999).

Social Capital

Social capital is an important theory in the field of social science which has gained wide acceptance as a successful theoretical perspective to understand social relations embedded in the social structures (Narayan and Cassidy 2001). Social capital is defined as
the collective linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks (Gabbay and Leenders 1999, Greve and Salaff 2003, Neergaard et al. 2005). Social networks provide a platform for information and resource exchange. They are the source of social interaction which is closely associated with the flow of information and resources (Zhao et al. 2011). Therefore, entrepreneurship is socially embedded in network structures (Casson and Giusta 2007). In this study, social capital is segmented into two different components. Social networks are considered structural social capital, while trust, reciprocity, and togetherness are categorized as cognitive social capital (e.g., Jones 2005). Structural social capital refers to overall connections within the network, which are the source for social interaction and information exchange (Jones 2005, Zhao et al. 2011). Conversely, cognitive social capital broadly captures the perception of support, trust, and reciprocity among the members of the network (Jones 2005). Both structural and cognitive components of social capital are interdependent. Although social networks provide a platform to reach out to other network ties to access information and resources, it is cognitive social capital that actually enhances the ability to utilize the resources embedded in those connections. Thus, trust and reciprocity are important factors that enhance cooperation among network ties in the favor of entrepreneurial success (Jones 2005).

In contrast, Putnam’s (2000) work in distinguishing bonding and bridging forms of social capital is an extension of Granovetter’s (1973) concept of strong and weak ties, which is well-recognized by many researchers (e.g., Agnitsch et al. 2006, Cheung and Kam 2010, Westlund and Gawell 2012). Social capital was originally conceptualized as an unreservedly positive resource. However, this “more is better” approach has been refuted and now
considered a “downside” of social capital (Agnitsch et al. 2006). Several researchers have reported that there is a negative effect of excessive embeddedness in a social network consisting of close-knit trusting group members (e.g., Portes 1998, Agnitsch et al. 2006, Eklinder-Frick et al. 2011). The challenges posited by these close-knit trusting groups enables origination of two different forms of social capital, bonding and bridging. Bonding social capital is inherently “inward-looking”, and it promotes exclusive identities and homogeneous group characteristics (e.g., associated with homogeneous resources). On the other hand, bridging social capital is inherently “outward-looking” and it fosters connection to other people or groups who are different from each other in some way, therefore, possessing heterogeneous resources (Putnam 2000, Hoang and Antoncic 2003, Jack 2005, Agnitsch et al. 2006, Berardo 2014, Mass et al. 2014).

Social Influence

The theory of social influence explains that an actor adapts one’s behavior, attitude or beliefs based on the behaviors, attitudes or beliefs of other actors in the network (Leenders 2002). Often existing cognitive social capital (e.g., trust, reciprocity, and togetherness) among actors in the network is not independent; instead, cognitive social capital tends to get affected by the level of cognitive social capital held among other actors in the network. Therefore, dimensions of cognitive social capital are more likely to have an effect of social influence. However, Leenders (2002) suggests that the precondition for social influence to occur is that an actor should be informed about the attitudes or behaviors of other actors. This study considers communication as a medium for social influence, where level of trust,
reciprocity, and togetherness is adjusted among network members based on the interaction with their connected peers.

In entrepreneurship, an individual entrepreneur relies on other members in the network to access ideas, information, and resources. Narayan and Cassidy (2001) also suggested that extent of ties can be less important than the nature of those connections, indicating that cognitive social capital factors, such as trust, reciprocity, and togetherness, can strongly control the quality of networks and resources coming from those network ties. The level of trust, reciprocity, and togetherness held among network members are more likely to influence their relationships. Therefore, the assumption behind the occurrence of social influence among entrepreneurs for dimensions of cognitive social capital (i.e., trust, reciprocity, and togetherness) holds true in this case.

Prospects of Wildlife Tourism Microentrepreneurship

Tourism is the largest and fastest growing industry in the world (Aitchison 2001, de Freitas 2003, Lordkipanidze et al. 2005, Naidoo et al. 2011), with an average growth of 3% per year (Curtin and Kragh 2014). The World Travel and Tourism Council (2014) estimated that tourism contributes 9.8% of the gross domestic product (GDP) on global economy. Travel and tourism industry is one of the United States’ largest industries. In 2014, travel and tourism industry in the United States generated $2.1 trillion of economic output, which contributed $141.5 billion in tax revenue to local, state, and federal governments (U.S. Travel Association n.d.). Recently, nature-based tourism is receiving significant attention from researchers, which is considered to be growing faster than tourism in general (Mehmetoglu and Normann 2013). WT is a subset of nature-based tourism (Wolter 2014), which attracts
millions of people to engage in wildlife-related recreational activities, and has become an important component of tourism globally (Reynolds and Braithwaite 2001, Newsome et al. 2005, Rodger et al. 2009).

“Human fascination with animals has been around as long as the two have co-existed on planet earth” (Newsome et al. 2005:1). Many people interact with wildlife for spiritual and cultural reason, while hunting for food and sport existed for thousands of years; however, observing wildlife for recreational purpose is considered a recent phenomenon (Orams 2002). WT is defined as any tourist activity having wildlife as its primary focus of attraction, which consists of travelling to interact with non-domesticated animals in consumptive and non-consumptive ways in a natural environment (Burns and Howard 2003, Yuan et al. 2004, Ballantyne et al. 2011, Catlin et al. 2011). Consumptive forms of WT include fishing and hunting, while non-consumptive forms include wildlife watching, birding, and wildlife photography. While the popularity of WT growing, wildlife dependent rural communities get opportunities to engage in small-scale WT businesses (Udaya Sekhar 2003, Pienaar et al. 2013). Therefore, the development of WT industry has the potential to contribute to the economic well-being of the rural communities (Morais et al. 2015). Consequently, involvement of local communities in small-scale WT business promotes sustainable rural livelihoods (Zander et al. 2014).

Often tourism is considered as a strategy for poverty reduction and economic development with emphasis on microentrepreneurship (Manyara and Jones 2007, Dalglish 2008, Cooney and Shanks 2010). WT promotes tourism opportunities based on local natural resources that revitalize regional development and enhance of rural livelihoods. However, the
WT industry often fails to ensure local communities’ involvement, where local communities play crucial role in boosting local economy, as well as for management and conservation of local natural resources. Exclusion of local communities from management and conservation of resources leads to destructive use of resources, while their involvement in resource conservation and benefit sharing incentivize them to become good stewards of resources (Agrawal and Gibson 1999). There are many examples for the failures of fortress conservation policies due to the lack of involvement of local communities (Igoe 2004). Generally, evidence reveals that externally imposed restrictions over the way communities can use and manage neighboring natural resources, undermines local eco-dependent livelihoods opportunities, makes communities resistant to conservation efforts and requires onerous policing of the natural resources. By promoting WT microentrepreneurship, it may be possible to achieve the dual goal of ensuring conservation and improving community well-being (Morais et al. 2015). Therefore, WT microentrepreneurship can be an effective strategy to preserve local natural resources, while fostering rural economy.

**Research Questions**

This study allows several interesting research questions to better understand WT microentrepreneurship. This section outlines some guiding research questions used to examine various aspects of WT microentrepreneurship in the context of North Carolina’s Pamlico Sound region.
Chapter 2: “We all fish in the same hole”: Characterizing networks of wildlife tourism microentrepreneurs

Research question 1: To what extent are family, friends, and business ties present among WT microentrepreneurs?

Research question 2: What type of support do entrepreneurs receive from family, friends, and business ties?

Research question 3: How are network ties created and maintained in the WT network?

Chapter 3: Understanding the effect of social influence on cognitive social capital among wildlife tourism microentrepreneurs

Research question 1: Is there a presence of social influence among WT microentrepreneurs for the dimensions of cognitive social capital?

Research question 2: Is there an association between the dimensions of cognitive social capital and number of business ties?

Research question 3: Is there an association between the dimensions of cognitive social capital and entrepreneurial characteristics (i.e., entrepreneurial motivations, length of business establishment, and entrepreneurial success)?

Chapter 4: Analyzing bonding and bridging forms of social capital among wildlife tourism microentrepreneurs

Research question 1: To what extent are bonding and bridging network structure formed in the WT microentrepreneur’s business network?
Research question 2: How is bonding and bridging social capital developed among WT microentrepreneurs?

Study Setting

The tourism industry generates an array of economic benefits to communities by allowing access to wildlife resources, particularly through entrepreneurship. Further, it is considered to promote both economic well-being and wildlife conservation due to direct incentive coming from WT (Ashley and Roe 1998). In fact, WT in the United States is widespread. In 2011, there were 90.1 million people enjoying wildlife related activities in the U.S., with an expenditure totaling approximately $145 billion. In North Carolina alone, there were ~3.5 million people enjoying wildlife related activities, which contributed ~$3.3 billion to the state’s economy (U.S. Fish and Wildlife Service 2011). WT activities create millions of jobs in the U.S. and provide revenue to rural communities engaged in WT businesses (Wallace et al. 2009, Dalrymple 2010). Indeed, North Carolina is popular tourism destination for tourists and ranks among the sixth most visited state for domestic visitors (North Carolina Department of Commerce n.d.). A large proportion of the tourists visit for nature-based/wildlife tourism as the state offers high quality fishing and hunting opportunities along with several wildlife watching opportunities (Dalrymple 2010, The Official Travel and Tourism Website for North Carolina n.d.).

The state of North Carolina is popularly known for its rich nature-based tourism opportunities. The coastal region, in particular, is a tourism hot-spot. North Carolina focuses on the quality of the travel and tourism industry, and much of this hinges upon its natural resources. The state further promotes a localization of benefits from tourism industry, aimed
at improving rural livelihoods. For example, the North Carolina Jobs Plan is a 10-year strategic plan. It prioritizes the promotion of small-scale businesses, and entrepreneurship to market natural resources and outdoor activities in favor of rural communities (North Carolina Jobs Plan 2013).

North Carolina’s coastal region is comprised of 20 counties with a total population of 1.02 million people, which accounts for 10% of the population of North Carolina. However, the population is concentrated in the southern coastal counties, where New Hanover, Onslow, and Brunswick make up for approximately half of the population (Lawrence et al. 2015). The coastal region has slightly lower levels of poverty (16.7%) than the state overall (18%), however, the unemployment rate is higher (8.4%) than the statewide unemployment rate (8.1%) (Lawrence et al. 2015). Some coastal counties are less economically distressed than the others. For example, NC Department of Commerce annually ranks the state’s 100 counties into 3 different tier designations (i.e., 1-3, 1 being more economically distressed compared to 2 and 3). The tier designations are based on economic well-being, which accounts for four factors: average unemployment rate, median household income, percentage growth in population, and adjusted property tax base per capita (North Carolina Development Tier Designations 2015). In particular, counties around the Sound region, such as Beaufort and Hyde fall under tier 1, while Pamlico and Craven fall under tier 2, and Carteret falls under tier 3. Thus, WT in the region can be an option to help mitigate economic disparity among coastal counties and their communities, specifically in the Pamlico Sound region, by involving local communities in the WT industry.
The coastal region of North Carolina is unique in several ways. Coastal North Carolina retains 10 wildlife refuges, which preserve biodiversity and wildlife habitat but also enrich WT opportunities (U.S. Fish and Wildlife Service n.d.). The Pamlico Sound region, and other wildlife refuges (e.g., Mattamuskeet National Wildlife Refuge, Swan quarter National Wildlife Refuge, and Cedar Island National Wildlife Refuge), provide many WT opportunities for tourists, such as sightseeing tours, wildlife photography, dolphin and whale watching tours, fishing, and hunting. Shackleford Banks, is a barrier island on the Coast of Carteret County. It is popularly known as a habitat for wild horses, and is a home to more than 100 wild horses (National Park Service n.d.). There are WT businesses offering services including but not limited to sunset/moonlight cruise or moonlight kayaking along the Pamlico River, and charter boat guides that offer half-day/full-day fishing and hunting trips to the Pamlico Sound and surrounding River system, which further extends towards nearshore and inshore area.

Some of the major cities and towns surrounding the Sound region include Morehead City, Beaufort, Atlantic Beach, Oriental, Bath, Belhaven, Washington, and New Bern. There are several other tourist attractions, such as local museums (e.g., The Core Sound Waterfowl Museum and Heritage Center), Cape Lookout National Seashore, and state parks (e.g., Fort Macon State Park) that enhance tourism opportunities. Wildlife tourists have many opportunities for wildlife-related recreation activities but the area also provides additional opportunities for tourists to enjoy the natural settings, the local culture, and its history.
The Pamlico Sound is the largest lagoon along the east coast of the United States (Figure 1.1). Its shallow water level provides an excellent fishing opportunities for small-size boats, which are easy to navigate. In addition, it is less affected by weather in comparison to offshore fishing as it is surrounded by the barrier island. Furthermore, fishing in the Sound is more cost effective than fishing offshore because it reduces the amount of travel. The Pamlico Sound is also popularly known as the fishing gem of North Carolina (Settlage 2012). The Pamlico Sound region, therefore, is a prime study site for research examining the ways WT microentrepreneurship may develop in contexts of scarce economic resources and high natural resources.

As discussed earlier, small-scale enterprises in the area of WT are thriving in the region, especially those focusing on running guiding trips for recreational fishing, hunting, and wildlife watching. These tourism services are offered throughout the year. Guiding fishing trips, especially recreational fishing is quite popular in the region, although waterfowl hunting (e.g., duck hunting) and wildlife viewing aspect of WT is equally in important pull factors for tourists. In particular, red drum fishing is very popular in the Sound and is considered world-class. However, inshore, nearshore, and offshore fishing for other species are very common. There is a unique opportunity for duck hunting in the winter season along with bear and deer hunting. WT microentrepreneurs own properties to guide hunting or lease properties across other counties to guide those hunting trips. More often wildlife watching is part of these fishing and hunting trips; however, some WT businesses are independently established only for eco-tours focusing on wildlife viewing and photography.
All the coastal counties surrounding the Pamlico Sound are categorized as rural, based on an average population density of 250 per square mile or less (The Rural Center n.d.). Tourism is promoted as one of the primary economic development activities in the region. The coastal counties around the Pamlico Sound are less developed for commercial purpose (e.g., Pamlico County) as compared to other coastal destinations in the state, such as outer banks area (Information generated through personal communication with key informants). The availability of diverse nature-based recreational activities in the region, much of which has been unaffected by commercial development, has preserved a rustic environment that appeals to the nature lovers. Therefore, the Pamlico Sound region has a strong potential to retain and develop the area for nature-based/wildlife tourism, while fostering economic growth in the region.
Methodology

Research Design

The study used mixed methods research design. This type of research design is gaining popularity because combination of quantitative and qualitative methodologies afford different and at times complementary insights into research questions (Creswell 2009).

Figure 1.1: Study Area

(Source: NOAA’s Office of Coast Survey)
Coviello (2005) argues that social networks consist of both quantitative and qualitative dimensions. Both structural component of the network and the process behind formation of the network allow us for better interpretation of the contextual facts about the network. Jack (2005:1255) stated that, “To understand the mechanisms and processes which influence the operation and function of networks it is vital to look beyond the shape and form of the network. This can only really be achieved through qualitative work.” Thus, mixed methods design is suitable for studying social networks. Additionally, this study used a quantitative approach to measure level of trust, reciprocity, and togetherness including other entrepreneurial characteristics, such as entrepreneurial motivation, entrepreneurial success, overall business ties, and length of business establishment. While looking at the association between those quantitative variables, descriptive field notes were taken during the interviews to better understand the context of WT microentrepreneurship. These notes were later used to describe the quantitative results.

The combined use of quantitative and qualitative approaches provides better understanding of the research problems (Creswell 2009). In this study, a qualitative approach is incorporated within quantitative approach to better understand the process and content of the network (Jack 2005). Qualitative approach (i.e. in-depth interviews) is considered to provide thick description about networking (Tinsley and Lynch 2001, Anderson et al. 2005). According to Creswell (2009), there are several types of mixed method research designs based on the timing (i.e. timing of quantitative and qualitative data collection and whether it is collected in phases-sequentially or at the same time-concurrently); weighting (i.e. prioritizing the importance of quantitative or qualitative research); and mixing (i.e. the
process of combining the quantitative and qualitative data). This study used concurrent embedded design where quantitative approach is the primary form of data collection, however, qualitative data were collected at the same time to describe quantitative data (Creswell 2009).

Pre-Study Field Visits

Pre-study field visits were conducted from May-August, 2014 as a preliminary assessment of the project. Pre-study field visits had two-fold purpose. First of all, it was essential to familiarize with the study region and understand the type of WT businesses available. Second, opportunities were sought to build rapport with the key informants (e.g., local residents working at the museum and wildlife refuges) and the study participants. During this process, potential study participants were identified and generated a list of WT microentrepreneurs in the region. Because involvement of local communities in WT businesses included both formal and informal, while some of the businesses were established for a long time but were mainly dealing with repeat customers. Therefore, pre-study field visits were necessary as a preliminary assessment of the project to identify potential study participants.

Due to the nature of the study (e.g., social network analysis), it was necessary to focus on a particular region to capture the network of WT microentrepreneurs. Initially, field visits were made to meet the employees of wildlife refuges in the east coast NC, and several other meetings with cooperative extension agents and North Carolina Sea Grant staff in the region to evaluate the feasibility of the project. After the Pamlico Sound region was chosen to examine WT microentrepreneurs’ network exhaustively, a series of informal meetings
were conducted with cooperative extension agents and other key informants to facilitate the participant identification process. Some of the contacts were generated from local bait and tackle shops. Additionally, participants were searched online, especially WT microentrepreneurs involved in guiding business for fishing, hunting, and wildlife watching. This process of identifying study participants also helped to build rapport with the local residents, local stakeholders, and the actual study participants which in turn accelerated the data collection process.

**Structured Interview Protocol**

The structured interview protocol (Appendix A) was developed primarily including quantitative questions. Qualitative questions were included to delve into the contextual understanding of the WT microentrepreneurship. Specifically, qualitative questions were included to better understand the process of network creation and maintenance. In addition, the protocol included item scales to measure dimensions of cognitive social capital, and other questions related to entrepreneurial characteristics, such as item scales to measure entrepreneurial motivations, one item scale to measure WT microentrepreneurs’ entrepreneurial satisfaction, length of business establishment, and questions on demographic information.

Egocentric data on network ties were collected through the recall method (Crona and Bodin 2011), where information extracted from the participants is usually driven by individual participant. Participants were asked to list network ties supportive to their businesses. Accordingly, information was collected on length of connection, type of support they receive from each tie (i.e., marketing and advertising, information sharing, emotional,
and others), mode of communication (i.e., email, phone, in-person, and other), frequency of communication (i.e., daily, weekly, monthly, quarterly, and annually), and importance of those ties in business success (i.e., 1-not at all important and 5-extremely important). Qualitative questions were asked to understand how business networks were established and maintained over time among WT microentrepreneurs.

The data on dimensions of cognitive social capital (i.e., trust, reciprocity, and togetherness) and entrepreneurial motivations (i.e., passion, independence, income, and role modeling) were collected. There were 9 item scales developed for dimensions of cognitive social capital, with 3 item scales for each dimension (Narayan and Cassidy 2001, Jones 2005, Yetim 2008). These items were measured on a five-point Likert scale (i.e., 1-strongly disagree and 5-strongly agree). The items used for trust included, “Most people in my business network are honest”; “I think people in my business network can be trusted”; and “I feel like people in my business network trust me”. The items used for reciprocity included, “People in my business network are not solely interested in their own welfare”; “If I have a problem, there is always someone in my business network to help me”; and “I am willing to offer help to people in my business network, if needed”. Similarly, the items used for togetherness included, “I have a good rapport with people in my business network”; “I think people get along very well in my business network”; and “People in my business network socialize with each other very often”.

Similarly, four entrepreneurial motivation factors (Carter et al. 2003, Shane et al. 2003, Alstete 2008, Hessels et al. 2008, Krishnan and Kamalanabhan 2013) were included in the structured interview protocol. Those entrepreneurial factors were passion, independence,
income, and role modeling. There were 3 item scales for each entrepreneurial motivation factor. All the items were measured on a five-point Likert scale (i.e., 1-strongly disagree and 5-strongly agree). The items for passion included, “I am highly passionate about owning a business”; “I feel like my involvement in owning a business reflects my personal interests”; and “I have a love for my business network”. The items for independence included, “Owning a business makes me independent”; “I enjoy being a boss in my business”; and “Owning a business gives me greater flexibility for my personal and family life”. The items for income included, “Owning my business allows me to support my family”; “My business provides me with greater income than other equally enjoyable careers”; and “Owning a business provides financial security”. Lastly, the items for role modeling included, “I own a business to continue family traditions”; “I own a business to follow the example of a person I admire”; and “One particular person has had a great influence on my decision to own a business”.

Similarly, structured interview protocol also included questions on job status (full-time or part-time), income coming from WT, length of business establishment, and one item scale to assess entrepreneurial success in terms of entrepreneurial satisfaction (i.e., How satisfied are you with your current entrepreneurial activities?). The item on entrepreneurial satisfaction was measured on a five-point Likert scale (1-very dissatisfied and 5-very satisfied). Lastly, demographic questions included for age, gender, education (7 categories ranging from less than 9th grade to graduate or professional degree), and annual household income (10 categories ranging from less than $10,000 to $200,000 or more).


Collection of Structure Interview Data

The data were collected through in-person structured interviews. WT microentrepreneurs were recruited based on their involvement in small-scale businesses specific to recreational fishing, hunting, and wildlife viewing. Most of these businesses were independent and managed by a single owner or were family owned. Various options were employed to generate initial list of contacts in the study region as described in the “Pre-study field visits” section. Both emails and phone calls were used to set up interviews with the participants from the initial list of contacts generated. Crona and Bodin (2011) identified recall and recognition method of data collection. This study used the recall method due to lack of information about the complete list of WT microentrepreneurs at the point when data collection started.

In egocentric data collection of network ties (Marsden 1990, Wasserman and Faust 1994, Greve and Salaff 2003, Crona and Bodin 2011), information extracted from the participants is usually driven by individual participants. Further, the use of recall method of data collection limits the number of ties identified because it is hard for individuals to memorize all their network ties and enumerate them exhaustively during their interviews. Nevertheless, the data collected in the study referred only to support ties; therefore, these limitations of the recall method did not significantly affect this particular study.

Following the initial list of contacts generated through various ways, a chain referral process (Biernacki and Waldorf 1981) was used later to identify other participants for the study. Each participant was asked to give names for 3 to 5 peer WT microentrepreneurs in the region. All the participants identified for this study reported their involvement with at
least some form of WT (i.e., fishing, hunting, and wildlife viewing). The chain referral process was particularly appropriate for this study because WT microentrepreneurs operated at various levels of visibility, and many were only willing to be interviewed after they were contacted by a couple of their more respected peers. More often microentrepreneurs were affiliated to more than one form of WT business. The data were collected from November, 2014 through February, 2015. A total of 37 WT microentrepreneurs were interviewed for the study who were primarily engaged with guiding trips for fishing, hunting, and eco-tours, but also the owners of bait and tackle shops/outfitters. The interviews took between 45 minutes to 2 hours to complete, where it was longer for the participants with larger support networks in comparison to the participants with fewer support networks.

**Data Analysis**

Data collected through in-person structured interviews were later entered in Microsoft Excel. Each study participant was assigned with an identification number from 1 through 37 (e.g., EID1-EID37) in order to maintain confidentiality. Descriptive statistics were used to present the results on network characterization including demographic information. Visualization of the network structure was performed using Netdraw in UCINET 6, a social network analysis software distributed by Borgatti et al. (2002). Both Statistical Packages for the Social Sciences (SPSS) 22.0 and statistical software R were used to address the quantitative research questions. Exploratory factor analysis (EFA) was performed in order to assess the soundness of the scales used for dimensions of cognitive social capital and entrepreneurial motivation factors. Similarly, Cronbach’s alpha was used to test the internal consistency (Cortina 1993, Morais 2000) among item scales for each dimension of cognitive
social capital and entrepreneurial motivation factor. The linear network autocorrelation model (Leenders 2002) was ran in the statistical software R. Lastly, k-core and cut-point analyses were performed in Netdraw in UCINET 6 (Borgatti et al. 2002).

Bernard (2011) describes descriptive field notes as a written document developed from listening to the interviews. These descriptive field notes were qualitatively analyzed to understand the process of creating and maintaining the network. Qualitative approach was used only for a small component of the study to better understand the process of establishing the network and how they are maintained, especially among WT business network ties. Descriptive field notes were read and re-read by the researcher to sub-categorize the codes under the major categories of “network creation” and “network maintenance”. This process of qualitative analysis resembles selective coding as described by Strauss and Corbin (1998) and Henderson (2006); however, the analysis process was less rigorous, which falls under the realm of thematic analysis. Still, thematic analysis is considered a flexible and useful research tool that provides rich and detailed account of the data (Vaismoradi et al. 2013). Due to the nature of data collection (e.g., in-person structured interviews), interviews were audio recorded and copious descriptive field notes taken during each interview. The audio recordings were not transcribed verbatim for this study because those data were not used as the starting point of the analysis. Rather, sections of the interview recordings were transcribed selectively in support of descriptive field notes. In fact, the quotes were specifically extracted from the selective transcriptions to support the arguments as well as to provide deeper interpretations to quantitative results.
Delimitations

The results are confined to the study region, specifically to WT microentrepreneurship because social networks and social capital functions are more likely to be contextual (Ramirez-Sanchez and Pinkerton 2009) and, therefore, not highly generalizable. However, the importance of dimensions of cognitive social capital (e.g., trust, reciprocity, and togetherness) for good reciprocal relationships is proposed by many researchers and largely supported by the existing literature (e.g., Narayan and Cassidy 2001, Jones 2005, Zhang et al. 2008, Ramirez-Sanchez and Pinkerton 2009, Anderson et al. 2010, Chen et al. 2015). On the other hand, entrepreneurial phenomena are more likely share similar characteristics, for instance, entrepreneurship is an opportunity seeking behavior (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011). The entrepreneurship literature and other cognate theories that explain or interpret entrepreneurial phenomena, such as social capital and social influence are widely accepted. Because the study is grounded based on the extensive literature that supports research questions and assumptions in the study, findings from this study may be compared to similar studies in an attempt to expand and replicate the study in related contexts.

Limitations

Boundary specification issue: The characteristics of the population were pre-specified in order to avoid boundary specification problem (e.g., study participants includes microentrepreneurs involved in guiding trips for recreational fishing, hunting, and wildlife watching). Further, the study was carried out to understand the overall support network for WT microentrepreneurs, as well as the extent of support received or exchanged among WT
microentrepreneurs. The study basically captures only the support network. In fact, this study examined the entrepreneurial phenomena to reflect the WT microentrepreneurs’ efficiency to access resources from network ties including family, friends, and business ties. Therefore, looking at only support network ties was deemed more important. Nevertheless, future studies can explore the formation of network beyond support ties.

**Egocentric data collection using recall method:** This study employed egocentric data collection process through the recall method (Crona and Bodin 2011) considering the lack of information for all the WT microentrepreneurs in the region, especially at the point of data collection. Therefore, the information was collected supporting ties regardless of their affiliation to strong ties or weak ties (Hill et al. 1999, Anderson et al. 2005, Jack 2005), as long as they were receiving some kind of support. However, the use of recall method can limit the number of ties identified because it is difficult to memorize the support network ties during the interview process.

**Estimating the effect of social influence:** Social influence among WT microentrepreneurs within the WT business network was examined which is considered to ingrain through structural network. However, social influence process was considered to occur only from communication, for example, the level of trust, reciprocity, and togetherness among WT microentrepreneurs is influenced if reported to receive support directly from the network ties. While examining social influence, connected peers were weighted equally for influencing each individual WT microentrepreneurs’ level of trust, reciprocity, and togetherness. Moreover, dimensions of cognitive social capital were measured for business network in overall but measuring them for individual business ties can lead to appropriate W
specification (i.e., weight matrix). Future studies can address all the limitations explained here to expand on their research questions.

**K-core and cut-point thresholds:** Analysis of network structure for bonding and bridging forms of social capital through quantitative measures, such as k-core and cut-point (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009, Scott 2013) is definitely helpful. However, there is no threshold established for quantitative measures on k-core and cut-point to decide on the type of bonding and bridging network structure, which posited some challenges. Network structure is described in relation to the characteristics of network configurations (Crowe 2007) and the contextual understanding of the network with support of entrepreneurial phenomena.

**Definitions of Terms**

**Wildlife tourism (WT):** WT is defined as any tourist activity having wildlife as its primary focus of attraction, which consists of travelling to interact with non-domesticated animals in consumptive and non-consumptive ways in a natural environment (Burns and Howard 2003, Yuan et al. 2004, Ballantyne et al. 2011, Catlin et al. 2011). In the context of this study, WT microentrepreneurs reported their involvement to more than one form of WT because more often wildlife watching was described as a part of fishing and hunting.

**Tourism microentrepreneur:** Tourism microentrepreneurs are not clearly defined or examined in the literature very well (Morais et al. 2012, LaPan 2014). Mao (2014) defined tourism microentrepreneurs as tourism service providers (e.g., arts, entertainment, and recreation) with not more than 4 employees. Krishnan and Kamalanabhan (2013) used a set
of criteria, for instance, number of employees (i.e., less than 20 employees), length of business establishment (i.e., operating for at least 3 years), and ownership of the business (i.e., standalone business and not a franchise). Morais et al. (2015) on the other hand, defined WT microentrepreneurs as the owners of small-scale businesses (formal or informal) devoted to the provision of WT tourism experiences focused on consumptive and non-consumptive forms of wildlife. Therefore, in general, tourism microentrepreneurs are the owners of small-scale tourism businesses.

Wildlife tourism microentrepreneur: In this study, WT microentrepreneur is defined as an entrepreneur (1) running a formal or informal standalone business entity related to recreational fishing, hunting, and wildlife viewing; and (2) having less than 5 full-time employee (non-family).

Social network analysis: Social network analysis is a technique to assess the networks of relationships by mapping and analyzing relationships among entrepreneurs (Racherla and Hu 2010).

Social capital: There are several definitions for social capital in the literature. In this study, social capital is defined as the collective linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks (Gabbay and Leenders 1999, Greve and Salaff 2003, Neergaard et al. 2005). Further, social capital is sub-divided into structural social capital (i.e., WT microentrepreneurs’ network) and cognitive social capital that captures the meaning of trust, reciprocity, and togetherness (Jones 2005).
**Social influence:** The theory of social influence explains that an actor adapts one’s behavior, attitude or beliefs based on the behaviors, attitudes or beliefs of other actors in the network (Leenders 2002). Therefore, dimensions of cognitive social capital, such as trust, reciprocity, and togetherness are no more considered independent, instead are influenced by their connected peers.

**Trust:** Trust is defined as a mutual confidence in one another’s moral integrity or goodwill (Ring and Ven 1994, Ulhøi 2005).

**Reciprocity:** Reciprocity is characterized by short-term altruism and long-term self-interest (Putnam 2000). People usually intend to help others when they feel assured that their own altruistic actions will be rewarded at some point in the future (Stathopoulou et al. 2004).

**Togetherness:** Togetherness is used as one of the dimensions of social capital by Narayan and Cassidy (2001). Togetherness measures the social bonding among entrepreneurs that assesses the rapport among them and evaluate how well entrepreneurs get along with each other within a given setting.

**K-core:** A k-core is a maximal subgraph in which each node is adjacent to at least k other nodes, where all the nodes within the k-core have a degree greater than or equal to k (Crowe 2007, Scott 2013).

**Cut-point:** Cut-point in a network refers to a collection of specific nodes, where its removal would break the number of components into two or more sub-groups (Scott 2013).
*Note: The terms “Actor”, “Ego” and “Node” are used interchangeably to indicate WT microentrepreneur in the network.

**Significance of the Study**

The literature has widely recognized the importance of social networks and social capital in entrepreneurship (Hoskisson et al. 2011, Zhao et al. 2011). Recently, SNA technique has been used to investigate various issues in the area of natural resource governance (e.g., Ramirez-Sanchez and Pinkerton 2009, Crona and Bodin 2011, Mannetti et al. 2015); it is especially interesting to examine how community members cooperate or network with others in regards to usage of natural resources. On the other hand, dimensions of cognitive social capital, such as trust, reciprocity, and togetherness are embedded in the networks, which are considered to facilitate the cooperation between network members (Jones 2005, Light and Dana 2013). Leenders (2002) further argues that dimensions of cognitive social capital may not be independent but are instead influenced by their connected peers in the network. Therefore, theory of social influence is highly related to social capital (e.g., structural and cognitive). Despite the importance of trust, reciprocity, and togetherness, the literature still lacks to connect these two interrelated concepts. Moreover, there is a research gap where overlapping effect of structural and cognitive social capital with social influence remains unrecognized thus far. Therefore, this study addressed this research gap by examining the effect of social influence on dimensions of cognitive social capital that occurs through network structure.
There are very few studies that examined bonding and bridging social capital through analyzing the network structure (e.g., Crowe 2007, Ramirez-Sanchez and Pinkerton 2009). However, none of the studies are conducted to analyze the entrepreneurial network structure. Formal and informal small-scale tourism businesses are thriving throughout the world (LaPan 2014), and have potential to promote rural livelihoods (Morais et al. 2012). Similarly, WT industry is becoming an important component of tourism globally (Reynolds and Braithwaite 2001, Rodger et al. 2009), which can promote sustainable livelihoods by allowing rural communities to harness economic benefit from the WT industry (Zander et al. 2014). While recognizing the role of WT microentrepreneurship in creating sustainable livelihoods, this study attempts to contribute to this unexplored side of entrepreneurship. In doing that, this study combined the concept of entrepreneurship with broad theories of social capital and social influence using SNA technique. This study contributes towards established theories in entrepreneurship and has both theoretical and methodological contributions, especially in the context of WT microentrepreneurship.

**Dissertation Organization**

This dissertation follows a three-article format. Chapter 2 reports on a holistic examination of the WT tourism microentrepreneurs’ network. It characterizes the network structure in terms of strong versus weak ties, while assessing different kinds of supports received from each network tie. Further, it explores the process of creating and maintaining the network, particularly for business network. Chapter 3 examines whether there is presence of social influence among WT microentrepreneurs for dimensions of cognitive social capital (i.e., trust, reciprocity, and togetherness) that inheres through network structure. In addition,
it examines the relationships between dimensions of cognitive social capital and various factors affecting it, such as the number of network ties, entrepreneurial motivation factors, length of business establishment, and entrepreneurial satisfaction. Finally, Chapter 4 evaluates the bonding and bridging forms of social capital through analyzing the network structure of WT microentrepreneurs from the study region (e.g., WT business network). Altogether, these chapters contribute towards understanding the nature and characteristics of WT microentrepreneurs’ network, presence of peer influence among WT microentrepreneurs for dimensions of cognitive social capital, and the state of bonding and bridging forms of social capital fostered within the WT business network.
References


CHAPTER 2: “We all fish in the same hole”: Characterizing networks of wildlife tourism microentrepreneurs

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“We all fish in the same hole”: Characterizing networks of wildlife tourism microentrepreneurs

Abstract

Social networks are important element of entrepreneurship. Entrepreneurs rely on social networks to access ideas, information, and resources to facilitate the entrepreneurial process. Further, strong ties (i.e., family and friends ties) and weak ties (i.e., business ties) influence the entrepreneurial process in unique ways. In-person structured interviews were conducted with 37 wildlife tourism (WT) microentrepreneurs from North Carolina’s Pamlico Sound region to examine the extent of network ties, the type of support received from those network ties, and the process of creating and maintaining the business network ties. The average number of connections identified was 10.86 with weak ties more prevalent than strong ties. WT microentrepreneurs reported receiving support in terms of marketing and advertising, information sharing, and product sponsorship, which was mostly accrued from business ties. Business connections were established through professional workshops and seminars or while working in the same territory. The results also showed that cognitive social capital factors (i.e., reciprocity, togetherness, and trust) play pivotal role in maintaining business connections. This study suggests that cognitive social capital is highly important towards the effective use of social networks and, therefore, it is crucial for entrepreneurial success.

Keywords: Wildlife tourism microentrepreneurship, social networks, cognitive social capital, trust, reciprocity
Introduction

Wildlife tourism (WT) is a subset of nature based tourism (Wolter 2014), which is becoming an increasingly important component of tourism globally (Reynolds and Braithwaite 2001, Rodger et al. 2009). Tourism is the world’s largest and fastest growing industry (de Freitas 2003, Naidoo et al. 2011). However, WT is considered to be growing even faster than tourism in general (Mehmetoglu and Normann 2013). WT is defined as any tourist activity having wildlife as its primary focus of attraction (Catlin et al. 2011). It consists of travelling to interact with non-domesticated animals in consumptive and non-consumptive ways in a natural environment (Burns and Howard 2003, Yuan et al. 2004, Ballantyne et al. 2011, Catlin et al. 2011). Consumptive forms include fishing and hunting, whereas non-consumptive forms include wildlife viewing, such as dolphin watching, bird watching, or wildlife photography. Fishing is one of the most popular forms of outdoor recreation in the U.S. (Ditton et al. 2002), but hunting and wildlife watching activities are equally popular. WT is a mulita-billion dollar industry in the United States. In 2011, there were 90.1 million people enjoying wildlife recreational activities in the United States, with an expenditure of approximately $145 billion (U.S. Fish and Wildlife Service 2011).

The potential for local communities to participate in small-scale WT businesses increases with the growing niche market of WT. However, WT microentrepreneurship has not received much attention by scholars. In tourism, there has been a mounting attention devoted to the role of tourism in ensuring localization of benefits and livelihood improvement of the local communities (e.g., Nyaupane and Poudel 2011, Snyder and Sulle 2011).
In fact, small-scale tourism entrepreneurs are quite dominant worldwide, offering various tourism services (LaPan 2014), but there is a paucity of research examining tourism microentrepreneurship. The literature also suggests a general lack of research on small-scale enterprises (Szivas 2001, Ulhøi 2005), where studies on WT microentrepreneurship remain unexplored. Specifically, there is a research gap understanding the nature and characteristics of WT microentrepreneurship. Nevertheless, there is a growing interest in understanding the context specific knowledge about the entrepreneurial process among entrepreneurship practitioners and policymakers (Thornton et al. 2011, Turkina and Thai 2013).

The importance of social networks in entrepreneurship is well documented. Social networks are considered to play a vital role in garnering opportunities and resources required for entrepreneurial success. However, the research is lacking in examining the extent and nature of WT microentrepreneurs’ network. On the other hand, it is equally important to understand about the information or resources exchanged among network ties. In social network analysis (SNA) studies, not many researchers investigate how networks are formed or maintained over time, which is equally important as understanding the network structure. Accordingly, the purpose of this study was to examine the extent of network ties (i.e., family, friends, and business), the type of support received from those network ties, and the process of creating and maintaining the business network ties among WT microentrepreneurs.
Entrepreneurship and Social Networks

Entrepreneurship is a purposeful activity to initiate, maintain, and develop a profit-oriented business (Veen and Wakkee 2002). It is perceived as an engine that drives innovation (Iakovleva et al. 2012) and promotes economic growth (Wennekers and Thurik 1999, Kokkranikal and Morrison 2002, Lordkipanidze et al. 2005, Iakovleva et al. 2012). Entrepreneurship literature recognizes its positive impact on local economic development by stimulating job creation while utilizing local knowledge and natural resources (Kokkranikal and Morrison 2002, Valliere 2014). Indeed, small tourism businesses have the greatest potential in generating positive social, economic, and environmental outcomes for local communities because they tend to increase local agency over development, generate jobs and self-employment, rely on more inclusive supply-chains, and increase the value of cultural and natural resources (Morrison 2006, Morais et al. 2012). Veen and Wakkee (2002) suggested that the process of entrepreneurship should use term ‘value’ instead of ‘wealth’ to include both economic and non-economic outcomes. The pursuit of opportunity is considered fundamental in entrepreneurship, which encapsulates the process of opportunity recognition, opportunity exploitation, and value creation (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011). Social networks are critical in facilitating that process. Once opportunities are recognized, entrepreneurs become highly committed to exploiting opportunities (Veen and Wakkee 2002). Value creation takes place when entrepreneurs successfully recognize opportunities and exploit those opportunities, but the types of value creation depend on the interest of each individual entrepreneur (Veen and Wakkee 2002). Often non-economic factors can be significant stimuli for small tourism enterprises or, at
least, economic factors are complemented by non-economic factors (Ateljevic and Doorne 2000, Szivas 2001).

Researchers have noted that entrepreneurship is a complex phenomenon, characterized by high degrees of ambiguity and risk (Morrison et al. 1999, Casson and Giusta 2007, Zhao et al. 2011). Thus, accessing sufficient and reliable information is critical to entrepreneurs (Zhao et al. 2011). Although entrepreneurship is an individual endeavor (Casson and Giusta 2007), it is shaped and nourished by different socio-cultural environments and contexts (Yetim 2008). Social networks are important pre-requisite to start a successful new venture, where entrepreneurs rely on those networks to access ideas, information, and resources to ensure entrepreneurial success (Reynolds 1991, Putnam 1995, Ulhøi 2005). Thus, social networks are important element of entrepreneurship (Hoskisson et al. 2011). Entrepreneurs with extensive social networks tend to be more successful (Burt 2000). Further, some types of networks are more important at the early stage of entrepreneurship and others become more important in later stages (Hill et al. 1999, Casson and Giusta 2007). Family networks are generally important to sustain motivation through emotional support (Stathopoulou et al. 2004), while business networks are important to afford access to technical knowledge and market opportunities (Anderson et al. 2005, Ulhøi 2005).

In general, social networks are composed of both strong and weak ties (Hill et al. 1999, Anderson et al. 2005, Jack 2005). The strength of a tie reflects a combination of frequency of interactions, emotional intensity, intimacy, and degree of perceived reciprocity
Strong ties consist of connections with individuals with close personal relationships and they involve frequent interactions (Anderson et al. 2005). In contrast, weak ties lack emotional connectivity and are activated infrequently (Anderson et al. 2005). Jack (2005) suggested that strong ties often help to invoke weak ties; hence, strong ties can be instrumental to business activity to obtain required information and knowledge to establish, maintain, and enhance business growth. Friends and family ties are strong ties, whereas weak ties mostly refer to business connections (Hill et al. 1999, Anderson et al. 2005). Strong ties provide valuable information for entrepreneurial growth, but friends and family belong to the same social circles as the entrepreneur; therefore, strong ties (i.e., family and friends ties) are seldom able to bring new valuable information, resources or business opportunities (Anderson et al. 2005). Weak ties tend to consist of ties directly affiliated with the business enterprise, which can offer much needed resources, information, and business opportunities in wider social context that may not be offered by strong ties (Burt 1992, Anderson et al. 2005, Jack 2005).

**Research Questions**

This study pursues three research questions:

**Research Question 1:** To what extent are family, friends, and business ties present among WT microentrepreneurs?

**Research Question 2:** What type of support do entrepreneurs receive from family, friends, and business ties?

**Research Question 3:** How are network ties created and maintained in the WT network?
Study Area

The state of North Carolina has affluent nature-based tourism opportunities that makes it an ideal tourism destination. North Carolina is known to offer diverse and high quality of fishing and hunting opportunities along with other wildlife watching activities (Dalrymple 2010). In 2011, North Carolina received approximately 3.5 million people enjoying wildlife recreational activities resulting in an expenditure of approximately $3.3 billion (U.S. Fish and Wildlife Service 2011). The state promotes localization of benefits coming from tourism industry towards improving rural livelihoods. For example, North Carolina Jobs Plan is a 10-year strategic plan. It prioritizes promotion of small-scale businesses and microentrepreneurship through marketing natural resources and outdoor activities opportunities in rural areas (North Carolina Jobs Plan 2013). Specifically, the Pamlico Sound is the largest lagoon along the east coast of the United States (Figure 2.1), which serves as a hub for wildlife recreationist but also a platform for local communities to engage in small-scale WT business. The Pamlico Sound and surrounding regions provide many forms of consumptive and non-consumptive WT including guided trips for fishing, waterfowl hunting, and bear and deer hunting. Waterfowl hunting is particularly popular during winter season. Besides fishing and hunting, there are WT microentrepreneurs who conduct eco-tours and sailing tours focusing on dolphin watching, bird watching, and wildlife photography in the coastal environment. The Pamlico Sound region offers all forms of WT but recreational fishing (i.e., guided trips for fishing) is the most prevalent form of WT, at least from the perspective of their business involvement.
Methodology

This study employed a mixed methods approach. Coviello (2005) argued that networks consist of both quantitative and qualitative dimensions; therefore, a mixed methods approach is well suited to examine social networks. The quantitative dimension helps to examine the structural component of a social network, while the qualitative dimension offers in-depth understanding about the underlying process of developing the network (Tinsley and
Lynch 2001, Anderson et al. 2005, Jack 2005). This study used concurrent embedded design where the quantitative approach was a primary form of data collection and qualitative data was collected concurrently to support quantitative data (Creswell 2009).

**Study Participants and Data Collection**

Various methods (e.g., informal meetings with cooperative extension agents, key informants, and online search) were employed to generate a list of contacts in the study region. The primary author spent May through August of 2014 conducting a preliminary assessment of WT in the region and identified a list of potential participants. A series of informal meetings were conducted with cooperative extension agents, tackle shop owners, well-known WT guides, and other key informants to initiate the participant identification and recruitment process. In addition, microentrepreneurs engaged in WT businesses were searched online. WT microentrepreneurs were recruited based on their involvement in owning a WT business specific to recreational fishing, hunting, and wildlife viewing. Most of these businesses were independent and managed by a single owner or were family owned. Emails and phone calls were used to set up interviews with the participants. A chain referral process (Biernacki and Waldorf 1981) was used later to identify other participants and capture the entire network of WT microentrepreneurs. Each participant was asked to give names for 3 to 5 peer WT microentrepreneurs in the region. The chain referral process was particularly appropriate for this study because WT microentrepreneurs operated at various levels of visibility, and many were only willing to be interviewed after they were contacted by a couple of their more respected peers.
Data were collected between November 2014 and February 2015 through in-person structured interviews with 37 WT microentrepreneurs. These microentrepreneurs were mainly engaged with guiding trips for fishing, hunting, eco-tours (i.e., n=31), and also the owners of bait and tackle shops/outfitters (i.e., n=6). Egocentric data on network ties were collected using the recall method (Marsden 1990, Wasserman and Faust 1994, Greve and Salaff 2003, Crona and Bodin 2011). Participants were asked to list network ties supportive to their entrepreneurial activities. The extent of supporting network ties were documented among WT microentrepreneurs to examine their efficiency to access resources and information required for the business. Further, network ties were differentiated into family, friends, and business ties, where family and friends ties were categorized as strong ties and business ties were categorized as weak ties (Scott 1991, Ulhøi 2005, Smith et al. 2012). Accordingly, information was collected on length of connection to network ties, type of support received from those ties (i.e., marketing and advertising, information sharing, emotional, and others), mode of communication (i.e., email, phone, in-person, and other), frequency of communication (i.e., daily, weekly, monthly, quarterly, and annually), and importance of those ties in business success. The importance of network ties were documented on a five-point Likert scale (i.e., 1-not at all important and 5-extremely important).

Additionally, qualitative questions were used to investigate how network ties are established and maintained overtime. Notes were taken during the interview. Bernard (2011) described descriptive field notes as written notes developed from listening to the interviews. These descriptive field notes were qualitatively analyzed later, specifically for network
creation and maintenance. Descriptive field notes were also helpful in understanding the process of WT microentrepreneurship other than just the process of network creation and maintenance. Demographic information was collected on job status (full-time or part-time), income, length of business establishment (years), gender, and education. Interview length ranged between 45 minutes and 2 hours.

Due to the nature of data collected for the study (i.e., egocentric data) using the recall method along with the chain referral process, it resulted in the formation of two network types. First, a holistic “WT social network”, reflecting the extent of network ties including family, friends, and business peers. On the other hand, visualization of the network only includes 37 WT microentrepreneurs consisting primarily of business ties, particularly in the study region, which is referred to as the “WT business network”. However, all the business ties from the WT business network are also accounted for WT social network as WT social network combines strong and weak ties. Overall network ties, communication pattern, type of support and its associated ties, as well as importance of those ties are discussed in the context of WT social network. In contrast, visualization of the network is discussed in reference to the WT business network.

Data Analysis

Visualization of the network structure was performed using Netdraw program in UCINET 6, a social network analysis software (Borgatti et al. 2002). Characterization of the network including extent of network ties, type of support, communication pattern, and demographic information were documented and analyzed in Microsoft Excel. Each study
participant (WT microentrepreneur) was assigned with an identification number (ID) from 1 through 37 (e.g., EID1-EID37) to maintain confidentiality. Furthermore, descriptive field notes were taken while interviewing which were later read and re-read by the researcher to sub-categorize the codes under the core categories of network creation and maintenance. This process of qualitative data analysis closely resembles selective coding (Strauss and Corbin 1998, Henderson 2006). Qualitative data analysis was performed as a small component and the analysis was less rigorous, which falls under the realm of thematic analysis. However, thematic analysis is considered a flexible and useful research tool that provides rich and detailed account of the data (Vaismoradi et al. 2013).

Furthermore, interviews were audio recoded and descriptive field notes were taken during each interview. The audio recordings from the interviews were not transcribed verbatim as the study does not follow rigorous qualitative approach. Rather, these audio recordings were transcribed selectively to support descriptive field notes, and quotes were specifically extracted to provide deeper meanings to quantitative findings as well as for the findings from thematic analysis.

Results

Most respondents (78%) were engaged in WT business as full-time compared to part-time (22%). WT microentrepreneurs were more likely to affiliate with more than one form of WT (Table 2.1). All the participants except one were male. The participants were at least high school graduates with the highest percentage of participants falling within the income range of $50,000-$74,999. The average age of the microentrepreneurs was 50 years, ranging
between 27 and 75 years old. The year since the business was established ranged from 6 months to 36 years, with an average of 13 years.

Table 2.1: Respondents’ socio-demographic information

<table>
<thead>
<tr>
<th>Total participants (N=37)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time (29)</td>
<td>78</td>
</tr>
<tr>
<td>Part-time (8)</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wildlife related business involvement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational fishing only</td>
<td>22</td>
</tr>
<tr>
<td>Wildlife viewing only</td>
<td>5</td>
</tr>
<tr>
<td>Recreational fishing + hunting</td>
<td>5</td>
</tr>
<tr>
<td>Recreational fishing + wildlife viewing</td>
<td>35</td>
</tr>
<tr>
<td>Recreational fishing + hunting + wildlife viewing</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household income before taxes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15,000-$24,999</td>
<td>6</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>6</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>23</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>32</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>16</td>
</tr>
<tr>
<td>$100,000-$149,999</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school graduate</td>
<td>8</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>33</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>17</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>28</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>14</td>
</tr>
</tbody>
</table>

*Note: None of the respondents reported their business involvement for hunting only or hunting and wildlife viewing; none of them reported household income of < $10,000 and $10,000-$14,999; or household income categories of $150,000-$199,999 and $200,000 or more; and none of the respondents reported education categories of < 9th grade and 9th to 12th grade, no diploma.

Characterization of WT Microentrepreneurs’ Network

The average number of support network ties for WT social network calculated was 10.86. These ties were initially categorized as family, friends, and business, however, in some cases the participants suggested “It is hard not to be friends while doing a business”,

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and in those cases ties were considered both business and friends (i.e., business friends). On average, WT microentrepreneurs reported 4.78 business ties, 3.11 friends ties, 1.89 ties classified as business friends, and 1.08 family ties (Table 2.2). Overall, business, friends, business friends, and family ties represented 44%, 29%, 17%, and 10% of all ties, respectively.

The WT business network consisted of 28 WT microentrepreneurs connected to each other and 9 were isolated who did not report any support coming from peers within the network (Figure 2.2). The network exhibits tendency towards forming loosely connected sub-groups, where EID1 and EID2 are connecting those sub-groups. WT microentrepreneurs tended to form a group of cohorts to exchange information, ideas, and resources. Often EID1 and EID2 are considered as bridging ties as they are connecting two larger sub-groups. Further, part-time WT microentrepreneurs were more likely to receive support from full-time WT microentrepreneurs for business related support, such as information sharing and customer exchange. Particularly among fishing and hunting guides, part-time WT microentrepreneurs were offering guiding service occasionally and was convenient-based. They needed information about the location of fish or waterfowls, bait used in catching fish, and direction of waterfowls’ movement. However, the information exchange pattern even among full-time WT microentrepreneurs were similar.
Figure 2.2: WT Business Network

*Note: The size of the node is proportional to the number of connections. The shape of the node indicates job status (i.e., circular node: full-time and up triangle node: part-time). The color of the node indicates WT business affiliation: fishing only (Yellow), wildlife viewing only (Black), fishing and hunting (Blue), fishing and wildlife viewing (Green), and All three (Red)
Type of Support and Associated Network Ties

WT microentrepreneurs reported marketing and advertising (35%) to be the most important support received from their network ties followed by information sharing (27%), product support (14%), emotional (14%), and others (10%) (Table 2.2). The proportion of supports coming from each tie (strong vs. weak tie) is presented in Table 2 and Figure 3. The three most important supports (i.e., marketing and advertising, information sharing, and product support) received by WT microentrepreneurs from their network ties, which accounted for 76% of all the supports, primarily came from business ties. The network structures for three different scenarios for support types (i.e., marketing and advertising, information sharing, and product support) within the WT business network are illustrated in Figures 2.4-2.6. Marketing and advertising also includes exchange of customers among peers, where referring customers to other peers or sub-hiring them to take their excess customers during the peak season was a common practice.

Marketing and advertising support was usually reported to come from peers in the network but also from WT social network, such as connections with Angler’s magazine, local museum, restaurants, chamber of commerce, and other sponsors. Similarly, information sharing was identified as another important support coming from peers within the network (i.e., WT business network). However, this support was also received from friends, specifically those highly involved with fishing and hunting as a hobby but not involved in WT business, and other business ties from WT social network. Information sharing among WT microentrepreneurs was about the location of fish, type of bait used to catch fish, and
type of fish caught. Likewise, among WT microentrepreneurs dealing with hunting (e.g., waterfowl hunting), information was exchanged about the location of waterfowls and direction of their movement. Similar information was reported to come from outfitters and bait and tackle shops, especially among fishing guides. WT microentrepreneurs considered it necessary to communicate with other peers in the network to exchange information to enhance business outcome with an advantage of knowing the location of fish or waterfowls and other related information. A 43-year-old part-time WT microentrepreneur explained the information sharing process as,

*I get information from others on the location of fish and ducks because I am going in the next three days but I did not go for the past three days. So I need to know where the ducks moved or fish moved, they are not always where you caught last time. That is the information I get from these guys because they may be there where I am not and I may be there where they are not.* (EID4)

Product support was another critical factor in WT entrepreneurship, particularly among fishing guides. WT microentrepreneurs received product support in the form of discounts on the purchase of equipment, boat maintenance, and bait. This form of support was very common and crucial for business growth. Product support was mainly coming from bait and tackle shops, or boat dealers. However, product support was accrued primarily from business ties within the WT social network except for local bait and tackle shops from the WT business network (Figure 2.6). Business ties primarily related to product support were not limited to equipment manufacturers or supply stores but also included clothing and
sunglass brands that are also integral part of the WT businesses. WT microentrepreneurs often reported their reciprocal relationships to business ties for product support to be mutual, where they promote or advertise products from their sponsors through entrepreneurial activities while getting free or discounted products.

WT microentrepreneurs seek different types of support from different actors in the network (Figure 2.4-2.6). For marketing and advertising, overall network structure more or less remains the same except that there are 10 isolated WT microentrepreneurs instead of 9 (i.e., EID25 is isolated). Further, the average number of network ties obviously reduces in comparison to the overall visualization of the network (Figure 2.2) because WT microentrepreneurs reciprocate for more than one type of support. Likewise, for information sharing, the number of isolated individuals remains the same but EID25 becomes connected and EID11 becomes isolated. Further, EID1 and EID2 were originally connected to another sub-group but only EID1 is bridging the two sub-groups.

For types of support sought, the relationships and their dynamics have changed. The communication and support received by WT microentrepreneurs depend upon their necessity. For example, some WT microentrepreneurs needed more support for marketing and advertising while others for information sharing. However, marketing and advertising as well as information sharing tended to go hand in hand most of the time. Therefore, the change in relationships among these WT microentrepreneurs appear minimal (Figures 2.4 and 2.5). Further, WT microentrepreneurs’ involvement towards the WT business played crucial role for information exchange pattern, where certain WT microentrepreneurs were
primarily involved in fishing but some were equally involved in fishing and hunting. Thus, WT microentrepreneurs involved with both hunting and fishing were more likely to activate information sharing and customer exchange/referral according to their peers’ business involvement. In the case of product support, most of the WT microentrepreneurs are isolated in the graph except a few microentrepreneurs (Figure 2.6). This occurs because most of the WT microentrepreneurs received product support from their business ties but not necessarily from WT business network. The relationships for product support looks one way but outfitters and tackle shops also reported receiving support, particularly marketing and advertising from other WT microentrepreneurs in the network (Figures 2.2-2.5).

WT microentrepreneurs reported repeat customer in the WT business up to 80%, especially among guides for fishing, hunting, and wildlife viewing. WT microentrepreneurs reported gradual increases in the percentage of repeat customer in later stage. Therefore, the percentage increase in repeat customer can be expected to grow every year. WT microentrepreneurs reported guiding 35 to 248 trips a year, which also relied on their job status (e.g., full-time vs. part-time). However, in the context of growing popularity of WT, demands for wildlife related activities can be expected to increase. While fulfilling demands for old customers and adjusting requests from new customers, a good network (e.g., network that offers exchange of information or other supports required for the WT business) is required for these WT microentrepreneurs. The cooperation between WT microentrepreneurs, particularly among guides in terms of information and customer exchange between part-time vs. full-time or successful vs. unsuccessful (e.g., successful in terms receiving more customers) are mutually benefitting. The cooperation among WT
microentrepreneurs fosters both economic benefits and social capital, while improving the quality of services for tourists. Therefore, being able to network is important for these WT microentrepreneurs.

Emotional support was reported to come from family and business friends. Emotional support was accounted for 14% that mostly came from family. The remaining 10% of the support included financial as well as account and credit management, both of which were primarily coming from family ties. Family ties were reported highly important in business success with an average rating of 4.64, while business ties, friends ties, and business friends were rated an average of 3.66, 3.86, and 3.81, respectively (Table 2.4).
Table 2.2: Type of support and associated network ties for WT social network

<table>
<thead>
<tr>
<th>Type of support</th>
<th>Ties (Average number/Percentage)</th>
<th>Family</th>
<th>Business</th>
<th>Friends</th>
<th>Business &amp; friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing and advertising (finding and exchange of customers) (35%)</td>
<td>9% 49% 14% 29%</td>
<td>1.08 (10%)</td>
<td>4.78 (44%)</td>
<td>3.11 (29%)</td>
<td>1.89 (17%)</td>
</tr>
<tr>
<td>Information sharing (27%)</td>
<td>5% 46% 15% 33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product support (14%)</td>
<td>N/A 98% 2% N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional (14%)</td>
<td>74% 7% 4% 15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (financial; account and credit management) (10%)</td>
<td>82% 9% 6% 3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.3: Type of support and the proportion of support coming from each network tie
Figure 2.4: Visualization of the network showing connections for marketing and advertising support

*Note: The size of the node is proportional to the number of connections. The shape and color of the node indicate job status (i.e., circular node (*Blue*) indicates full-time and up triangle node (*Red*) indicates part-time)
Figure 2.5: Visualization of the network showing connections for information sharing support

*Note: The size of the node is proportional to the number of connections. The shape and color of the node indicate job status (i.e., circular node (Blue) indicates full-time and up triangle node (Red) indicates part-time)
Figure 2.6: Visualization of the network showing connections for product support

*Note: The size of the node is proportional to the number of connections. Nodes in red color are the bait and tackle shop owners, and nodes in blue color are the WT microentrepreneurs other than the bait and tackle shop owners (e.g., regular guides engaged with fishing, hunting, and wildlife viewing)
Communication Pattern

The mode and frequency of communication varied according to the type of network ties (e.g., strong vs. weak). However, the frequency of communication were tentative and may not represent the exact pattern throughout the year since high frequency of communication were reported to occur during the peak season and irregularly during offseason. Overall, phone and in-person communication was reported highest (37.50%) followed by all three (24.04%), in-person only (12.50%), phone only (10.58%), email and phone (10.58%), email only (3.85%), and email and in-person (0.96%) (Table 2.3). Email was reported to use primarily to communicate with sponsors, particularly online sponsors. Phone and in-person communication was the most highly reported mode of communication. On the other hand, daily communication was mostly prevalent among family and business friends. Likewise, weekly communication was prevalent among business and business friends. Other three categories (i.e., monthly, quarterly, and annually) were existed mostly among business ties. In addition, length of connection for most of the family and friends ties were reported lifelong, while some were developed overtime which added complexity to calculate the average length of connection. However, the average length of connection for business ties (includes business friends) was approximately 8 years.
Table 2.3: Mode and frequency of communication with network ties

<table>
<thead>
<tr>
<th>Mode of Communication</th>
<th>Family</th>
<th>Business</th>
<th>Friends</th>
<th>Business &amp; friends</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Email only (3.85%)</em></td>
<td>N/A</td>
<td>100%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><em>Phone only (10.58%)</em></td>
<td>N/A</td>
<td>55%</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td><em>In-person only (12.50%)</em></td>
<td>N/A</td>
<td>94%</td>
<td>6%</td>
<td>N/A</td>
</tr>
<tr>
<td><em>Email and Phone (10.58%)</em></td>
<td>N/A</td>
<td>86%</td>
<td>N/A</td>
<td>14%</td>
</tr>
<tr>
<td><em>Phone and in-person (37.50%)</em></td>
<td>35%</td>
<td>26%</td>
<td>14%</td>
<td>26%</td>
</tr>
<tr>
<td><em>Email and in-person (0.96%)</em></td>
<td>N/A</td>
<td>100%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><em>All three (24.04%)</em></td>
<td>6%</td>
<td>56%</td>
<td>12%</td>
<td>26%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency of Communication</th>
<th>Family</th>
<th>Business</th>
<th>Friends</th>
<th>Business &amp; friends</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Daily (23.67%)</em></td>
<td>61%</td>
<td>4%</td>
<td>8%</td>
<td>27%</td>
</tr>
<tr>
<td><em>Weekly (39.61%)</em></td>
<td>7%</td>
<td>55%</td>
<td>12%</td>
<td>26%</td>
</tr>
<tr>
<td><em>Monthly (19.81%)</em></td>
<td>N/A</td>
<td>61%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td><em>Quarterly (10.14%)</em></td>
<td>N/A</td>
<td>100%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><em>Annually (6.76%)</em></td>
<td>N/A</td>
<td>100%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 2.4: Importance of network ties in business success

<table>
<thead>
<tr>
<th>Likert scale ratings</th>
<th>Minimum</th>
<th>Business</th>
<th>Friends</th>
<th>Business &amp; friends</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Maximum</em></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><em>Average</em></td>
<td>4.64</td>
<td>3.66</td>
<td>3.86</td>
<td>3.81</td>
</tr>
</tbody>
</table>

*Note: Importance of ties in business success (Likert scale ratings from 1-5; 1-Not at all important to 5-Extremely important)*
Networking Process

Three sub-categories were identified under network creation: entrepreneurial activity in the same environment (48.8%); seeking sponsorship (29.3%); and professional platforms (22%). Likewise, four sub-categories were identified under network maintenance: reciprocity (33.9%); togetherness (33.9%); communication (23.2%); and trust (8.9%).

Network Creation

Entrepreneurial activity in the same environment was reported frequently to be the most common way of establishing new network ties. Most of the microentrepreneurs reported their initial contact with other WT microentrepreneurs through acquaintances. For instance, a 42-year old full-time WT microentrepreneur stated, “We bumped into one another in the field” (EID6), while another 74-year-old full-time WT microentrepreneur said, “I met him in the water, I invited him fishing with me and we are friends since then” (EID21). Although some of the connections were made while growing up in the same area, WT microentrepreneurs often mentioned stopping by one of the local bait and tackle shops and introducing themselves. Likewise, they mentioned approaching other peers in the same way.

Seeking sponsorship was another way of creating relationships. Sponsorships were sought to buy bait, equipment, sportswear or even regular boat maintenance. WT microentrepreneurs were receiving discounted products and even free equipment or sportswear. Often these sponsors were local bait and tackle shops, outfitters and some were online sponsors. The relationships between WT microentrepreneurs and sponsors was mutually benefitting, where WT microentrepreneurs advertise products from these sponsors and in return they receive...
customers through referrals and product support from them. WT businesses were highly reliant on product support coming from the sponsors, hence they make up an important component of the network.

Similarly, professional platforms, such as seminars, tournaments, fishing and hunting expos, as well as formal social gatherings, or serving for an association and local clubs were reported as a medium to connect with other peers. WT microentrepreneurs mentioned using those platforms to market their services. Specifically, these professional platforms included involvement with North Carolina Fishing Guide Association, or attending formal gatherings organized by chamber of commerce, or involvement to other clubs including salt-water fishing club. These platforms were very important for WT microentrepreneurs to interact and create relationships. A 57-year-old part-time WT microentrepreneur in particular mentioned the process of meeting people as,

Some of it involves friendship for lifetime, meeting people at the workshops, tackle shops, talking to people…literally finding them fishing in the same hole that I am in or same hunting range…and you see this guy over and over, and you start talking to him. (EID7)

Interpersonal communication skills were considered very important in creating relationships. Often WT microentrepreneurs reported face-to-face interaction to be very important in establishing relationships for all three sub-categories discussed above, whether working at the same environment, attending seminars/workshops, or seeking sponsors.
Further, they also described their connection with other business ties from the help of friend in various settings.

**Network Maintenance**

Mutual promotion of WT business through exchange of support was a common practice among WT microentrepreneurs which represent a form of reciprocity. Microentrepreneurs reported their common practice for exchanging customers with other peers in the WT business network during overflow of customers in the peak season for fishing and hunting. For example, a 43-year-old part-time WT microentrepreneur stated,

_For next 7 days, I have hunters for me to take hunting already but I keep getting phone calls because this is the season people want to go hunting [duck hunting]. Four other captains may not be taking anybody that day so I send four trips to them and take $50 per person and I get $200 for giving them the trip because they are not advertising and they are part-time like me, they do not have time to do advertising but they still want to make that extra side of money._ (EID4)

Similarly, togetherness in terms of socializing and getting along with other peers in the network was another important factor for network maintenance. Seminars, workshops, and tournaments were the ways for creating relationships but also for maintaining relationships since WT microentrepreneurs periodically go to these platforms to market their services. Hanging out with each other or frequent socialization was rare, but meeting each other at the ramp, marinas and social interaction at those places were perceived as crucial factor to keep relationships working. A 51-year-old full-time WT microentrepreneur
expressed his opinion about togetherness as, “It is important to be able to get along with people…...be a people’s person. We are not like care dealers, trying to cut each other’s throat, nothing like that” (EID3). WT microentrepreneurs often described business relationships as a combination of friendship, respect and business. Another 34-year-old full-time WT microentrepreneur stated,

\[\text{I do not like people coming to me and say that they caught such and such fish when I am having a bad day and I do not do that either, so not using a bad word or bad mouth is important to maintain relationships; not bad mouth anybody.} \text{(EID30)}\]

Communication was also reported highly important in terms of maintaining relationships. Talking face-to-face, emailing at least once a month, and communication through text messages were described as a common behavior among WT microentrepreneurs. However, the mode and frequency of communication obviously would depend upon the type of network ties and different types of support received from these ties. Lastly, trust was identified as another critical factor for maintaining relationships. Connections were created in various ways but trusting relationships was identified as a key to maintain it in the long run. Because customer exchange was prevalent in the WT businesses, trusting each other for not stealing their personal customers was considered extremely important. Some of the WT microentrepreneurs referred to this trusting relationship as “gentlemen’s agreement”. A 38-year-old WT microentrepreneur stated, “I let other fishermen take my customer for fishing but they do not exchange any email or phone number on my back, no customer stealing” (EID2).
Discussion

The purpose of this study was to examine the extent of network ties, types of support received from those network ties, and the process of creating and maintaining the business network among WT microentrepreneurs. Results indicate prevalence of business ties over family and friends ties. The dominance of business ties over family and friends ties was a result of many factors. First, most businesses were established about a decade ago, which indicates that study participants consisted primarily of mature stage microentrepreneurs as they tend to possess higher number of business ties (Hill et al. 1999). In fact, the literature suggests that entrepreneurs who are in the business for less than three years are considered early stage entrepreneurs, and those with more than three years are considered mature stage (Korunka et al. 2003, Wasdani and Mathew 2014). In addition, nature of the business itself provided opportunities for WT microentrepreneurs to interact with each other as they meet peers at the settings of entrepreneurial activity, other platforms (e.g., tournaments and seminars), or while seeking sponsorship. In fact, significant proportion of the support (i.e., 76%) was primarily coming from business ties (i.e., weak ties) in the form of marketing and advertising, information sharing, and product support. WT microentrepreneurs were depending on business ties for market opportunities, information sharing, and other valuable resources (Anderson et al. 2005, Ulhøi 2005), where those ties are considered to generate non-redundant information and resources (Granovetter 1973, Levin and Cross 2004). Therefore, weak ties were providing highly valuable resources to WT microentrepreneurs, which fostered them to have many business connections. Nevertheless, this study strongly suggests to consider the context of microentrepreneurship in order to examine the extent of
business ties, because microentrepreneurial platform itself has shown to promote business connections. Thus, the prevalence of business ties over family and friends ties was a cumulative effect of the length of business establishment, nature of the business, and amount of support received from business ties.

Although, a small proportion of support was coming from family and friends ties, literature suggests that these ties are argued to have a positive impact on business survival with small impact on business growth (Brüderl and Preisendörfer 1998, Hoang and Antoncic 2003). However, family and friends ties were rated very highly than business and business friends in terms of their importance in business growth and success. Obviously, higher number of weak ties favors business growth and success but strong ties are crucial for sustaining motivation through emotional support regardless of their smaller proportion (Stathopoulou et al. 2004). Therefore, this study strongly suggests that emotional support, especially coming from family is equally crucial as other supports towards business success. Accordingly, comparison of the extent of strong versus weak ties are often unrealistic because the importance of strong ties outweigh weak ties. Strong and weak ties provide distinct resources. Strong ties offer cheaper, reliable, and trustworthy information (Granovetter 1985, Jack 2005), and weak ties provide access to valuation information, resources, or business opportunities in wider social context which may not be offered by strong ties (Burt 1992, Anderson et al. 2005, Jack 2005). Therefore, an ideal microentrepreneurial network should consists both of strong and weak ties because the nature of these ties influences the operation and structure of the network (Granovetter 1973, Johannisson 1986, Jack 2005). Moreover, similar to Jack’s (2005) finding, strong ties were
found to invoke weak ties. WT microentrepreneurs mentioned establishing business connections with the help of friends at the settings of entrepreneurial activity or other professional platforms. The higher ratings among WT microentrepreneurs for strong ties over weak ties was possibly due to the importance of strong ties in business survival but also their critical role in expanding weak ties (Brüderl and Preisendörfer 1998, Hoang and Antoncic 2003, Jack 2005).

Most importantly, cognitive social capital factors, such as reciprocity, togetherness, and trust were important in maintaining relationships with business ties. Therefore, it can be argued that the number of business connections also depends upon the perceived cognitive social capital among WT microentrepreneurs. Burt (2000) suggests that microentrepreneurs with higher number of business connections are more likely to succeed; however, cognitive social capital is considered equally important for entrepreneurial success (Zhang et al. 2008, Anderson et al. 2010). Since cognitive social capital factors are considered essential in facilitating cooperation among network ties that optimizes use of information and resources (Jones 2005, Ramirez-Sanchez and Pinkerton 2009, Chen et al. 2015), it is often argued that the extent of network ties becomes less important than nature of connections among members in the network (Narayan and Cassidy 2001). The importance of cognitive social capital stands true in this case because supports (e.g., information sharing and customer exchange) coming from business ties are directly affected by reciprocity, togetherness, and trust. These cognitive social factors are more likely to influence the reciprocal relationships, the amount of support exchanged, and the frequency of reciprocal relationships that occurs with business ties. Therefore, cognitive social capital factors also determine entrepreneurial
success, and not just the extent of business connections. A higher number of business ties in the network along with high level of reciprocity, togetherness, and trust can create a conducive environment for microentrepreneur to succeed. Nevertheless, economic and non-economic motivations governed by WT microentrepreneurs (Ateljevic and Doorne 2000) may confound the meaning of entrepreneurial success. Therefore, further research is needed to understand the relationships among various factors, such as cognitive social capital, number of network ties, and entrepreneurial success.

Some WT microentrepreneurs were better connected in the network than others. They are the key actors in the network and perhaps influential too. They are important for intergroup communication and are often considered important for collective action and conflict resolution (Ramirez-Sanchez 2011). Business ties in general are known to possess heterogeneous resources (Anderson et al. 2005, Jack 2005), but well-connected key actors also avoids social fragmentation and generate non-redundant information (Ramirez-Sanchez and Pinkerton 2009) that may be valuable to not only for an individual microentrepreneur but also to all other connected peers. Although these key actors in the network are able to access resources and information from other actors in this case, it is primarily for their own business growth. Therefore, most of the resources acquired from their respective ties may not be transferable except for information exchange. However, they can be the primary actors for disseminating ideas and knowledge throughout the network, which may be of particular interest from the perspective of resource managers and policy makers.
Network studies are prone to boundary specification problem. Therefore, conscious attention is required to design network studies with clear boundaries for the population of interest (Laumann et al. 1989, Crona and Bodin 2011, Smith 2013). This study was confined to examine the support network of WT microentrepreneurs in order to address the limitation of boundary specification problem. Due to lack of information for all WT microentrepreneurs in the region, each microentrepreneur was asked to name 3-5 other WT microentrepreneurs. Furthermore, the objective was to examine the support network; therefore, isolation in the WT business network can be expected, as support was also received from other business ties and organizations beyond the WT business network (e.g., from WT social network). In addition, differences in business characteristics, such as consumptive vs. non-consumptive also added some limitations towards network connectivity; for instance, information and resources exchanged were different based on WT microentrepreneur’s primary affiliation to WT business. Further, the data on support ties were collected using the recall method (Crona and Bodin 2011), which confined the number of ties because it is hard to memorize all the support ties instantly during the interview process. Finally, the findings from network studies tend to be contextual (Ramirez-Sanchez and Pinkerton 2009), as such, the results are specific to the study region and not generalizable. Greve and Salaff (2003) on the other hand, looked at networking behaviors of entrepreneurs in four different countries and concluded that entrepreneurs are required to build social networks, and often cultural differences do not affect networking behavior among them. Moreover, reciprocal relationships and the role of cognitive social capital towards facilitating the entrepreneurial process remains fairly similar in entrepreneurship regardless of the type of support exchanged. Therefore, findings from the
study can be compared across different research settings, while the results can be the basis to formulate new research questions.

Conclusion

This study revealed some interesting results, especially in regards to structural characteristics of WT microentrepreneurs’ network, their networking behavior, and determinants of existing network ties. Findings indicate prevalence of business ties (i.e., weak ties) over family and friends ties (i.e., strong ties). The dominance of weak ties was a cumulative effect of length of business establishment, nature of the business, and amount of support received from weak ties. Cognitive social capital factors, such as reciprocity, togetherness, and trust played important role in maintaining business relationships, which possibly prevented business ties from dissolving and may have resulted in higher number of business ties. Therefore, this study strongly suggests to consider incorporating business characteristics, as well as cognitive social capital factors in examining the extent of network ties (e.g., strong vs. weak ties) in addition to the length of business establishment. In fact, family and friends ties were rated more highly than business ties for their contribution towards business growth and success, despite the fact that a small proportion of support was coming from those ties. Therefore, this study concludes that a small proportion of support (e.g., emotional support) coming from family is equally crucial as other forms of support in ensuring business success. Thus, comparing strong and weak ties based on their numbers and proportion of support coming from those ties can be misleading. The extent of network ties is closely associated with the concept of “more is better”, which becomes less important for entrepreneurial success since cognitive social capital factors can play a major role in
facilitating cooperation among network members (Burt 2000, Narayan and Cassidy 2001, Jones 2005, Ramirez-Sanchez and Pinkerton 2009, Chen et al. 2015). However, additional research is needed to examine the interrelationships among cognitive social capital, number of network ties, and entrepreneurial success.
References


LaPan, C. M. 2014. Communitarian micro-entrepreneurship and gender in the Maya touristscape. A dissertation submitted to the graduate faculty of North Carolina State
University in partial fulfillment of the requirements for the degree of Doctor of Philosophy.


CHAPTER 3: Understanding the effect of social influence on cognitive social capital among wildlife tourism microentrepreneurs

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Abstract

High levels of cognitive social capital are commonly associated with entrepreneurial growth and success because trust, reciprocity and togetherness facilitate cooperation among network members. This study examines the extent to which entrepreneurial characteristics, the number of business ties, and the effect of social influence predict dimensions of cognitive social capital among members of a wildlife tourism (WT) microentrepreneur network. Thirty seven WT microentrepreneurs from North Carolina’s Pamlico Sound region were recruited to participate in in-person structured interviews. The findings from the linear network autocorrelation modeling revealed that the number of business ties negatively affects trust, reciprocity, and togetherness. The results also revealed that the effect of social influence among WT microentrepreneurs was divergent for trust and convergent for reciprocity. This study suggests that the social influence affects dimensions of cognitive social capital embedded in the network structure; therefore, combining broad theories of social capital and social influence can provide useful insights into how microentrepreneurs develop high-quality ties with their peers.

Keywords: Wildlife tourism microentrepreneurship, social capital, trust, reciprocity, entrepreneurial success
Introduction

Tourism is an expanding economic force with an average growth of 3% per year (Curtin and Kragh 2014), contributing 9.8% of GDP on the global economy (World Travel & Tourism Council 2014). It is the fastest growing industry in the world (Aitchison 2001, de Freitas 2003, Lordkipanidze et al. 2005, Naidoo et al. 2011); however, nature-based tourism is growing faster than tourism in general (Mehmetoglu and Normann 2013). WT is a subset of nature-based tourism (Wolter 2014), which has become an important component of the tourism globally (Rodger et al. 2009, Reynolds and Braithwaite 2001). There is a growing popularity for both consumptive and non-consumptive forms of WT. Consumptive forms of WT include fishing and hunting, while non-consumptive forms include wildlife watching and photography. Furthermore, wildlife resources are considered valuable assets for tourism, which creates a platform for income and employment opportunities (Pienaar et al. 2013). The popularity and growing niche market for WT provides opportunities for local communities’ involvement in entrepreneurship as the host communities can have advantage of investing in small-scale tourism businesses due to growing tourism opportunities (Byrd et al. 2008). Therefore, WT creates favorable conditions for local communities to engage in entrepreneurial activities that hinge upon local natural resources.

WT provides an opportunity to examine relationship between people and nature (Curtin and Kragh 2014), specifically with regard to entrepreneurial involvement among local communities. Veen and Wakkee (2002) defined entrepreneurship as a purposeful activity to initiate, maintain, and develop a profit oriented business. They argued that the entrepreneurial process entails pursuit of opportunity recognition, exploitation, and value
creation. Opportunity exploitation takes place once opportunity is recognized, whereas value creation takes place when resources and opportunities are utilized successfully (Veen and Wakkee 2002). However, entrepreneurial motivation (i.e., economic versus non-economic motivations) tends to control the meaning of value creation (Veen and Wakkee 2002). Particularly in WT, an entrepreneurial approach is often characterized by lifestyle entrepreneurs, where non-economic factors can be strong stimuli for starting a WT business (Ateljevic and Doorne 2000). Therefore, entrepreneurial success can be difficult to assess when economic and non-economic motivations are overlapped.

Entrepreneurship is an individual endeavor, which is also influenced by the socio-cultural environment (Casson and Giusta 2007, Yetim 2008). Entrepreneurs consistently rely on network ties to gather information and other resources in facilitating the entrepreneurial process (Nahapiet and Ghoshal 1998, Veen and Wakkee 2002, Casson and Giusta 2007). Network ties are especially important to get access to ideas, information, and resources that are necessary for business growth and success. Social capital explains the idea that well-connected individuals are better able to mobilize resources to pursue their desired outcomes (Agnitsch et al. 2006). Thus, extensive social capital can have significant positive impact on entrepreneurial growth and success (Nahapiet and Ghoshal 1998, Neergaard et al. 2005, Casson and Giusta 2007, Zhao et al. 2011), where entrepreneurs with better networks are touted as an indicator for success (Burt 2000). Nevertheless, the effect of social influence among connected individuals in the network also determines the level of resource mobilization, and eventually on the entrepreneurial success. The social influence process
explains the phenomena where an individual’s behaviors and attitudes are adapted based on how other connected peers reciprocate in the network (Leenders 2002).

There is already an established notion about the importance of social capital in entrepreneurship. However, the literature suggests paucity of information on entrepreneurship, particularly small-scale (i.e., micro) businesses (Szivas 2001, Ulhøi 2005). Despite WT’s increasing popularity in the tourism industry globally, there is a research gap in the existing body of knowledge for WT microentrepreneurship. While recognizing a research gap in the literature, there is an increased need to examine the entrepreneurial process in WT and other forms of NBT, especially the role of social capital. Accordingly, the purpose of this study was to examine the extent to which entrepreneurial characteristics, the number of business ties, and the effect of social influence predict dimensions of cognitive social capital among members of a wildlife tourism (WT) microentrepreneur network.

To this end, the purpose of this study was to examine the effect of social influence on dimensions of cognitive social capital (i.e., trust, reciprocity, and togetherness) among WT microentrepreneurs that occurs through network structure. Further, this study also aimed to examine the association between dimensions of cognitive social capital and number of business ties along with other entrepreneurial characteristics, such as entrepreneurial motivations, length of business establishment, and entrepreneurial success.

**Theoretical Background**

This study combines the concept of entrepreneurship with broad theories of social capital and social influence. Social capital theory has gained wide acceptance as a successful theoretical perspective to understand and predict social phenomena (Narayan and Cassidy
Coleman (1990) explained that social capital exists in the structure of relations between and among people. The author elaborated on characteristics of social capital as, (i) consisting of some aspect of social structure, and (ii) facilitating certain actions of individuals who are part of the structure. Further, social capital is defined as the collective linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks (Gabbay and Leenders 1999, Greve and Salaff 2003, Neergaard et al. 2005). In fact, social networks are considered as structural social capital, whereas trust and reciprocity are categorized as cognitive social capital (Jones 2005). Structural social capital refers to overall connections within the network, which are the source for social interaction and information exchange. Likewise, cognitive social capital encapsulates perception of support, trust, reciprocity, and sharing (Jones 2005). Both structural and cognitive components of social capital are interdependent. Social network analysis (SNA) primarily entails structural component of social capital, which is a technique to assess the networks of relationships by mapping and analyzing relationships among entrepreneurs (Racherla and Hu 2010). The use of SNA has become more common these days as it provides contextual understandings about relationships among individuals, organizations, or communities that offers strong theoretical and practical implications for researchers and practitioners. However, there is a lack of research examining the relationship between structural social capital and cognitive social capital, specifically how cognitive social capital is ingrained among individuals through network structure (i.e., structural social capital).
In this study, the extent of network ties (i.e., number of business ties) is considered an element of structural social capital. Dimensions of cognitive social capital include trust, reciprocity, and togetherness. Although social networks provide a platform to access information and resources, cognitive social capital actually enhances effective use of those connections. Dimensions of cognitive social capital, such as trust and reciprocity, are expected to facilitate or enhance cooperation among network ties in the favor of entrepreneurial success (Jones 2005). Trust is defined as a mutual confidence in one another’s moral integrity or goodwill (Ring and Ven 1994, Ulhøi 2005). Opportunity identification is a first and significant step in entrepreneurship but trust could become a major issue even after an opportunity is identified (Casson and Giusta 2007). In fact, it enables both trustors and trustees to engage in actions that otherwise would not have been possible (Coleman 1990, Smith et al. 2012). Trust among entrepreneurs significantly affects the strength of a tie, which controls the flow of information and resources among them (Zhao et al. 2011). Yetim (2008) argues that entrepreneurs tend to rely on trust relations in shaping their network ties. On the other hand, reciprocity is characterized by short-term altruism and long-term self-interest (Putnam 2000). People usually intend to help others when they feel assured that their own altruistic actions will be rewarded at some point in the future (Stathopoulou et al. 2004). Lastly, togetherness measures the social bonding among entrepreneurs to assess the rapport and how well they get along with each other within a given setting (Narayan and Cassidy 2001). This study particularly delves into trust, reciprocity, and togetherness because they affect the usage of network ties, which can impact operation of WT microentrepreneurship.
Often existing cognitive social capital among actors in the network is not independent. Instead, cognitive social capital for each individual network member tends to get affected by the level of cognitive social capital held among other actors in the network, hence more likely to have an effect of social influence. Narayan and Cassidy (2001) described the intrinsic characteristic of social capital as relational and argued that the existence of social capital is possible only when it is shared. Therefore, every individual in the network tend to affect each other’s behavior. Leenders (2002) suggested that the measures of social capital are shaped by social phenomena which are embedded within the networks. Sometime, it is not the extent of ties to which people are connected but the nature of those connections (Narayan and Cassidy 2001), indicating that cognitive social capital factors, such as trust, reciprocity, and togetherness strongly control the quality of networks. Therefore, it is likely that these perceived cognitive social capital factors are formed and shaped by the interconnections with other actors in the network.

The theory of social influence explains that an actor adapts one’s behavior, attitude or beliefs based on the behaviors, attitudes or beliefs of other actors in the network (Leenders 2002). However, the author argues that the precondition for social influence to occur is that an actor should be informed about the attitudes or behaviors of other actors. This study considers communication as a medium for social influence (Leenders 2002). The social influence process is considered to occur through communication when an actor adapts one’s behavior based on direct communication with their peers. Specifically in the context of entrepreneurship, where an individual relies on other actors in the network for resources, every individual tends to have unique relationships with connected peers. This study
examined social influence among WT microentrepreneurs for trust, reciprocity, and togetherness that occurs through network structure. Thus, the level of trust, reciprocity, and togetherness held among individuals are not considered independent but assumed to be influenced based on how other actors (i.e., alter) in connection exhibit their level of trust, reciprocity, and togetherness.

Furthermore, individual traits are likely to affect the entrepreneurial process. For example, entrepreneurs are generally driven by different motivational factors, such as passion, independence, income, and role modeling (Carter et al. 2003, Alstete 2008, Hessels et al. 2008, Shane et al. 2003, Krishnan and Kamalanabhan 2013). These motivations have different effects on individual to network, and can affect their level of cognitive social capital. Smith et al. (2012) stated that a decision to place trust on other network ties is contingent upon individual entrepreneurs’ motivations and needs. The length of the business can have an impact on networks and cognitive social capital as well because social capital is argued to develop over time (Nordin and Westlund 2009).

Cleaver (2005) suggested that people with vulnerable livelihoods (i.e., unsuccessful entrepreneur) have fewer expectations of cooperation and reciprocity. Their connections (i.e., ties) are generally fragile and dependent on heavy investments of time and effort, and they result in limited benefits. Cleaver’s (2005) research revealed that there are important limitations for the potential role of social capital to enable microentrepreneurial success, equitably. Namely, successful microentrepreneurs tend to have more resources to exchange with their ties, and aspiring whereas less successful microentrepreneurs tend to lack the resources needed to enable them to earn trust, reciprocity, and togetherness from their peers.
Research Questions

This study has three research questions:

**Research Question 1:** Is there a presence of social influence among WT microentrepreneurs for the dimensions of cognitive social capital?

**Research Question 2:** Is there an association between the dimensions of cognitive social capital and number of business ties?

**Research Question 3:** Is there an association between the dimensions of cognitive social capital and entrepreneurial characteristics (i.e., entrepreneurial motivations, length of business establishment, and entrepreneurial success)?

Study Area

North Carolina is known to offer diverse and high quality WT activities (Dalrymple 2010). In 2011, the state of North Carolina had approximately 3.5 million people enjoying wildlife related recreation activities resulting in expenditures of approximately $3.3 billion (U.S. Fish and Wildlife Service 2011). The study was carried out in the Pamlico Sound region, which is located in the coastal region of North Carolina. Coastal NC retains 10 wildlife refuges in the state that promotes biodiversity conservation with enriching WT opportunities. The region provides affluent wildlife related recreational activities for tourists including both consumptive (i.e., fishing and hunting) and non-consumptive forms (i.e., wildlife watching). The region is less commercially developed which makes this area more rustic and appealing to wildlife tourists compared to other popular coastal destinations. WT activities occur in the Pamlico Sound areas including surrounding River systems which further extends towards the Atlantic Ocean for nearshore, inshore, and offshore WT
activities, especially recreational fishing. Entrepreneurial activities in the Pamlico Sound are usually overlapped with the nearshore and inshore area with only occasional WT activities in the offshore area. Due to rich natural and wildlife resources, the region offers affluent WT opportunities for tourists but also provide an excellent platform for local communities to participate in small-scale (i.e., micro) WT businesses. Both consumptive and non-consumptive forms of WT services are offered throughout the year by locals involved with WT businesses.

**Methodology**

**Survey Instrument**

The survey instrument (Appendix A) primarily included quantitative questions. It included questions on social networks to capture a list of network ties with each individual participant (i.e., WT microentrepreneur), specifically network ties supportive in business growth and success. Likewise, it included questions on dimensions of cognitive social capital and entrepreneurial motivations. There were 9 items developed for dimensions of cognitive social capital (e.g., 3 items for each dimension). These dimensions and item scales were adapted and modified from existing literature on social capital (e.g., Narayan and Cassidy 2001, Jones 2005, Yetim 2008). Trust, reciprocity, and togetherness as dimensions of cognitive social capital were chosen because they are argued to facilitate the entrepreneurial process through enabling better use of social networks and positively influencing the cooperation among network ties (Jones 2005, Yetim 2008, Zhao et al. 2011). Each item was measured on a five-point Likert scale (i.e., 1-strongly disagree and 5-strongly agree).
Likewise, entrepreneurial motivation factors involved were passion, independence, income, and role modeling. Each factor included three items and each item was measured on a five-point Likert scale (i.e., 1-strongly disagree and 5-strongly agree). Item scales for entrepreneurial motivation factors were developed or adapted from entrepreneurship literature (Carter et al. 2003, Alstete 2008, Hessels et al. 2008, Shane et al. 2003, Krishnan and Kamalanabhan 2013). In addition, demographic questions included job status (full-time or part-time), income (i.e., proportion of income coming from WT business), length of business establishment, gender, and education. Lastly, the survey instrument included one item to assess entrepreneurial success in terms of entrepreneurial satisfaction, which was measured on a five-point Likert scale (1-very dissatisfied and 5-very satisfied).

Data Collection

Data were collected through in-person structured interviews. Egocentric data on network ties were collected through the recall method (Marsden 1990, Wasserman and Faust 1994, Greve and Salaff 2003, Crona and Bodin 2011), where information extracted is driven by individual participants. In the first phase of data collection, various methods, such as informal meetings with cooperative extension agents, key informants (e.g., local residents working at the museum, wildlife refuges, and local bait and tackle shop owners), and online searches, were employed to generate a list of contacts for participants. The primary author conducted preliminary assessment for WT businesses in the region from May-August 2014 to accelerate the participant identification process. The data collection process started with a list of contacts for WT microentrepreneurs in the region generated through various methods discussed above. A chain referral process (Biernacki and Waldorf 1981) was used later to
identify other participants to capture and saturate the WT business network in the study region. Each participant was asked to name 3-5 WT microentrepreneurs in the region (i.e., WT microentrepreneurs either known through business connection or acquaintances). A chain referral process in this case was a reliable method to build rapport with the participants and ensure high participation rate because WT microentrepreneurs were operating at various levels of visibility and more willing to participate in the study if introduced by their peers.

Data were collected from November 2014 through February 2015. WT microentrepreneurs were recruited based on their involvement in small-scale businesses specific to recreational fishing, hunting, and wildlife viewing. Most of these businesses were independent and managed by a single owner or were family owned. Thirty seven WT microentrepreneurs were interviewed for this study. These microentrepreneurs were mainly engaged with guiding trips for fishing, hunting, and eco-tours but were also the owners of bait and tackle shops/outfitters identified during the chain referral process. All the participants identified for this study reported their involvement with at least some form of WT (i.e., fishing, hunting, and wildlife viewing). Often microentrepreneurs were affiliated to more than one form of WT business. During the interview, descriptive field notes were taken which is described by Bernard (2011) as field notes developed from listening to the interviews. In addition, the interviews were audio recorded to support the descriptive field notes.
Linear Network Autocorrelation Model

The linear network autocorrelation model incorporates the social influence process. Mathematical model (Doreian et al. 1984, Leenders 2002, Fujimoto et al. 2011) can be presented as:

\[ y = \rho Wy + \beta X + \varepsilon \]  

where,

\( y \) is a \((N \times 1)\) vector for values of a dependent variable; \( X \) indicates a \((N \times k)\) matrix of values for the \( N \) actors on \( k \) covariates (independent variables); \( \beta \) is a regression coefficient; and \( \rho \) is a scalar estimate of autocorrelation parameter. If \( \rho = 0 \) then the linear network autocorrelation model reduces to OLS regression model (i.e., \( y = X\beta + \varepsilon \)). The linear network autocorrelation model, unlikely to OLS considers that the observations are independent, which can be a concern when observations are interdependent (Dooreian et al. 1984). For the linear network autocorrelation model, \( Wy \) indicates a \((N \times N)\) weight matrix with its element representing the degree to which \( y_i \) depends on \( y_j \), often refers to the structure of the influence process in the network. The use of \( W \) specification is a crucial aspect of the linear network autocorrelation model because the influence process completely hinge upon it. There are various ways of specifying the weight matrix (\( W \)). The best possible method of specifying weight matrix can be chosen based on the research questions and the context of the study. This study used an asymmetric binary matrix, where entries were coded as “1” if an actor reported to receive support from peer entrepreneur (i.e., alter) and “0” if an actor does not recognize any connection in terms of receiving support (Muzruchi et al. 2005).
Data Analysis

Data collected through in-person structured interviews were later entered in Microsoft Excel. Each study participant was assigned an identification number from 1 through 37 (e.g., EID1-EID37) to maintain confidentiality. Descriptive statistics were used to present the results on network characterization including demographic information. Likewise, visualization of the network structure was performed using Netdraw in UCINET 6, a SNA software distributed by Borgatti et al. (2002). In order to assess the soundness of the scales used for dimensions of cognitive social capital and motivational factors, exploratory factor analysis (EFA) was performed. Factor loadings with less than 0.45 and cross loaded items were deleted to ascertain the required number of items per factor. Further, Cronbach’s alpha was used to test the internal consistency between item scales for each factor involved (Cortina 1993, Morais 2000). Cronbach’s alpha value of >0.50 was used as a benchmark to assess internal consistency due to lower number of items per construct and due to the small sample size, which is considered acceptable (Morais 2000, Chui and Chan 2012).

Similarly, the linear network autocorrelation model was used (in statistical software R) to examine social influence and the association between the variables involved in this study. Various alternatives (e.g., symmetric vs. asymmetric matrix, weighted vs. unweighted matrix, as well as presence or absence of isolates in the network) were considered while specifying W matrix in order to examine the social influence through network structure. However, isolates in the network is argued to negatively affect social influence parameter (Mizruchi et al. 2005). Only connected ties were involved for the linear network autocorrelation model. An asymmetric matrix (e.g., directed graph) was used so that
influence process would only involve business ties for each WT microentrepreneur if mentioned to receive support. An assumption behind asymmetric matrix is that WT microentrepreneurs’ level of trust, reciprocity, and togetherness is influenced if they report direct connection in terms of receiving support.

Due to the nature of data collected (i.e., egocentric data), several business ties were identified outside the WT business network of 37 participants. Therefore, the total number of business ties includes business ties beyond the WT business network. Item scales for trust, reciprocity, and togetherness were rated by WT microentrepreneurs for their respective business network. However, the linear network autocorrelation model only includes business networks within the study region (i.e., network of 37 WT microentrepreneurs). All the business ties mentioned to receive support from were weighted equally due to lack of information on individual level assessment for dimensions of cognitive social capital. For instance, “1” if connected and “0” if not connected (Mizruchi et al. 2005). Finally, unweighted asymmetric matrix without isolates was used in the network autocorrelation models, where equation (1) was expanded to include covariates to answer three research questions for this study:

\[
\text{Cognitive social capital} = \rho Wy + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \epsilon
\]

where,

Cognitive social capital factors (i.e., trust, reciprocity and togetherness) are dependent variables; \( \rho \) is a social influence parameter; \( X_1 - X_7 \) are covariates (i.e., \( X_1 \)= number of business ties; \( X_2 \)= Passion; \( X_3 \)= Independence; \( X_4 \)= Income; \( X_5 \)= Role modeling; \( X_6 \)= Length of business establishment (in years); \( X_7 \)= Entrepreneurial satisfaction); \( \beta_1 - \beta_7 \) are regression
coefficients for each corresponding covariates; and Wy indicates weight matrix (i.e., simple binary asymmetric weight matrix of 28×28).

The data collection involved in-person structured interviews with 37 WT microentrepreneurs, where descriptive field notes were taken during each interview. In addition, interviews were audio recorded along with the descriptive field notes. Although audio recordings were not transcribed verbatim for this study since the qualitative component was used as a means to obtain richer interpretations for the quantitative findings. Rather, the interview recordings were transcribed selectively to support the descriptive field notes.

Results

Study Participant’s Characteristics

A total of 37 WT microentrepreneurs were interviewed for the study. Most WT microentrepreneurs were engaged in WT business as full-time (i.e., 29) compared to part-time (i.e., 8), which represents 78% and 22% of the total participants, respectively. All the participants were male except for one. Most WT microentrepreneurs were identified to be associated with more than one form of WT (e.g., fishing, hunting, and wildlife viewing). The year since the business was established ranged from 6 months to 36 years, with an average of 13 years. Average age for respondents was 50 years, ranging between 27 and 75 years old (i.e., mostly dominated by older participants). In addition, participants were at least high school graduates with the highest percentage (i.e., 32%) of participants falling within the income range of $50,000-$74,999. The proportion of income coming from WT ranged from 5% to 100% and the average was 55%.
Dimensions of Cognitive Social Capital and Entrepreneurial Motivation Factors

Exploratory factor analysis (EFA) and Cronbach’s alpha test results for dimensions of cognitive social capital and entrepreneurial motivation factors are presented in Tables 3.1 and 3.2. Two items were retained per dimension of cognitive social capital based on the factor loadings of greater than 0.45. Further, Cronbach’s alpha values for trust, reciprocity, and togetherness were 0.570, 0.709, and 0.640, respectively. The mean score for the items in reciprocity was 4.38, whereas for trust and togetherness, it was 4.27 and 3.85, respectively. For entrepreneurial motivation factors, all three items were retained except for independence, where only two items were retained. Cronbach’s alpha values for role modeling, passion, income, and independence were 0.766, 0.666, 0.636, and 0.501, respectively. The mean scores for role modeling, passion, income, and independence were 2.95, 4.79, 3.86, and 4.16, respectively. Based on the EFA and Cronbach’s alpha result, composite scores were calculated for each dimension of cognitive social capital and entrepreneurial motivation factor which were then used for the linear network autocorrelation model.

WT Microentrepreneurs’ Network

Egocentric data were collected from WT microentrepreneurs about their respective support networks. However, the network of 37 WT microentrepreneurs was used in this study who were approached for interview (Figure 3.1). WT microentrepreneurs were asked to identify all the business ties supportive to their WT business growth and success, and these business ties were not confined to WT business network in the Pamlico Sound region, but included others outside of the network of 37 WT microentrepreneurs. The average number of business ties calculated was 6.67. The major supports received by WT microentrepreneurs
were marketing and advertising (also includes customer exchange with peers), information sharing (e.g., location of fish, baits used for catching fish, or location of waterfowls and direction of their movement), and product support (e.g., in the form of discounts or free equipment). Visualization of the network (Figure 3.1) represents WT business network from the study region with 28 WT microentrepreneurs connected to each other while 9 others were isolated who did not report to receive support from other members in the network.
Table 3.1: Exploratory factor analysis and Cronbach’s alpha result for dimensions of cognitive social capital

<table>
<thead>
<tr>
<th>Dimensions of cognitive social capital</th>
<th>Mean</th>
<th>SD</th>
<th>Rotated Factor Loadings</th>
<th>Variance explained</th>
<th>Eigenvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reciprocity (α=.570)</strong></td>
<td>4.38</td>
<td>.23</td>
<td>27.51</td>
<td>1.65</td>
<td></td>
</tr>
<tr>
<td>If I have a problem, there is always someone in my business network to help me</td>
<td>4.22</td>
<td>.79</td>
<td>.733</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am willing to offer help to people in my business network, if needed</td>
<td>4.54</td>
<td>.56</td>
<td>.886</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trust (α=.709)</strong></td>
<td>4.27</td>
<td>.13</td>
<td>26.92</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>I think people in my business network can be trusted</td>
<td>4.22</td>
<td>.79</td>
<td>.859</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel like people in my business network trust me</td>
<td>4.41</td>
<td>.69</td>
<td>.880</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Togetherness (α=.640)</strong></td>
<td>3.85</td>
<td>.21</td>
<td>22.50</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>I think people get along very well in my business network</td>
<td>4.00</td>
<td>.85</td>
<td>.582</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People in my business network socialize with each other very often</td>
<td>3.70</td>
<td>1.02</td>
<td>.943</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total variance explained</strong></td>
<td></td>
<td></td>
<td></td>
<td>76.93</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Each item was measured on a five-point Likert scale (1-Strongly disagree to 5-Strongly agree)
Table 3.2: Exploratory factor analysis and Cronbach’s alpha result for entrepreneurial motivation factors

<table>
<thead>
<tr>
<th>Entrepreneurial motivation factors</th>
<th>Mean</th>
<th>SD</th>
<th>Rotated Factor Loadings</th>
<th>Variance explained</th>
<th>Eigenvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Role modeling (α=.766)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I own a business to continue family traditions</td>
<td>2.95</td>
<td>.18</td>
<td>19.52</td>
<td>2.15</td>
<td></td>
</tr>
<tr>
<td>I own a business to follow the example of a person I admire</td>
<td>2.78</td>
<td>1.39</td>
<td>.720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One particular person has had a great influence on my decision to own a business</td>
<td>3.14</td>
<td>1.21</td>
<td>.863</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passion (α=.666)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am highly passionate about owning a business</td>
<td>4.81</td>
<td>.46</td>
<td>.798</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel like my involvement in owning a business reflects my personal interests</td>
<td>4.86</td>
<td>.35</td>
<td>.731</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a love for my business work</td>
<td>4.70</td>
<td>.57</td>
<td>.707</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Income (α=.636)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owning my business allows me to support my family</td>
<td>4.32</td>
<td>.88</td>
<td>.735</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My business provides me with greater income than other equally enjoyable careers</td>
<td>3.46</td>
<td>.96</td>
<td>.751</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owning a business provides financial security</td>
<td>3.27</td>
<td>.87</td>
<td>.709</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Independence (α=.501)</strong></td>
<td>4.16</td>
<td>.69</td>
<td>14.47</td>
<td>1.59</td>
<td></td>
</tr>
<tr>
<td>I enjoy being a boss in my business</td>
<td>4.65</td>
<td>.68</td>
<td>.694</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owning a business gives me greater flexibility for my personal and family life</td>
<td>3.68</td>
<td>1.08</td>
<td>.825</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total variance explained</strong></td>
<td></td>
<td></td>
<td></td>
<td>67.23</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Each item was measured on a five-point Likert scale (1-Strongly disagree to 5-Strongly agree)
Figure 3.1: WT business network
Trust

The social influence parameter ($\rho$) was found to be statistically significant for trust ($\beta = -0.034$ and $p = 0.005$), which indicates that the level of trust among WT microentrepreneurs is affected by their connected peers (Table 3.3). However, the effect of social influence is negative, which suggests that WT microentrepreneurs were in disagreement with their respective connected peers on the levels of trust they had on each other (Figure 3.2). WT microentrepreneurs often echoed the importance of trust among business networks. WT microentrepreneurs usually reported sharing information about the location of fish, bait used for catching fish, and type of fish caught including the information on location and direction for the movements of ducks (e.g., for hunting). Further, customer exchange was a usual practice, especially during the peak season with overflow of clients, where WT microentrepreneurs refer their client/customer to another peer. During client referral, WT microentrepreneurs were reported to be bounded by the notion of a “gentlemen’s agreement”, where they do not exchange email or phone number with the clients coming from another peer’s referral. Trust obviously appeared to play a critical role while exchanging information and customer with other business peers. A 74-year-old full-time WT microentrepreneur stated the importance of trust as, “If you cannot trust people whom you are talking to, then you would not talk to them, if they are not going to be honest with you then I do not have any interest in having relationships with them” (EID 21). On the other hand, another 63-year-old full-time WT microentrepreneur stated, “We get misinformation, it has nothing to do with money or business but pride and ego. But, if other people are in problem I end up helping them and put ego aside” (EID 28). Thus,
disagreement among WT microentrepreneurs in terms of trust is possible as the result showed negative social influence parameter for this study (Figure 3.2). Hence, existence of highly and equally trusting relationships among all the participants is debatable. Nevertheless, trust was an important factor for maintaining the network relationships in the long run.

The number of business ties was found to be statistically significant for trust ($\beta = -0.027$ and $p = 0.017$), indicating that high number of business ties negatively affects trust (Table 3.3). Similarly, entrepreneurial motivations, length of business establishment, and entrepreneurial success were treated as independent variables. Passion ($\beta = 0.108$ and $p = 0.562$) and income ($\beta = -0.101$ and $p = 0.419$) as motivation factors were not found to be statistically significant for trust. However, independence ($\beta = 0.321$ and $p = 0.008$) and role modeling ($\beta = 0.278$ and $p = 0.002$) were found to be statistically significant for trust, indicating positive association with trust. On the other hand, the length of business establishment (in years) was not found to be statistically significant for trust ($\beta = 0.004$ and $p = 0.723$). Entrepreneurial success was measured in terms entrepreneurial satisfaction associated with the business considering the complexity associated with the term “success”. From the result, entrepreneurial satisfaction was found to be statistically significant for trust ($\beta = 0.594$ and $p = 2.29e-05$), indicating positive association with trust.
Table 3.3: Summary of the results from the linear network autocorrelation models

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Trust</th>
<th>Reciprocity</th>
<th>Togetherness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>P-value</td>
<td>Estimate</td>
</tr>
<tr>
<td>Number of business ties</td>
<td>-0.027</td>
<td>0.017*</td>
<td>-0.025</td>
</tr>
<tr>
<td>Passion</td>
<td>0.108</td>
<td>0.562</td>
<td>0.288</td>
</tr>
<tr>
<td>Independence</td>
<td>0.321</td>
<td>0.008**</td>
<td>0.345</td>
</tr>
<tr>
<td>Income</td>
<td>-0.101</td>
<td>0.419</td>
<td>0.115</td>
</tr>
<tr>
<td>Role modeling</td>
<td>0.278</td>
<td>0.002**</td>
<td>0.264</td>
</tr>
<tr>
<td>Length of business establishment</td>
<td>0.004</td>
<td>0.723</td>
<td>-0.005</td>
</tr>
<tr>
<td>Entrepreneurial satisfaction</td>
<td>0.594</td>
<td>2.29e-05***</td>
<td>0.046</td>
</tr>
<tr>
<td>p (Measure of network effects)</td>
<td>-0.034</td>
<td>0.005**</td>
<td>0.034</td>
</tr>
</tbody>
</table>

| Sigma                                  | 0.4314      | 0.4515      | 0.4694       |
| Error                                  | 0.003       | 0.004       | 0.004        |
| R-Square                               | **0.556**   | **0.563**   | **0.693**    |

Note: *indicates $p \leq 0.05$, **indicates $p \leq 0.01$ and ***indicates $p \leq 0.001$
The figure shows the disagreement on the level of trust for WT microentrepreneur 2 (EID2) and its connected peers. The effect of social influence is negative for trust as the level of trust among WT microentrepreneurs is divergent (Leenders 1997).

*Note: The size of the node indicates each WT microentrepreneur’s level of trust for their respective business network. The items on trust were measured on a five-point Likert scale (1-strongly disagree and 5-strongly agree)
Reciprocity

The social influence parameter \( (\rho) \) was found to be statistically significant for reciprocity \( (\beta = 0.034 \text{ and } p = 0.005) \), which indicates that the level of reciprocity governed by these individuals is not independent and influenced by their connected peers as well (Table 3.3). As discussed earlier, exchanging and referring customer/client to another peer during the overflow was very common in WT businesses, especially among fishing guides. WT microentrepreneurs frequently reported their reciprocal relationships to other peers by saying, “It is a two way street” (EID29, 42-year-old full-time WT microentrepreneur). Some of the microentrepreneurs reported to form a group of fishing guides working together for a mutual promotion of their businesses, which clearly indicates high reciprocal relationships among them. A 42-year-old full-time WT microentrepreneur expressed working environment and reciprocity among group of WT microentrepreneurs as,

\[
\begin{align*}
\text{We share information a lot, our companies are the competitors but we try to help each other out but by the same token, we are not hoping that they have a bad business. We want them to do good as well as us. We call each other during the day}\ [\text{emulating the conversation in a humorous way}]: \text{you caught 2 fish? I caught 5; I caught 5, you caught 10? It’s a competitive thing but it is a friendly competition.}
\end{align*}
\]

(EID6)

The number of business ties was found to be statistically significant for reciprocity \( (\beta = -0.025 \text{ and } p = 0.033) \), indicating negative association with reciprocity. For entrepreneurial motivation factors, passion \( (\beta = 0.288 \text{ and } p = 0.140) \) and income \( (\beta = 0.115 \text{ and } p = 0.369) \) were not found to be statistically significant for reciprocity. In contrast, independence \( (\beta = \ldots) \)
0.345 and p = 0.006) and role modeling (β = 0.264 and p = 0.004) were found to be statistically significant for reciprocity. On the other hand, length of business establishment (β = -0.005 and p = 0.676) and entrepreneurial satisfaction (β = 0.046 and p = 0.759) were not found to be statistically significant for reciprocity.

**Togetherness**

In contrast, the social influence parameter (ρ) was not found to be significant for togetherness (β = -0.006 and p = 0.698), indicating that there is not any peer influence for the level of togetherness governed by WT microentrepreneurs in the network (Table 3.3). However, WT microentrepreneurs expressed sense of togetherness existing among them. Most of the microentrepreneurs mentioned meeting and talking to other peers during the entrepreneurial activities in the water, or meeting each other at the marinas, and sometime meeting at the grocery shop while picking up their respective customers. On the other hand, some microentrepreneurs were more likely to recognize sense of togetherness through their friendship and constant communication. For example, a 75-year-old full-time WT microentrepreneur stated, “*I get along with everybody, we do not go for a dinner and swap beers but keep in touch base, I treat them like friends*” (EID 31). Participants were more likely to mention workshops and seminars as a medium to socialize, where they meet new people and create networks but also hanging out with people in those formal environments.

The number of business ties was significant for togetherness (β = -0.029 and p = 0.017) but had a negative association, indicating that high number of business ties tends to negatively affect the level of togetherness. Whereas, passion (β = 0.271 and p = 0.181) and independence (β = 0.076 and p = 0.560) were not found to be statistically significant for
togetherness. In contrast, income (β = 0.304 and p = 0.024) and role modeling (β = 0.523 and p = 2.75e-09) were found to be statistically significant for togetherness, with a positive association. In addition, both length of business establishment (β = -0.008 and p = 0.521) and entrepreneurial satisfaction (β = -0.070, and p = 0.652) were not found to be statistically significant for togetherness.

Discussion

This study examined the extent to which entrepreneurial characteristics, the number of business ties, and the effect of social influence predict dimensions of cognitive social capital among members of a WT microentrepreneur network. Findings showed statistically significant results for the presence of social influence among WT microentrepreneurs for trust and reciprocity. However, the social influence parameter (ρ) was negative for trust while positive for reciprocity. Social influence can be convergent or divergent (Leenders 1997). In most cases, an individual is expected to behave similarly to their connected peers, but sometimes, they tend to behave differently, thus moving in the opposite direction to their connected peers (Figure 3.2). This phenomena results in positive (if behave similarly ρ>0) or negative (if behave oppositely ρ<0) values for social influence (Leenders 1997).

In the context of this study, trust seemed to be a critical factor for information sharing or customer exchange/referral among WT microentrepreneurs. However, highly trusting relationships may not always exist because WT microentrepreneurs also reported receiving misinformation. Therefore, disagreement among WT microentrepreneurs can be expected. The literature suggests that uniformity of behavior can be seen in highly cohesive groups as groups’ density of network ties increases (Mizruchi et al. 2005). Because this study examined
the support network that limits their network ties, as a result, it reduces the density of the network. In addition, Mizruchi et al. (2005) argued that as network size increases, there is less chance for network being cohesive. Moreover, entrepreneurship phenomena is considered an opportunity seeking behavior (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011), which may not necessarily promote close-knit trusting group. The significant results for social influence for trust and reciprocity indicate that the levels of trust and reciprocity governed by WT microentrepreneurs are not independent, instead they are influenced by their connected peers. Interpreted holistically, the negative result for trust and the positive result for reciprocity implies that microentrepreneurs who are willing to engage in reciprocal relationships may not necessarily agree to involve in trusting relationships. Although reciprocal behaviors among WT microentrepreneurs are highly noticeable, not all the reciprocal relationships are transformed into trusting relationships due to the issue of getting misinformed or being skeptical about breaching an implicit “gentlemen’s agreement”.

Social networks are essential element in entrepreneurship, which provide access to opportunities and resources that eventually increase the possibility for entrepreneurial success (Smith and Lohrke 2008, Anderson et al. 2010). Often extensive social networks are perceived as a positive resource for entrepreneurial success (Burt 2000). The number of business ties was the specific interest for this study because these business ties are considered critical in terms of providing heterogeneous resources (Anderson et al. 2005, Jack 2005). In fact, the number of business ties was found statistically significant for all dimensions of cognitive social capital (i.e., trust, reciprocity, and togetherness). Surprisingly, the estimates
were negative, indicating that higher number of business ties degrades trust, reciprocity, and togetherness among WT microentrepreneurs. Based on the results, it can be argued that trust, reciprocity, and togetherness are more likely developed in smaller networks than in larger networks. We can argue that well-connected small networks tend to engender higher levels of trust, reciprocity, and togetherness, and in turn result greater cooperation among network members for the exchange of information and resources (Jones 2005). Therefore, these findings provide additional evidence to suggest that the extent of network ties becomes less important than cognitive social capital (Narayan and Cassidy 2001, Zhang et al. 2008, Anderson et al. 2010).

The study also revealed that entrepreneurial satisfaction was found to be a significant predictor for trust. In other words, microentrepreneurs experiencing higher levels of entrepreneurial satisfaction were more likely to be in trusting relationships in the network. This finding supports previous assertions made by Cleaver (2005) that people with limited resources and vulnerable livelihoods experienced challenges in nurturing high-quality ties with others. Conversely, more successful microentrepreneurs are able to develop higher levels of trust with their business peers which could be explained due to their higher availability of resources for exchange as well as their ability to focus on long-term return on their investments in the network (Cleaver 2005). These findings and the illustration of levels of trust among WT microentrepreneurs for their respective business network in Figure 3.2 suggest that WT microentrepreneurs with higher levels of entrepreneurial satisfaction govern higher levels of trust and have smaller number of business ties (i.e., small-size individual
networks). In contrast, WT microentrepreneurs with lower levels of trust tend to have higher number of business ties and are less satisfied with their entrepreneurial activity.

Furthermore, it is also argued that increases in the number of ties between individuals promote trust and reciprocity by fostering group cohesion (Wasserman and Faust 1994, Bodin and Crona 2009, Mannetti et al. 2015), which signifies the formation of strongly bonded network. At the same time, strongly bonded networks are also considered to possess some negative consequences, such as exclusion of outsiders and benefit sharing by limited group members (e.g., Portes 1998, Agnitsch et al. 2006). Because entrepreneurs enjoy freedom and independence (Alstete 2008), entrepreneurship does not necessarily promote formation of cohesive network. In this study, egocentric data were collected using the recall method (e.g., Wasserman and Faust 1994, Crona and Bodin 2011). Thus, the number of business ties are not confined to the WT business network and higher number of business ties does not transform into network closure in this case. However, it is evident that successful WT microentrepreneurs possessed higher levels of trust but with fewer number of business ties and it is possible without promoting group cohesion (e.g., strong bonding).

Entrepreneurs tend to possess both economic and non-economic motivations for starting a business (Ateljevic and Doorne 2000), which posits challenges in measuring entrepreneurial success. In this study, entrepreneurial satisfaction was measured as self-reported indicator of WT microentrepreneurial success. WT microentrepreneurs experiencing higher satisfaction levels for entrepreneurial activities were found to possess higher levels of trust. Trust was critical component among WT microentrepreneurs in terms of sharing ideas related to marketing and advertising, while exchanging information about entrepreneurial
activities was reported as a crucial aspect among fishing and hunting guides. Therefore, microentrepreneurs with higher levels of entrepreneurial satisfaction were also retaining the higher levels of trust, which maybe because they were investing more time and effort in strengthening the relationships with their respective peers (Cleaver 2005). Future research needs to be pursued examining the relationship among dimensions of cognitive social capital, maybe through the use of both qualitative and quantitative approach.

On the other hand, human motivation plays a critical role in the entrepreneurial process (Shane et al. 2003). Often entrepreneurial motivation and needs are expected to affect social capital (Smith et al. 2012). However, their effects on trust, reciprocity, and togetherness are still unknown. Independence is considered an important motivation factor for entrepreneurs to start a business (Carter et al. 2003, Hessels et al. 2008), where entrepreneurs tend to possess higher perceived independence than other individuals (Shane et al. 2003). Results showed that the WT microentrepreneurs motivated by independence were more likely to have both trusting and reciprocal relationships. Such results for independence maybe because they seek freedom and flexibility towards personal and family life (Carter et al. 2003), and as such they were participating in customer exchange and information exchange behavior more often, which promotes reciprocity and trust. Although entrepreneurs enjoy financial success (i.e., income), non-monetary aspect, such as independence is considered greater incentive for entrepreneurs (Alstete 2008). Even though entrepreneurial success was positively associated with trust, income was only found to be statistically significant for togetherness. Socialization and getting along with other peers in the network captured the meaning of togetherness. WT microentrepreneurs often reported hanging out
with other peers during the workshops and seminars focused on fishing and hunting, which were identified as a way of creating networks. Perhaps entrepreneurs with income as a motivation were likely to attend these seminars and workshops, which is one way of developing trusting relationships.

Often individual decisions to engage in certain behavior are influenced by the behavior of others, where an entrepreneur identifies a role model as a reference to obtain certain career goals (Bosma et al. 2012). However, the effect of having a role model as a motivation on trust, reciprocity, and togetherness has not been documented in the literature. In the context of social networks, it is critical to know understand how role modeling can impact the reciprocal relationships among network members because network members are considered to influence the decision to become an entrepreneur or serve as a role model (Bosma et al. 2012). Results showed positive association of role modeling with all dimensions of cognitive social capital. Although role modeling was not rated very highly by WT microentrepreneurs, some of them mentioned owning family properties for business as an inspiration from parents and grandparents, being influenced by their previous owners to start their own business, or working with a group of fishing guides who they considered as successful. Carter et al. (2003) also reported that entrepreneurs tend to rate independence and financial success higher than the role modeling. Nevertheless, it can be argued that the role modeling as a motivation among network members have positive impact in the entrepreneurial process due to its influence on trust, reciprocity, and togetherness. Role modeling as a motivation possibly increases trust, reciprocity, and togetherness among WT microentrepreneurs because they work closely with people they appreciate or emulate.
someone who is already successful, thereby making them more positive for establishing reciprocal relationships.

Length of business establishment was another predictor for dimensions of cognitive social capital. Nordin and Westlund (2009) suggest social capital to develop over time, however, the result showed no significant effect of length of business establishment on all three dimensions of cognitive social capital. In the context of entrepreneurship, change in network structure can be expected because effort is often put towards seeking opportunities through new network ties, thus relationships are constantly changing. Therefore, length of business establishment does not always imply relationships as old as the business. Network ties were created in different times since their business was started. Therefore, length of business establishment was not equivalent to the years of business connection to each network ties as WT microentrepreneurs’ networks were more likely to comprise both new and old business ties. Further, the level of trust, reciprocity, and togetherness was measured for overall business network and not for an individual network tie. For example, WT microentrepreneur (i.e., EID1) with the length of business establishment of 21 years had his business connections for as long as 21 years and as few as 3 years, with an average length of connection of 13 years. Likewise, another microentrepreneur (i.e., EID2) with the length of business establishment of 9 years had his business connections for as long as 9 years and as few as 1 year, with an average length of connection of 7 years. Therefore, length of business start date did not necessarily correspond with the length of connection with network ties since new relationships were added over time.
Limitations and Recommendations

In order to address typical limitations of boundary specification inherent to SNA, it is necessary to set the criteria to limit the population of interest (Laumann et al. 1989, Smith 2013). The boundary delineation can be performed based on the study actors, relations, and activity (Laumann et al. 1989). WT microentrepreneurs were recruited based on their involvement in fishing, hunting, and wildlife watching activities through a chain referral process as discussed earlier. Meanwhile, the study captured support network for WT microentrepreneurs. Although this study was limited to capturing the support network, future studies can be designed to a larger population beyond support network. Crona and Bodin (2011) identified recall and recognition method of data collection. This study used recall method considering the lack of complete information for all the WT microentrepreneurs at the point of data collection. The recall method was deemed a more plausible and justified way of approaching the study. Nevertheless, future research can explore recognition method considering the nature of the network and the objective of the research.

This study examined the social influence process, where social influence process was considered to occur through communication (Leenders 2002). Isolations in the network can negatively affect the measurement of social influence in the linear network autocorrelation model (Mizruchi et al. 2005); therefore, isolated members were removed from the data analysis. Further, W specification is extremely important to indicate the social influence process within the network. This study utilized simple binary matrix, where it was coded “1” if received support from alters and “0” if not received any support (Muzruchi et al. 2005).
However, future researchers can choose best way to examine the effect of social influence by utilizing different W specification explained by Leenders (2002).

Furthermore, the results are confined to the study region as social networks and social capital functions are more contextual (Ramirez-Sanchez and Pinkerton 2009); therefore, the results from this study are not generalizable. However, entrepreneurship is an opportunity seeking behavior where entrepreneurs are required to network with other actors to access ideas, information, and resources (Putnam 1995, Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011). In addition, dimensions of cognitive social capital, such as trust and reciprocity embedded in the networks are considered to facilitate the cooperation between network members (Jones 2005, Light and Dana 2013). In entrepreneurship, the necessity to network and the importance of trust, reciprocity, and togetherness within the network remains fairly common regardless of the context. Therefore, findings from this study can used to design similar studies elsewhere despite the lack of generalizability.

Conclusion

Existence of social capital is possible when resources are shared (Narayan and Cassidy 2001). Moreover, cognitive social capital is likely to be affected by social influence. Therefore, social capital and social influence can be considered interrelated phenomena. However, the nuances of those phenomena have not been fully explored. This study takes critical steps in examining those aspects in the context of WT microentrepreneurship, and the results suggest several implications. Findings indicate presence of social influence among WT microentrepreneurs for trust and reciprocity; however, the effect was negative for trust and positive for reciprocity. Therefore, WT microentrepreneurs were more willing to engage
in reciprocal relationships but not for trusting relationships. In fact, higher number of business ties was diminishing the level of trust, reciprocity, and togetherness among WT microentrepreneurs. This study concludes that the high level of trust, reciprocity, and togetherness can be expected from small-size networks (e.g., with lower number of individual network ties). It supports an argument that the extent of network ties itself is not a panacea for entrepreneurial success, instead dimensions of cognitive social capital can become a major concern even in the presence of dense social networks (Zhang et al. 2008, Anderson et al. 2010). Entrepreneurial success (i.e., entrepreneurial satisfaction) was positively associated with trust, indicating that microentrepreneurs with high levels of entrepreneurial satisfaction were retaining higher levels of trust but with fewer number of business ties. Further, this study suggests that reciprocal relationships are necessary but not every reciprocal relationships transform into trusting relationships. The length of business establishment does not seem to affect the size of the network because the formation of entrepreneurial network is a dynamic process (Jack 2010). Interestingly, entrepreneurial motivations, such as role modeling, income, and independence were found to affect dimensions of cognitive social capital, which eventually influence the entrepreneurial process. This study exemplifies the interpretation of network effects among WT microentrepreneurs by combining the concept of entrepreneurship with social capital and social influence.
References


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CHAPTER 4: Analyzing bonding and bridging forms of social capital among wildlife tourism microentrepreneurs

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Abstract

The concept of social capital is burgeoning in the entrepreneurship literature. Social capital collectively refers to the linkages inside social networks and the value of all the tangible and intangible resources embedded in those networks. Entrepreneurship is an opportunity seeking behavior, where entrepreneurs constantly seek information, ideas, and resources from social networks. Social networks are especially important for wildlife dependent communities to adapt to resource fluctuations and uncertainties. This study examined a wildlife tourism microentrepreneurs’ network structure from North Carolina’s Pamlico Sound region to study bonding and bridging forms of social capital through k-core and cut-point analyses. Results indicate that abridging network structure was developed among WT microentrepreneurs. The ability to network and reciprocate with other members of the network was considered necessary for entrepreneurial success, while entrepreneurial needs and motivations were more likely to influence networking behavior. Findings revealed that the network members serving as key bridging ties were connecting sub-groups in the network, who were also influential in the business-related decisions of other WT microentrepreneurs. The formation of the bridging network structure was identified as a function of entrepreneurial phenomena that may not promote close-knit trusting groups in the network.

Keywords: Microentrepreneurship, social networks, k-core, cut-point
Introduction

Wildlife tourism (WT) is defined as tourism in which the primary focus is to interact with non-domesticated animals in consumptive and non-consummptive ways in a natural environment (Burns and Howard 2003, Yuan et al. 2004, Ballantyne et al. 2011, Catlin et al. 2011). It is considered an important component of tourism globally (Reynolds and Braithwaite 2001, Rodger et al. 2009). Curtin and Kragh (2014:546) noted that, “The expansion of the wildlife tourism industry is set against a depressing backdrop of global concerns regarding an unpredictable changing climate, political tensions, unprecedented human population growth, receding wilderness and declining species”. While popularity of WT is growing, wildlife dependent communities get opportunities to engage in small-scale (i.e., micro) WT businesses. In fact, tourism is known to generate an array of economic benefits to the communities with an access to wildlife resources through entrepreneurship. Further, it is considered to promote both economic well-being and wildlife conservation due to direct incentive coming from WT (Ashley and Roe 1998). Although WT opportunities allow local communities to benefit from the industry and enable rural livelihoods improvement, it becomes equally important to understand how WT microentrepreneurship functions among these rural communities dependent on wildlife resources. As the prospects of WT continue to grow, more research is needed to better understand this unexplored side of entrepreneurship.

Emerging niche market created by WT provides entrepreneurial opportunities for local communities residing in the area with naturally rich wildlife resources. However, these opportunities are not easily garnered as entrepreneurship is characterized by uncertainty and
risk (Morrison et al. 1999, Casson and Giusta 2007, Zhao et al. 2011). In fact, Ramirez-Sanchez and Pinkerton (2009) argue that social relations are specifically critical for wildlife dependent communities to adapt for resource fluctuations and uncertainties. Entrepreneurs often seek information, ideas, and resources from other actors to positively influence the entrepreneurial process. The concept of social capital is growing in entrepreneurship literature, which basically captures the notion that establishing a good network enhances the ability of an individual to access and utilize the resources from network ties. Social networks are considered an important element in entrepreneurship (Hoskisson et al. 2011), which are closely associated with the flow of information and ideas (Zhao et al. 2011). Social networks consist of tangible and intangible resources embedded in those networks; therefore, social capital is also described as a combination of network structures and the benefits accrued from those network structures (Greve and Salaff 2003, Neergaard et al. 2005).

Agnitsch et al. (2006) argue that current scholarly contribution in social capital is an extension of works by Bourdieu (1986), Coleman (1988; 1990) and Putnam (1993; 1995; 2000). Particularly, the distinction between bonding and bridging forms of social capital by Putnam (2000) is widely recognized among researchers (Agnitsch et al. 2006, Cheung and Kam 2010, Westlund and Gawell 2012). Social capital theory is in the literature for decades, and there is growing interest among researchers from multiple disciplines to apply the concept of social capital (Agnitsch et al. 2006). Further, the literature suggests social networks as a fundamental element of entrepreneurship that provides access to resources (Putnam 1995, Hoskisson et al. 2011). However, research related to entrepreneurial social capital, particularly in WT, still remains unexplored. Specifically, how WT
microentrepreneurs reciprocate with each other and their behavioral patterns for reaching out to other WT microentrepreneurs in the network. Udaya Sekhar (2003) stated that rich wildlife resources are mostly located in the rural areas but these rural areas also have high social capital, whereas Sørensen (2014) found high bonding social capital in rural areas. Although few studies (e.g., Crowe 2007, Ramirez-Sanchez and Pinkerton 2009) take a quantitative approach to investigate bonding and bridging forms of social capital by evaluating the network structure, there is lack of research that examines those forms of social capital in the context of microentrepreneurship. To this end, the purpose of this study was to examine the bonding and bridging social capital among WT microentrepreneurs through analyzing the network structure. In doing that, this study follows two guiding research questions: (i) to what extent are bonding and bridging network structure formed in the WT microentrepreneur’s business network? And, (ii) how is bonding and bridging social capital developed among WT microentrepreneurs?

**Bonding and Bridging Social Capital**

Extensive social capital is considered to have a positive impact on entrepreneurial growth and success (Nahapiet and Ghoshal 1998, Neergaard et al. 2005, Casson and Giusta 2007, Zhao et al. 2011). Social capital explains the idea that well-connected entrepreneurs are better able to mobilize resources to pursue their desired outcomes (Agnitsch et al. 2006). Although social networks are important to connect with other key members, many researchers support the critical role of trust and reciprocity to access and exchange information among network members (e.g., Jones 2005, Ramirez-Sanchez and Pinkerton 2009, Chen et al. 2015). Even though social capital in general, is perceived positively, it has
some pros and cons. The concept of social capital was originated as a positive resource which was viewed as a “more is better” approach by early researchers; however, the concept of “more is better” is often considered a “downside” of social capital (Agnitsch et al. 2006). Many researchers support the argument that negative effects occur due to excessive embeddedness in a social network (Portes 1998, Agnitsch et al. 2006, Eklinder-Frick et al. 2011). In fact, the earlier concept of “more is better” approach is now challenged by scholars due to various negative effects associated with close-knit trusting groups. Specifically, such conditions are reported to lead to four negative consequences: (i) the exclusion of outsiders; (ii) benefits sharing solely by the limited group members; (iii) restriction on individual freedom, where group participation is more likely to demand for conformity; and (iv) downward leveling norms, where group solidarity is cemented by a common experience of adversity and opposition of mainstream society that allows members with similar opinion to stick with the group and force ambitious member to leave the group (Portes 1998, Agnitsch et al. 2006).

Some studies (e.g., Agnitsch et al. 2006, Westlund and Gawell 2012) argue that the distinction between bonding and bridging forms of social capital by Putnam (2000) is an extension of Granovetter’s (1973) concept of strong and weak ties. Bonding social capital is inherently “inward-looking”, which tends to reinforce exclusive identities and homogeneous group characteristics (e.g., associated with homogeneous resources). In contrast, bridging social capital is inherently “outward-looking”, which enables connection to other people or group who are different from each other in some way. Thus, bridging social capital fosters heterogeneous connections and diversity that allows access to new ideas and information
(Putnam 2000, Hoang and Antoncic 2003, Jack 2005, Agnitsch et al. 2006, Berardo 2014, Mass et al. 2014). In bonding ties, people view all the members within the group as similar who possess common values and norms, whereas in bridging ties, people have horizontal ties with dissimilar people or groups at the same hierarchical level (Westlund and Gawell 2012, Mass et al. 2014).

Burt (1992; 2000; 2004) on the other hand, introduced the concept of network closure and structural holes, which compliments theoretical understanding of bonding and bridging social capital. Network closure can be viewed as a closed and densely connected network which controls access to information, while facilitating sanctions that make it less risky for people in the network to trust one another (Coleman 1988; 1990, Burt 2000). In contrast, structural holes are the gaps formed between non-redundant contacts or groups (Burt 1992, Uzzi and Schwartz 1993). Both network closure and structural holes are important concepts in analyzing within and between group relationships and dynamics. High network closure is associated with strong bonding social capital, whereas more ties spanning across the structure holes indicate higher bridging social capital. Crowe (2007) proposed k-core and cut-point analyses, and their proportion in the network, as measures of network closure and structural holes to define bonding and bridging network structure, which is discussed in detail in the following section.

**Network Structure Typology**

Crowe (2007) identified four different types of network configurations (Figure 4.1) to examine bonding and bridging social capital in the context of community economic development. Ramirez-Sanchez and Pinkerton (2009) took similar approach to examine
information sharing patterns among fishing communities in Mexico. This study followed those network configurations to examine bonding and bridging social capital in the context of WT microentrepreneurship. The four different network configurations identified by Crowe (2007) are: complete, factional, coalitional, and bridging. Complete network structure consists of tightly connected nodes in the network or, in other words, networks with high density. Factional network structure usually has multiple densely connected sub-groups that are disconnected from each other. Coalitional network structure has densely connected sub-groups that are loosely connected with each other (e.g., with high number of cut-points). Bridging network structure is a loosely connected network with lower number of cut-points (Figure 4.1). Both Crowe (2007) and Ramirez-Sanchez and Pinkerton (2009) used k-core and cut-point analyses to identify the level of bonding and bridging, and consequently characterized a network’s dominant structure.

A k-core is a maximal subgraph in which each point is adjacent to at least k other points, where all the points within the k-core have a degree greater than or equal to k (Crowe 2007, Scott 2013). A simple component of 1k-core has all its points connected to one another, therefore having a degree of at least 1. In order to identify 2k-core, all the points with degree 1 are ignored and the connected points with a degree of at least 2 are retained (Scott 2013). The process is repeated to identify 3k-core and so on. Density is the number of immediate ties in a network expressed as a proportion of the maximum possible number of ties (Scott 2013). Density depends upon the size of the network. A small-size network tends to have higher density than the large-size network because the possibility to connect with all individuals in the network decreases as the network size gets bigger. This limitation of
measuring the density (i.e., affected by network size) is overcome by measurement of k-core (Crowe 2007). Similarly, the number of cut-point and its proportion to the total points in a network are used to assess the level and type of bridging capital in the network (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009). Cut-point in a network refers to a collection of specific nodes, where its removal would break the number of components into two or more sub-groups (Scott 2013). Cut-points in the network connect several sub-groups in a larger network; therefore, cut-point analysis is used as a measure to explain bridging social capital.
Figure 4.1: Network Structure Typology (Crowe 2007)
Study Area

North Carolina is known for its rich nature-based tourism opportunities. The state of North Carolina is a popular tourism destination for tourists and ranks among the sixth most visited state for domestic visitors (North Carolina Department of Commerce n.d.). A large proportion of the tourists visit for nature-based/wildlife tourism as the state offers high quality fishing and hunting opportunities along with several wildlife watching opportunities (Dalrymple 2010, The Official Travel and Tourism Website for North Carolina n.d.). In 2011, there were approximately 3.5 million people enjoying wildlife recreational activities in North Carolina, which contributed approximately $3.3 billion to the state’s economy (U.S. Fish and Wildlife Service 2011). WT activities create millions of jobs in the U.S., while providing revenue to rural businesses and communities (Wallace et al. 1991, Dalrymple 2010). This study was carried out in the Pamlico Sound region in coastal North Carolina (Figure 4.2). The region offers excellent opportunities for both visitors and local communities to engage in various forms of WT. Consumptive form of WT, such as recreational fishing and hunting, and non-consumptive form of WT, such as wildlife watching or photography, are very prevalent in the region.

The region serves as a hub for wildlife recreation but also a platform for local communities to participate in entrepreneurial activities. Further, the Pamlico Sound region is less commercially developed compared to other coastal areas; therefore, the study region has a strong potential to retain and develop the area for nature-based tourism. The region receives high inflow of in-state and out-of-state visitors to enjoy all forms of WT. Although all forms of WT are popular in the region, recreational fishing is the most prevalent WT activity in the
region. However, waterfowl hunting and wildlife viewing are important pull factors for visitors. More often wildlife watching is a part of these fishing and hunting trips but WT businesses are available that solely focus on wildlife viewing and photography.

Figure 4.2: Study Area

(Source: NOAA’s Office of Coast Survey)
Methodology

Data Collection

Pre-study field visits were conducted by primary author from May-August, 2014 as a preliminary assessment of the project. Pre-study field visits as a preliminary assessment of the project was essential to identify study participants because WT businesses are operated both formally and informally. Moreover, some formal businesses are relatively invisible because they deal with repeat customers, with a large segment of their customers were based on word of mouth advertisement. During this period, several informal meetings were conducted with cooperative extension agents in the region and with key informants (e.g., local residents working at the museum, wildlife refuges, and local bait and tackle shop owners). In addition, participants were identified through online searches (e.g., WT microentrepreneurs involved in guiding business for fishing, hunting, and wildlife watching). The participant’s identification process as part of the pre-study field visits, was extremely helpful to build rapport with the local residents and the actual study participants. It helped to accelerate the data collection process because recommendations and referrals from them ensured the identification of other WT microentrepreneurs and their participation in the study. WT microentrepreneurs were recruited based on their involvement in small-scale (i.e., micro) business specific to recreational fishing, hunting, and wildlife viewing. The selected businesses were independent, and were managed by a single owner or were family owned.

Data were collected through in-person structured interviews with a list of contacts generated during pre-study field visits. The rest of the study participants were then identified through a chain referral process (Biernacki and Waldorf 1981). The data collection process
was conducted from November, 2014 through February, 2015. Egocentric data were collected through the recall method (Crona and Bodin 2011) as the lack of information for all the WT microentrepreneurs in the region at the point of data collection excluded the option of other network identification methods. During data collection, each individual participant was asked to list network ties supportive to their business, for instance, strong ties (e.g., family and friends ties), as well as weak ties (e.g., business ties). Therefore, the extent and type of support coming from each type of network ties (strong vs. weak ties) are presented in the context of “WT social network”. Otherwise, this study particularly deals with the network ties specific to similar WT businesses from the Pamlico Sound region, which is referred as the “WT business network”. Similarly, demographic questions were asked on job status (full-time or part-time), income, length of business establishment (years), gender, and education.

Thirty seven WT microentrepreneurs were interviewed for this study, where support network was saturated in the Pamlico Sound region. These microentrepreneurs were mainly engaged with guiding trips for fishing, hunting, and eco-tours, but also the owners of bait and tackle shops/outfitters identified during the chain referral process. All the participants identified for this study reported their involvement with at least some form of WT (i.e., fishing, hunting, and wildlife viewing), even though it was minimal. In addition, descriptive field notes (e.g., written notes developed by listening to the interviews; Bernard 2011) were developed during the structured interviews to better understand how WT microentrepreneurship functions in the study context. In addition, the interviews were audio recorded to support the descriptive field notes. The interviews took about 45 minutes to 2 hours.
Data Analysis

Network properties and visualization of the network structure were performed through Netdraw in UCINET 6, a social network analysis software distributed by Borgatti et al. (2002). Characterization of the network, including the extent of network ties, type of support, and demographic information were documented and analyzed in Microsoft Excel. Each study participant was assigned with an identification number from 1 through 37 (e.g., EID1-EID37) to maintain confidentiality. The quantitative measures on k-core and cut-point along with the network structure typology developed by Crowe (2007) were used to evaluate the bonding and bridging forms of social capital for the WT business network. Further, a large component of 28 WT microentrepreneurs were taken into consideration for interpreting bonding and bridging social capital, as isolated WT microentrepreneurs did not report support coming from any other ties (Ramirez-Sanchez and Pinkerton 2009).

Descriptive field notes were developed from the in-person structured interviews, and were utilized to analyze the quantitative results from the study. Although descriptive field notes were taken during the in-person structured interviews, those interviews were also audio recorded. The audio recordings from the interviews were not transcribed verbatim but were transcribed selectively to support the descriptive field notes needed for the richer interpretation of the quantitative findings.

Results

A total of 37 WT tourism microentrepreneurs were interviewed for the study, where 78% of them were engaged full-time in their WT business and 22% were engaged part-time. Most of the WT microentrepreneurs reported their affiliation to more than one form of WT
(e.g., recreational fishing, hunting, and wildlife viewing). Similarly, participants represented early stage to mature stage businesses, where length of business establishment ranged from 6 months to 36 years, with an average of 13 years. Most of the participants were older, with an average age of 50 years; age ranged from 27 to 75 years. Only one participant was female. Participants were at least high school graduates, whereas income category of $50,000-$74,999 was dominant (e.g., representing 32%). In addition, the proportion of income coming from WT ranged from 5% to 100% and the average was 55%.

**WT Microentrepreneur’s Network**

The extent and type of support coming from different types of network ties are presented in Table 4.1, which indicates WT social network (e.g., consists of family, friends, and business ties). In general, the support received from business ties included marketing and advertising, which also involved customer exchange or referral. Similarly, information sharing was another important form of support sought from business ties, particularly information about the location of fish or waterfowls, the direction of waterfowl’s movement, and types of bait used in catching fish. Information about location of wildlife was reported to be very critical for a successful trip with the clients. Lastly, product support in terms of free equipment and product discount was considered important. The product support mostly reported to come from business ties outside the WT business network of 37 microentrepreneurs. In particular, local bait and tackle shops, and outfitters were reported to play a significant role for product support but also for information sharing and marketing. Emotional and other supports (e.g., financial and credit management) were mainly accrued from family and friends ties.
Although information was collected on different types of network ties (i.e., family, friends, and business), this paper primarily examined a network of 37 WT microentrepreneurs from the region (i.e., WT business network). Therefore, this paper will focus on the support received from business ties, and specifically from WT business network (e.g., consists of business ties only, particularly connections among WT microentrepreneurs in the study region). The WT business network (Figures 4.3 and 4.4) represents a network of 37 WT microentrepreneurs. Among those, 28 of them were connected to each other and 9 of them were isolated.

Table 4.1: Descriptive summary on the extent of network ties and the type of support

<table>
<thead>
<tr>
<th>Type of support</th>
<th>Ties (Average number/Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Family</td>
</tr>
<tr>
<td></td>
<td>1.08 (10%)</td>
</tr>
<tr>
<td>Marketing and advertising (35%)</td>
<td>9%</td>
</tr>
<tr>
<td>Information sharing (27%)</td>
<td>5%</td>
</tr>
<tr>
<td>Product support (14%)</td>
<td>N/A</td>
</tr>
<tr>
<td>Emotional (14%)</td>
<td>74%</td>
</tr>
<tr>
<td>Others (financial; account and credit management) (10%)</td>
<td>82%</td>
</tr>
</tbody>
</table>

Assessment of the Network Structure

The largest k-core in the network is 3 (i.e., k=3) that included 15 WT microentrepreneurs (Table 4.2 and figure 4.3). This means that 15 WT microentrepreneurs are connected to at least 3 other WT microentrepreneurs. The proportion of WT microentrepreneurs in 3k-core is 0.54, which is more than 50%. However, the largest k-core itself was not big enough to be considered well-connected network, providing the fact that
there is possibility for each individual to connect with 27 other WT microentrepreneurs from the entire network. Crowe (2007) used 3k-core, whereas Ramirez-Sanchez and Pinkerton (2009) used 2k-core as the benchmark to assess the level of bonding. Those selected k-cores were the lowest k-cores among the networks they were examining. In contrast, this study only looked at the WT business network, and the highest k-core in the network is 3. Therefore, 3k-core and its proportion relative to the entire network were used to assess the level of bonding. In general, the number of observed connections can be expected to be smaller as the size of the network gets bigger. However, it can be argued that the small number of connections in this case is because it represents the support network only, which limits the number of connections. Therefore, the size of k-core is completely determined by the study, whereas the chosen k-core level and its proportion in relation to the entire network is arbitrary (see limitation section for details).

Additionally, the number of cut-points (i.e., bridging ties) identified is 4 (Table 4.2 and Figure 4.5). Considering that the business network has 28 points, the proportion of cut-points to total points is 0.14. Looking at the dense-loose continuum (Figure 4.1), the WT business network neither represents complete network structure nor factional network structure, as WT microentrepreneurs are loosely connected to each other without any fragmentation. Coalitional network structure is characterized by relatively higher number of cut-points that connect dense cohesive sub-groups in non-redundant ways. There are 4 cut-points that connect sub-groups which would otherwise be fragmented (Figures 4.4 and 4.5), but observed sub-groups in the network are sparse and connected to each other by cut-points in redundant ways. Moreover, the largest sub-group within the fragmented network (Figure...
4.5), contains 14 WT microentrepreneurs with highest k-core of 3. In fact, we should be able to see strong connectivity within the sub-group as the size is much smaller than the entire network (i.e., half the size of WT business network). Accordingly, WT microentrepreneur within the sub-group possibly can connect to 13 other WT microentrepreneurs. Based on the assessment of highest k-core and cut-point, the WT business network structure lies towards the lower end of dense-loose continuum (Figure 4.1). Therefore, the WT business network is considered to possess characteristic of bridging network structure that fosters bridging social capital.

Table 4.2: Characteristics of the network structure

<table>
<thead>
<tr>
<th>Description</th>
<th>WT Business Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of WT microentrepreneurs</td>
<td>37</td>
</tr>
<tr>
<td><strong>Largest component</strong></td>
<td></td>
</tr>
<tr>
<td>Number of WT microentrepreneurs</td>
<td>28</td>
</tr>
<tr>
<td>Isolated WT microentrepreneurs</td>
<td>9</td>
</tr>
<tr>
<td><strong>Indicators for network closure</strong></td>
<td></td>
</tr>
<tr>
<td>Largest k-core</td>
<td>3</td>
</tr>
<tr>
<td>No. of WT microentrepreneurs in largest k-core</td>
<td>15</td>
</tr>
<tr>
<td>Proportion of WT microentrepreneurs in 3k-core</td>
<td>0.54</td>
</tr>
<tr>
<td><strong>Indicators for structural holes</strong></td>
<td></td>
</tr>
<tr>
<td>No. of cut-points</td>
<td>4</td>
</tr>
<tr>
<td>Proportion of cut-points to total points</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Estimated network configuration</strong></td>
<td>Bridging</td>
</tr>
</tbody>
</table>
Figure 4.3: Identified k-core in the WT business network

*Note: The color of the node indicates its affiliation to k-core (i.e., Black: 1k-core, Blue: 2k-core and Red: 3k-core). Shape of the node indicates job status (i.e., circular node: full-time WT microentrepreneurs and up triangle node: part-time WT microentrepreneurs)
Figure 4.4: Identified cut-points in the WT business network

*Note: Nodes in red color are cut-points. Shape of the node indicates job status (i.e., circular node: full-time WT microentrepreneurs and up triangle node: part-time WT microentrepreneurs)
Figure 4.5: Fragmentation of the WT business network after removal of cut-points

*Note: The shape of the node indicates job status (i.e., circular node: full-time WT microentrepreneurs and up triangle node: part-time WT microentrepreneurs)
Network Structure as a Function of Entrepreneurial Phenomenon

This section provides a discussion on how the entrepreneurial phenomenon occurs in the context of WT microentrepreneurship. In doing that, the discussion will be centered on WT microentrepreneurs’ networking behavior, for instance, why WT microentrepreneurs reciprocate with their peers, other factors that motivate WT microentrepreneurs to connect with new network ties that potentially promote bridging social capital, and lastly, how these bridging ties that fill the structural holes are perceived by other peers. Basically, the network structure will be interpreted in support of entrepreneurial phenomenon. Because the identified network structure is bridging, the section provides discussion on how reciprocal relationships occur in the context of WT microentrepreneurship that enables formation of 3k-core. However, entrepreneurial phenomenon will be interpreted in aggregated form as to why WT business network exhibits bridging network structure.

The network structure is usually formed based on reciprocal relationships among WT microentrepreneurs. As we are evaluating the support network of WT microentrepreneurs, network structure is completely defined by WT microentrepreneurs’ ability to reach out for support by creating social relations to optimize their business outcome. In this case, 15 WT microentrepreneurs (red nodes) fall under 3k-core, while the remaining 9 WT microentrepreneurs (blue nodes) fall under 2k-core, and 4 WT microentrepreneurs (black nodes) fall under 1k-core (Figure 4.4). On the other hand, WT microentrepreneurs, such as EID1, EID2, EID17, and EID28 are cut-points that foster connectivity in the network, otherwise the network would be fragmented into sub-groups (Figure 4.5). However, simply
removing one of the cut-points (i.e., bridging ties) would not fragment the network because the sub-groups are connected in a redundant fashion.

These cut-points represent fishing and hunting guides, as well as the owner of bait and tackle shop. EID1 is a 45-year-old full-time WT microentrepreneur, who is primarily a fishing guide but also involved in hunting. EID2 is a 38-year-old full-time WT microentrepreneur, who is primarily a fishing guide but also involved in hunting and wildlife viewing. Likewise, EID17 is a 51-year-old full-time bait and tackle shop owner. Lastly, EID28 is a 63-year-old full-time fishing guide. EID1 and EID2 are relatively young full-time WT microentrepreneurs and they depend on WT income for their livelihood (e.g., WT income as a primary source of income towards total household income). They started their business for 21 and 9 years, respectively. Whereas, EID28 is still full-time WT microentrepreneur but does not depend on WT income for livelihood. Nevertheless, EID28 is perceived as active WT microentrepreneur by other peers. EID28 is in the business for 8 years. EID17 is a full-time bait and tackle shop owner and is in the business for 21 years, who also depend on WT income for livelihood. EID1, EID2, EID17, and EID28 were considered highly active members of the WT business network by other peers and were engaged in reciprocal relationships in terms of information sharing and customer exchange.

WT microentrepreneurs indicated the importance of networking with other peers to obtain information related to fishing location; baits used to catch fish and the type of fish caught; and information related to location of waterfowls (e.g., ducks) and their direction of movement. Particularly in case of fishing and hunting guides, it was critical to obtain that information to have a successful day (i.e., provide a catch or take for their client). Trust was
echoed as an important factor to engage in reciprocal behaviors, as information sharing and culture of customer exchange requires common understanding among them. Such mutual relationships for information exchange behavior and customer referral existed not only among guides but also with bait and tackle shops. In WT business, necessity for the supports in the form of information sharing and marketing, which includes customer referral or exchange, were fostering reciprocal relationships among WT microentrepreneur that potentially resulted in the formation of 3k-core. For example, a 27-year-old bait and tackle shop owner explained reciprocal relationships with peers as,

*The biggest thing is, I give them a lot of information and offer them what they want, and we give them discounts for what they do for livelihood. It is kind a like you scratch my back and I scratch yours. They get a discount when they shop here, they tell me things that are working, in a hope that I do not tell all the secrets about what they are doing. I stock the stuffs that they need and in return they try to funnel businesses my way. Charter boat guys [fishing guides] are kind a like our base that are steady and constant and everything is built from there. The recreational fishers see where these charter boat guys shop, and that is with me. I rely on them very heavily.* (EID20)

An ability to network and communicate with other guides was considered the biggest factor for business success, as networking allows WT microentrepreneurs to access additional ideas, information, and resources by establishing relationships with new network ties. This phenomena further promotes the formation of a bridging network structure. For
instance, a 43-year-old hunting and fishing guide (also involved with wildlife watching) stated the importance of networking as,

_Guys that are real successful – [EID 8] and [EID 2] is because they are able to network, I have seen captains and guides that do not do this and do not network. They keep it all to themselves. They do not share information and they are not successful in a business sense because they still get clients but they are not successful at what they are going for...they do not catch a lot of fish. Networking really makes you look better to your client when you catch a lot of fish._ (EID4)

Further, EID4 explained his plan to switch his part-time job into full-time. Obviously, a lot of individual efforts go into the business but his decision to change his job status was possibly influenced by successful microentrepreneurs like EID 8 and EID 2. Thus, WT microentrepreneurs like EID 8 and EID 2 can be considered influential members in the network. Bridging ties in this case were not just connecting the sub-groups but referred to as successful microentrepreneurs. Their behaviors and opinions are critical for other members as they try to emulate them as successful microentrepreneurs. In that regard, a 51-year-old fishing and hunting guide (also involved with wildlife watching) expressed his opinion about EID1 as,

_When he first started [guiding business for recreational fishing], I thought this dude is crazy and not going to make any money because nobody was doing that. We were all into commercial fishing. But it really took off, I probably admire [EID1] more than anybody else other than my life, more than my mother and father. [EID1] has a very successful business. I am his right hand man, thank god._ (EID3)
Moreover, WT microentrepreneurs expressed that huge amounts of hard work go into the business. The level of involvement and the extent of network ties among WT microentrepreneurs were driven by their livelihood dependency on WT business income. For instance, some WT microentrepreneurs were full-time, while some of them were part-time. The level of commitment and hard work from full-time WT microentrepreneurs would obviously be higher than part-time WT microentrepreneurs. Even among full-time WT microentrepreneurs, some of them tended to have alternative source of income, such as retirement plan from their previous job, whereas for other microentrepreneurs, it was a means for livelihood. Therefore, their networking behavior was more likely to be influenced by their job status and also by the level of involvement (e.g., based on partially or fully dependent on WT business to livelihood). In that context, a 63-year-old fishing guide stated,

*I am almost 63. To get up at 3:30 am in the morning, fish all day. That is not too bad but when you get back at night, you have to clean up. That's what people do not realize what goes behind the scene. You have to go clean the gear, clean your boat, you have to fix anything you broke that day and get ready to wake up at 3:30 am. That is the killer. About 4th or 5th day like that, I am dragging. For me, it is perfect to have one trip every other day. That gives this old man little time to rest. A lot of guides do not have that luxury because they do it for a sole living. Because I am retired, I have that back up. I know where my next sandwich is coming from. It is not like I have to do this.* (EID28)
Often microentrepreneurs mentioned repeat customers as an important factor in WT business success. In fact, WT microentrepreneurs reported repeat customer in the WT business up to 80%. Developing an extensive network in this context is very important for two reasons. Foremost, it is necessary to get information regarding business activities to make a successful trip with the clients. Second, WT microentrepreneurs mentioned receiving multiple requests for fishing, hunting, and eco-tours for a particular day. Having a good and trusted network becomes critical to exchange these clients. However, relationships with these trusted peers are developed on individual level, which does not necessarily promote group cohesion. Furthermore, WT microentrepreneurs put continuous effort towards optimizing entrepreneurial outcome through creating an environment among WT microentrepreneurs for better networking that eventually promotes bridging social capital. Therefore, the functionality of the WT business network in this case is driven by the common characteristics of entrepreneurship, which is opportunity seeking behavior to optimize business outcome.

Discussion

The purpose of this study was to examine the bonding and bridging social capital among WT microentrepreneurs through a network structure analysis. In doing so, this study aimed to understand the extent of bonding and bridging network structure formed in WT business network, and how bonding and bridging social capital were developed among WT microentrepreneurs. The “network approach” of looking at bonding and bridging social capital is completely different than “traditional approach”, which overcomes the difficulty of traditional approach to visualize it through network structure. Moreover, how microentrepreneurship functions in natural resource/wildlife dependent rural communities,
the state of bonding and bridging social capital among WT microentrepreneurs, and the underlying processes that promote bonding and bridging forms of social capital are underexplored.

Results showed that the WT business network possesses characteristics of bridging network structure. Because the identified WT network represents support network, there is a likelihood of not forming a densely connected network as the identified network solely represents a business support network, thereby reducing the number of connections. On the other hand, Crowe (2007) argues that the formation of complete network is rare, and it is unlikely that each WT microentrepreneur connect with all the other members in the network. In addition, Allcott et al. (2007) argue that network closure can be expected from small communities. Although, the study was carried out in the wider context, only particular segment of the community (e.g., WT microentrepreneurs) were included to visualize the network. Nevertheless, it is also true that network closure was constrained by the rigidity involved with the study; that is, the study only measures a support network. Future studies should focus on measurement of microentrepreneurial network in a broader scale, or conduct studies to compare networks formed under different scenario, for instance, support network versus communication network.

Literature supports the fact that entrepreneurship by nature seeks for personal freedom or independence (e.g., Alstete 2008). Therefore, there is less of an interest among WT microentrepreneurs to confine within a certain group or promote group cohesion. They have complete freedom to choose their business peers regardless of their affiliation to a particular group, as long as they find trusted peers to share ideas and information about
entrepreneurial activities. Indeed, many researchers support negative effects introduced by strong bonding (Portes 1998, Agnitsch et al. 2006, Eklinder-Frick et al. 2011). The WT business network in this case promotes bridging social capital that mitigates the negative effects introduced by strong bonding (Woolcock 1998, Putnam 2000, Agnitsch et al. 2006). In the context of WT microentrepreneurship, bridging social capital is more likely to remain dominant, which is because the entrepreneurial phenomenon is driven by an individual approach (Casson and Giusta 2007). Therefore, it does not necessarily foster formation of cohesive sub-groups. However, this does not imply that microentrepreneurial networks always lack strong bonding either. Strong bonding in the literature is perceived as well-integrated sub-groups, which further complicates its interpretation in the context of entrepreneurship in general, where individualism is inherent to entrepreneurship. Therefore, it is necessary to understand the fact that every individual microentrepreneur maintains his/her own individual bonded network to share ideas or exchange resources, but that does not necessarily foster group cohesion as individual networks among microentrepreneurs are established to facilitate their own personal business needs. Although the WT business network was identified as bridging, the network itself was not devoid of bonding social capital. Bridging network structure was important in garnering two major forms of support: information sharing related to WT business (e.g., location of wildlife) and customer exchange or referral. These forms of support were perceived highly important for business success.
Cut-points, such as EID1, EID2, EID17, and EID28 are key bridging ties in the WT business network. These bridging microentrepreneurs prevent social fragmentation and generate non-redundant information (Ramirez-Sanchez and Pinkerton 2009). Often these microentrepreneurs seek opportunities extensively with different network ties without limiting themselves in a particular sub-group. Therefore, these bridging microentrepreneurs can be considered explorers who are more likely to be experimental in nature. Entrepreneurship is an opportunity seeking behavior (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011). WT microentrepreneurs possibly look for homogeneous resources within the group of loose bonding (e.g., other than the cut-points) but also heterogeneous resources across structural holes (Burt 2000; 2004). Therefore, WT microentrepreneurs can be categorized into two types: (i) WT microentrepreneurs connected with the similar individuals, who are considered inherently inward-looking and are good for “getting by”; and (ii) outward-looking WT microentrepreneurs (e.g., EID1 and EID2), who prefer to connect with heterogeneous individuals to get new resources and ideas, usually needing to “get ahead” (Gittell and Vidal 1998, Putnam 2000, Agnitsch et al. 2006, Crowe 2007, Berardo 2014). In addition, local bait and tackle shop owner, EID17, was found to serve as an important bridging tie. In this case, bait and tackle shops and outfitters are also important information hubs, where members of the network share critical information about the local resources and in return they receive product support, ideas, and information pertaining to the business. In fact, there was a greater tendency for WT microentrepreneurs to advertise and market their business services in conjunction with these bait and tackle shops,
for example, selling live baits, promoting business by keeping business cards in local bait and tackle shops, and funneling customers to each other’s businesses.

Social capital is viewed as a mechanism through which other forms of capital are utilized more efficiently (Agnitsch et al. 2006, Light and Dana 2013). For example, WT microentrepreneurs with innovative ideas and some resources can collaborate with others, especially with people who have access to market or have a deeper understanding of the local wildlife. Those collaborative efforts can be effective and mutually beneficial. Additionally, outward-looking individuals can be more efficient in accessing those resources and better utilizing other forms of social capital, such as financial or human capital. Often they are more knowledgeable and resourceful because they are exposed to alternative ways of thinking (Burt 2004). Clearly, they can positively influence the business outcome with a greater exposure to the resources and opportunities. Results also indicate that these outward-looking people (i.e., bridging ties) were considered successful by peers. Most importantly, these successful microentrepreneurs were also reported to invest significant amount of time in the business, and were more driven my income for their livelihood. Therefore, even among bridging ties, some bridging ties can be more active than the others (e.g., EID1 and EID2 vs. EID28).

WT microentrepreneurs (e.g., EID 1 and EID 2) with several connections with peer microentrepreneurs are considered popular (Ramirez-Sanchez 2011). They seem to motivate other peer microentrepreneurs to network, as well as in other business decisions. It can be argued from the results that they are influential people in the network. These popular and influential microentrepreneurs are directly connected to many members of the network. Thus,
they are also considered independent (Prell 2011), as they do not rely completely on other members in the network to share information and resource acquisition. Because they are directly connected to many other WT microentrepreneurs, communication barriers do not likely exist for them. As bridging ties span across the structure holes to generate non-redundant information (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009), they are also in a position to monopolize their position and resources they receive from different sub-groups (Burt 2000). Based on the literature, strong bonding which also favors the formation of close-knit trusting group, also retains negative perception for ambitious member of the group (i.e., bridging ties) when they do not agree with the group’s decision (e.g., Portes 1998, Agnitsch et al. 2006). However in this case, bridging ties are perceived positively among connected peers, which also supports the identified network as more loosely structured (i.e., a bridging structure).

The network structure depicts WT microentrepreneur’s communication and their behavioral pattern in terms of accessing ideas and resources from the network ties. Additionally, this network structure tells us about how information dissemination takes place and who has greater control over those processes. Therefore, information related to network structure is particularly of great interest to policy makers and practitioners. Identified bridging network structure facilitates better information flow within the network compared to factional network with cohesive sub-groups because cohesive sub-groups tend to possess and utilize all the available opportunities within the group. Furthermore, Agnitsch et al. (2006) stated that the optimal effects of social capital are found in the presence of both bonding and bridging, and that a network with the elements of bonding and bridging social capital are
more capable of building group resilience (Bodin et al. 2006, Ramirez-Sanchez and Pinkerton 2009). McGhee et al. (2010) also suggested that the balance between bonding and bridging social capital is vital to success in the context of rural tourism development. On the other hand, bridging ties are equally considered important from the perspective of collective action and conflict resolution (Granovetter 1973, Carlsson and Berkes 2005, Crona and Bodin 2006). Although findings are interpreted in the context of microentrepreneurship, it is still important to consider the importance of bridging ties in the network for information flow and knowledge dissemination from multiple sources (Olsson et al. 2004), which could be equally useful to improve business acumen among microentrepreneurs in the network. The WT business network was identified as bridging network, where microentrepreneurs tended to possess individual trusted networks without promoting group cohesion. Therefore, we can argue that bridging network structure can equally promote business success among WT microentrepreneurs by maintaining individual network of trusted peers, since detrimental effects introduced by strong bonding structure is negated by the identified bridging network (e.g., Portes 1998, Agnitsch et al. 2006). The identified bridging network structure not only prevents formation of cohesive sub-groups or network fragmentation and avoids information gap, but also likely facilitates information relay throughout the network more efficiently.

Most studies do not examine the bonding and bridging forms of social capital through analysis of network structure (i.e., network approach), which is still in an early research stage. However, the network approach of analyzing the bonding and bridging social capital is a strong tool to understand the networking behavior among actors in the network. Further, it is necessary to consider that the networks and social capital that functions in one context are
different from another (Ramirez-Sanchez and Pinkerton 2009). In addition, the network structure are more likely to change over time as WT microentrepreneurs establish new connections, while looking for new ideas and opportunities from new network ties. Therefore, findings from this study are confined to the Pamlico Sound region, especially among WT microentrepreneurs. However, the study can be replicated elsewhere to critically analyze the network structure, as well as to assess the extent of bonding and bridging social capital to different sets of population.

**Limitations**

The examination of k-core and cut-point analyses provide basis for interpreting the network structure for bonding and bridging social capital. However, understandably, quantitative assessments to make judgements about bonding and bridging network structure posits inherent methodological limitations. First, there is no established threshold levels for k-core and cut-point in the network to make quantitative decision about level of bonding and bridging. The size of the k-core is dependent on the characteristic and structure of the network under study. The proportion of k-core in the network depends upon the chosen level of k-core, and there is no limitation over choosing it. If the chosen k-core is small, the proportion goes up, whereas higher k-core reduces the proportion. This study only looked at the WT business network but there was still an option to choose 2k-core and proportion of 2k-core and higher in the network. However, the highest k-core in the network, which was 3k-core, was chosen in this case. A higher number of cut-points connecting cohesive sub-groups is considered as coalitional network structure. Again, there is no threshold established for the number of cut-points and its proportion in the network to determine the bridging
network structure. Therefore, the number of cut-points and the characteristics of the sub-
groups connected by those cut-points are critical to make the judgment. In addition, a
qualitative assessment of the cut-points (e.g., how are cut-points perceived by other peers) is
another factor to consider while analyzing the network structure, for example, there is a
tendency to hold a negative perception about the bridging ties as they connect with other sub-
groups across the structure holes, hence connected ties within the same group are more likely
to perceive them negatively for being ambitious (Portes 1998, Agnitsch et al. 2006).
Therefore, besides quantitative measures, visual assessment of the network structure in
relation to the network structure typology (Figure 4.1) and other network characteristics (e.g.,
nature of the network and perceived role of cut-points in the network) should be considered
to identify and characterize the network structure.

Conclusion

This study employed a “network approach” to analyze WT microentrepreneurs’
network for bonding and bridging forms of social capital, which provides contextual
understanding about how WT microentrepreneurs network with each other to garner benefits
from their networks. This study offers several interesting findings regarding WT
microentrepreneurial network. Results showed that WT business network exhibits bridging
network structure. This study further suggests that the formation bridging network structure
was a result of entrepreneurial phenomena governed by WT microentrepreneurs.
Consequently, the network did not foster close-knit trusting groups but WT
microentrepreneurs tended to possess individual trusted networks. Four cut-points were
present in the WT business network that prevented network fragmentation. These cut-points
rendered themselves in a position to connect with many other members in the network (Granovetter 1973, Burt 1992, Greve and Salaff 2003), and these microentrepreneurs are considered popular and independent (Prell 2011, Ramirez-Sanchez 2011). Interestingly, these bridging ties were also the influential members in the network. Some bridging ties were more active than others. However, the level of involvement and livelihood dependency on WT business were important factors to determine the extent of network development among WT microentrepreneurs. WT microentrepreneurs identified as cut-points were also in the best position to access information, ideas, and resources from other peers across the structural holes. Overall, this study suggests that analyses of k-core and cut-point, along with the network structure typology (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009, Scott 2013), greatly enhance the ability to understand network pattern, key influencers in the network, and networking behaviors of the actors.
References


CHAPTER 5: Conclusion

This study is divided into three articles that explore different aspects of social networking among wildlife tourism (WT) microentrepreneurs. The purpose of the first article was to examine the extent of network ties, types of support received from those network ties, and the process of creating and maintaining the business network among WT microentrepreneurs. The second article examined the effect of social influence on trust, reciprocity, and togetherness occurring through network structure. And the third article examined the WT business network for bonding and bridging forms of social capital, as well as key influencers within the network.

Chapter Summary

Article 1: Chapter 2

The purpose of this chapter was to examine the extent of network ties, types of support received from those network ties, and the process of creating and maintaining the business network among WT microentrepreneurs. Business ties were found to be more prevalent than family and friends ties. Several factors were identified for dominance of business ties over family and friends ties. First of all, WT microentrepreneurs in the network had generally been in business for more than a decade, and mature stage entrepreneurs are usually considered to possess extensive networks of business connections (Hill et al. 1999). However, the nature of the business also contributed to a higher number of business ties because WT microentrepreneurs reported frequent interaction with peers during their work in the field (e.g., during fishing in the water or while hunting in the same range), in professional
workshops or seminars, and in the process of seeking sponsorships. In addition, a large proportion of support came from business ties in the form of marketing and advertising, information sharing, and product support (i.e., ~76%). Therefore, a higher number of business ties resulted from the cumulative effect of the length of business establishment, nature of the WT business, and the important support received from business ties.

In social network analysis studies, not many researchers examine how networks are formed. Instead, they examine networks that are already formed. The formation of social networks is a dynamic process (Jack 2010), and it is important to understand the process of creating and maintaining the network. Although working in the same environment, professional platforms, and seeking sponsorships were identified as ways to connect with business supporters, good interpersonal communication skills was an important factor in establishing those connections. Major supports were accrued primarily from business ties, where these ties are known to generate non-redundant information and resources required for the business (Granovetter 1973, Levin and Cross 2004). Interestingly, a small proportion of support was coming from family and friends ties in terms of emotional support, as well as others (e.g., financial and credit management); however, family and friends ties were rated more highly than business ties for their contributions to business success. This indicates that the support coming from family and friends ties (e.g., primarily emotional support), albeit less discussed in general entrepreneurship literature, is important for the business survival (Brüderl and Preisendörfer 1998, Hoang and Antoncic 2003, Stathopoulou et al. 2004) and its success. It can be argued that strong ties (i.e., family and friends) play equally important role in business success as the weak ties (i.e., business) does. Therefore, the comparison of the
extent of strong and weak ties can be misleading as their importance is perceived differently regardless of the type and amount of support received from those ties. Nevertheless, an ideal entrepreneurial network should possess both business ties and family and friends ties, as each type influences the network structure and its operation differently (Granovetter 1973, Johannisson 1986, Jack 2005).

Most importantly, maintaining the network is as critical as creating the network because maintaining relationships over time increases the strength of the relationships. Furthermore, stronger reciprocal relationships make greater contributions to microentrepreneurial success, with an increase in quantity and quality of resource exchange due to increased level of trust. Findings also revealed that dimensions of cognitive social capital, such as reciprocity, togetherness, and trust are important factors in maintaining the network. Therefore, the findings from this study also implies that the extent of network ties itself becomes secondary in importance to microentrepreneurial success, as dimensions of cognitive social capital are argued to play a pivotal role in facilitating the cooperation among actors in the network (Narayan and Cassidy 2001, Jones 2005, Ramirez-Sanchez and Pinkerton 2009, Chen et al. 2015).

*Article 2: Chapter 3*

Social networks are identified as an important element in entrepreneurship, which are closely associated with the flow of ideas, information, and resources (Hoskisson et al. 2011, Zhao et al. 2011). Further, dimensions of cognitive social capital, such as trust, reciprocity, and togetherness are considered to enhance cooperation among network members, hence they are more often considered critical to entrepreneurial success than just the number of network
ties (Jones 2005, Zhang et al. 2008, Anderson et al. 2010). However, the effect of social influence occurring through network structure (Leenders 2002) can affect the level of trust, reciprocity, and togetherness among WT microentrepreneurs. Therefore, the purpose of this chapter was to examine the effect of social influence on dimensions of cognitive social capital occurring through the structure of a WT microentrepreneur’s network.

Results showed the presence of social influence among WT microentrepreneurs for trust and reciprocity. The findings from the study support an assumption that the trust and reciprocity embedded in the network structure are influenced by their connected peers (e.g., immediate ties who were reported as supporting ties). Interestingly, the effect of social influence was negative for trust while positive for reciprocity. The negative and positive effects of social influence for trust and reciprocity indicates that WT microentrepreneurs were more willing to engage in reciprocal relationships than trusting relationships. Leenders (1997) suggested that social influence can be convergent or divergent, where the effect of social influence can be positive if network members behave similarly and negative if they behave oppositely; therefore, it is possible to observe such results.

On the other hand, a higher number of business ties was found to negatively affect trust, reciprocity, and togetherness among WT microentrepreneurs. This study confirms that the extent of network ties may not always leads to entrepreneurial success but cognitive social capital factors, such as trust, reciprocity, and togetherness, are equally important in defining the quality of connections (e.g., Narayan and Cassidy 2001, Anderson et al. 2010). Most importantly, entrepreneurial satisfaction was found to be positively associated with trust only. This finding suggests that, microentrepreneurs experiencing higher levels of
entrepreneurial satisfaction were more likely to be in trusting relationships in the network. Therefore, it can be argued that successful microentrepreneurs can retain high levels of trust with their business ties as compared to unsuccessful microentrepreneurs (i.e., less satisfied from entrepreneurial activities). Collectively, this study concludes that WT microentrepreneurs with high levels of entrepreneurial satisfaction also govern high levels of trust but with limited number of business ties (i.e., small-size individual networks), while WT microentrepreneurs with low levels of trust and higher number of business ties are less satisfied with entrepreneurial activity.

Entrepreneurial motivation plays an important role in the entrepreneurial process, and is likely to affect social capital (Shane et al. 2003, Smith et al. 2012). However, the effect of entrepreneurial motivations on cognitive social capital is unknown. Results showed a positive association between role modeling and trust, reciprocity, and togetherness. It can be argued that role modeling as a motivation factor increases trust, reciprocity, and togetherness among WT microentrepreneurs because they work closely with people they appreciate or emulate someone who is already successful. Independence is also considered an important entrepreneurial motivation to start a business as entrepreneurs seek freedom and flexibility for personal and family life (Carter et al. 2003, Hessels et al. 2008). Results showed that the WT microentrepreneurs who were motivated for independence were likely to engage in trusting and reciprocal relationships, as they engaged themselves in information sharing and customer exchange behavior. Income motivation was positively associated with togetherness, which is not surprising because WT microentrepreneurs with income as a motivation tended to attend professional meetings or engage in other forms of socialization to develop
networks. Thus, entrepreneurial motivations, such as role modeling, independence, and income were found to affect WT microentrepreneurship by influencing trust, reciprocity, and togetherness in the network. Lastly, the length of business establishment was not found to affect trust, reciprocity, and togetherness. The formation of the microentrepreneurial network is a dynamic process (Jack 2010), where the size of the network, as well as associated cognitive social capital factors change over time. Therefore, examining the relationship between length of business establishment and cognitive social capital becomes challenging.

**Article 3: Chapter 4**

The purpose of this chapter was to analyze the WT business network structure for bonding and bridging forms of social capital. A network structure typology developed by Crowe (2007) was used to analyze the network structure for bonding and bridging social capital based on k-core and cut-point analyses. Moreover, characteristics of the network configurations (e.g., complete, factional, coalitional, and bridging) and their visual assessment (Crowe 2007) were used in conjunction with the quantitative properties of the network (i.e., k-core and cut-point), as well as the basic characteristics of entrepreneurship phenomena in order to characterize the structure of the WT business network. Analyses revealed that the WT business network was structured as a bridging network with members aggregated into loosely formed sub-groups connected with each other by redundant bridging ties. Entrepreneurial phenomena is described as opportunity seeking behavior (Shane and Venkataraman 2000, Veen and Wakkee 2002, Zhao et al. 2011), which also contributed towards the formation of a bridging network with some key influencers serving as cut-points. In addition, entrepreneurs inherently seek personal freedom and independence (Alstete
2008). Thus, the entrepreneurial phenomena itself do not promote the formation of cohesive sub-groups. However, the networking pattern exhibited among WT microentrepreneurs in the network generally manifested through the exchange of information about the location of wildlife and other marketing strategies including customer exchange/referral.

The identified level of k-core signifies the reciprocal relationships existed among WT microentrepreneurs. Meanwhile, WT microentrepreneurs were more likely to connect with new network ties in search for new ideas and information, which also contributed towards the formation of the bridging nature of the network. Some bridging ties were found more active in connecting sub-groups than others. However, income from WT business was considered a driving force for these bridging ties to span across structural holes in identifying new trusted peers to facilitate the entrepreneurial process due to their dependency on WT income for their livelihood. Bridging ties were also considered successful by peer entrepreneurs and merit was given for ability to network and reciprocate effectively with peers. Bridging ties are known for preventing social fragmentation and generating non-redundant information (Ramirez-Sanchez and Pinkerton 2009). Additionally, the findings from this study revealed that these bridging ties were influential in terms of positively impacting the decisions among other WT microentrepreneurs. In summary, this study concludes that the entrepreneurial phenomena foster bridging social capital, which not only prevent negative outcomes of strong bonding (Portes 1998, Agnitsch et al. 2006) but also functionalize reciprocal relationships among WT microentrepreneurs that support microentrepreneurial process.
Methodological Considerations

Some challenges existed in the study but strategies were used to try to address those challenges. First of all, the characteristics of the population were pre-specified in order to avoid boundary specification problem. The study participants were recruited to capture the support network in the study region, particularly microentrepreneurs involved in guiding trips for recreational fishing, hunting, and wildlife watching. This study examined the entrepreneurial phenomena in terms of accessing resources from network ties; therefore, studying the support network was deemed more important. Nevertheless, future studies can explore other forms of network beyond support ties, for example, network ties extending to acquaintances.

Due to lack of complete information on WT microentrepreneurs in the region, egocentric data were collected through using the recall method (Marsden 1990, Wasserman and Faust 1994, Greve and Salaff 2003, Crona and Bodin 2011). Often the recall method limits the number of ties because it is difficult for informants to memorize and enunciate the entire list of the people associated with their business. Although the use of recall method was an obvious choice in this case, it limited the type of information collected to support ties only. Due to the egocentric data collection process, support ties were documented on both strong and weak ties (Hill et al. 1999, Anderson et al. 2005, Jack 2005), which were later differentiated into family, friends, and business ties. In addition, the chain referral process (Biernacki and Waldorf 1981) was used to identify WT microentrepreneurs in the region. Therefore, the resulting network consisted of two types of network; (i) “WT social network” that contains all the network ties (e.g., family, friends, and business ties), and (ii) “WT
business network”, which is a complete network that consists of WT microentrepreneurs connected to each other at the local level (i.e., total study participants interviewed from Pamlico Sound region) in terms of exchanging support with each other.

Social influence process was considered to occur from communication because trust, reciprocity, and togetherness are embedded in the social networks and the effect of social influence on those variables through direct connection seemed more practical than considering indirect connections for the effect of social influence. In order to measure the effect of social influence, connected peers were weighted equally because the level of trust, reciprocity, and togetherness of each WT microentrepreneur was measured in regards to the entire business network rather than each of his/her business tie. Therefore, this study followed Mizruchi et al.’s (2005) method for W specification, where all the business ties mentioned from whom an WT microentrepreneur received support from were weighted equally (i.e., “1” if connected and “0” if not connected). However, other W specification processes (e.g., Leenders 2002) can be used in future studies.

The WT business network was analyzed for bonding and bridging forms of social capital using quantitative measures, such as k-core and cut-point (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009, Scott 2013). However, there were some challenges regarding the lack of an established threshold for quantitative measures (i.e., k-core and cut-point) to clearly determine the type of bonding and bridging network structure. Therefore, characteristics of the network configurations (e.g., complete, factional, coalitional, and bridging) and their visual assessment (Crowe 2007) were used in conjunction with the
quantitative measures (i.e., k-core and cut-point) and basic characteristics of entrepreneurship phenomena to describe the identified form of network structure.

**Theoretical Implications and Future Recommendations**

Business ties were more prevalent among WT microentrepreneurs than family and friends ties, which was concluded as a cumulative outcome of length of business establishment, the nature of the business, and the amount of support received from business ties. On the other hand, dimensions of cognitive social capital, such as reciprocity, togetherness, and trust were identified as important factors to maintain relationships with business ties. It can be argued that a higher number of business ties among WT microentrepreneurs could possibly be due to a high level of reciprocity, togetherness, and trust among them. Therefore, dominance of weak ties over strong ties (Hill et al. 1999, Anderson et al. 2005, Jack 2005) can be a result of mature stage entrepreneurship (Hill et al. 1999) but other factors, such as cognitive social capital factors, should be considered equally in future studies to examine the extent of business ties.

Dimensions of cognitive social capital are the fundamental elements controlling the structure of the network, as well as facilitating cooperation among WT microentrepreneurs and the flow of resources among them (Jones 2005, Zhao et al. 2011). Therefore, the nature of connections should be emphasized in order to examine entrepreneurial success rather than just the extent of network ties (Narayan and Cassidy 2001, Zhang et al. 2008, Anderson et al. 2010). Cognitive social capital factors are embedded in the network structure (Neergaard et al. 2005, Light and Dana 2013), which makes a network’s relationships less vulnerable to network fragmentation and can result in the increase of business ties over time. However,
results indicate that a higher number of business ties degrades trust, reciprocity, and togetherness. It can be argued that maintaining high level of trust, reciprocity, and togetherness can be challenging for larger networks; therefore, small networks with limited number of business ties, especially trusted networks (e.g., with high level of trust) favor microentrepreneurial success.

Indeed, cognitive social capital remains central towards the network structure and controls the flow of ideas, resources, and information in the network. Therefore, simply the number of network ties does not necessarily predict microentrepreneurial success. Future studies should focus on both number of ties and dimensions of social capital in order to assess entrepreneurial success. Although the numbers of family and friends ties were lower than business ties, these ties were rated very highly among WT microentrepreneurs despite the fact that most of the support required for the business was garnered from business ties. Hence, strong ties are as important as weak ties regardless of their number or type of support coming from those ties. Therefore, the extent of network ties (i.e., strong vs. weak ties) and their contributions in business growth and success should be treated differently.

Social capital and social influence are interrelated phenomena as the level of trust and reciprocity among WT microentrepreneurs exhibited the effect social influence through network structure. Furthermore, results also indicated differences in social influence among dimensions of cognitive social capital (e.g., negative social influence for trust and positive social influence for reciprocity). However, entrepreneurial success (i.e., measured in terms of entrepreneurial satisfaction) was only positively associated with trust. These results imply that the dimensions of cognitive social capital should not be treated equally. Trust is a
fundamental element among all the dimensions of cognitive social capital. Although reciprocity and togetherness are factors facilitating the flow of information and resources among WT microentrepreneurs, it is primarily trustworthy relationships that promote business success. One more avenue for the future research is to contrast findings between several studies of microentrepreneurial networks, especially the role of cognitive social capital factors and the interrelationships between those factors.

Analyzing the k-core and cut-point of the WT business network for bonding and bridging social capital (Crowe 2007, Ramirez-Sanchez and Pinkerton 2009, Scott 2013) provided important information regarding networking behaviors of WT microentrepreneurs. The WT business network was identified as bridging network. Entrepreneurial phenomena, including opportunity-seeking behavior of an entrepreneur (e.g., Shane and Venkataraman 2000, Veen and Wakkee 2002), or entrepreneurial motivation to look for personal freedom and independence (e.g., Alstete 2008), were considered accountable for the bridging network. In this case, entrepreneurial network itself avoids potential negative consequences associated with strong bonding, such as exclusion of outsiders or restriction on individual freedom (e.g., Portes 1998). Although entrepreneurial characteristics do not promote formation of cohesive sub-groups in the network, trust is associated with strongly bonded network (Portes 1998, Agnitsch et al. 2006). Results also indicated that the increase in number of network ties (e.g., business ties) negatively affects the level of trust among WT microentrepreneurs, whereas entrepreneurial satisfaction was found to be statistically significant, indicating positive association with trust. Because this study’s WT business network was identified as bridging, it can be further argued that it is possible to achieve entrepreneurial success without
promoting close-knit trusting sub-groups in the network (i.e., if small size network is maintained at the individual level with limited trusted network ties). It is an important theoretical implication towards bonding and bridging forms of social capital, as some pros and cons are associated with those forms of social capital (e.g., Portes 1998, Putnam 2000, Agnitsch et al. 2006).

Social networks and social capital functions are perceived as contextual elements (Ramirez-Sanchez and Pinkerton 2009) but it can be interpreted in a different way in the context of microentrepreneurship. Networking behaviors of microentrepreneurs to build social networks remains fairly common, thus cultural differences even may not have significant differences in the results (Greve and Salaff 2003). Although the generalizability of the results is still questionable, the results can be compared to similar research, especially on networks of WT microentrepreneurs. However, it is recommended to replicate the study to examine other entrepreneurial sectors. Moreover, this study just looked at the support network, which limits the number of network ties identified and the resulting network structure. Extending the study to capture other types of network ties, such as acquaintances or communication, might provide different insights.

**Practical Implications**

Although the study is exploratory in nature, it provides specific actionable insights for organizations working in the area of microentrepreneurial tourism development, wildlife or coastal resource management, and endogenous rural development. The network structure identified for WT microentrepreneurs is an indication of communication pattern among these microentrepreneurs as well. Qualitative results identified several ways through which WT
microentrepreneurs establish and maintain their business ties. Professional platforms, such as workshops and seminars for fishing and hunting, can be used as a way to disseminate new policies and regulations. Bridging ties (i.e., cut-points) are the central actors connecting sub-groups within the network, and they are also the influential members in the network. Therefore, policy makers and practitioners should specifically use these influential people for information dissemination adoption of desired policies. Bridging ties are experimental in nature with a tendency to explore and adopt new ideas. Their decision to accept certain behaviors including the adoption of new policies tends to influence other WT microentrepreneurs in the network. The most important bridging ties identified in this study included not just the most accomplished guides but also local bait and tackle shop owner. The local bait and tackle shops are also information hubs that connect to various WT microentrepreneurs. Therefore, they are also prime information disseminators.

Often change in policy or state rules and regulations in regards to use of natural resources can be complex and difficult to track. WT microentrepreneurs use their respective social networks to get informed about the most pressing issues on policy changes. Examining the networking pattern among WT microentrepreneurs can enhances organizations’ efficiency by allowing them to have an effective implementation plan. This study analyzed a WT microentrepreneur’s support network. Thus, it provides more rigid form of network structure because support network is a fully functional network, which captured network ties that are utilized to exchange ideas, information, or resources on a regular basis. However, these WT microentrepreneurs are also likely to connect with other sets of network ties; for example, network ties based on acquaintances or communication. Therefore, identifying
other types of social networks among these microentrepreneurs can offer better understanding of the network effects for various purposes.

Wildlife dependent communities face challenges related to resource fluctuations and uncertainties (Ramirez-Sanchez and Pinkerton 2009). Moreover, coastal environments are among the most physically dynamic on earth, where costal resources that foster nature-based tourism are particularly vulnerable to climate change (de Frietas 2003, Scott et al. 2012, Bitsura-Meszaros et al. 2015). Therefore, entrepreneurial success among WT microentrepreneurs is constrained by many factors. Social networks are especially critical for WT microentrepreneurs to adapt to those challenges (Ramirez-Sanchez and Pinkerton 2009). These microentrepreneurs are even more vulnerable due to their livelihood dependency on natural resources. It is important to devise infrastructure and strategies to expand and strengthen the social networks of such microentrepreneurs because isolation will limit the flow of important information and inhibit microentrepreneurial livelihoods.

Results showed that entrepreneurial satisfaction is positively associated with trust, where trust is closely related to bonding social capital (e.g., well-integrated WT business network). The WT business network in the region was identified as a bridging network structure that promotes bridging social capital, which was due to opportunity seeking behavior or motivation to enjoy freedom and independence (Shane and Venkataraman 2000, Veen and Wakkee 2002, Alstete 2008, Zhao et al. 2011). Moreover, WT microentrepreneurs’ social networks were expanded beyond their business network (i.e., network of 37 WT microentrepreneurs from Pamlico Sound region) to access ideas, information, and resources required for the WT business. However, it is possible to enhance bonding among WT
microentrepreneurs in the region by creating an environment for them to connect with each other, and it eventually promotes trust that leads to entrepreneurial success. The support received among WT microentrepreneurs included information sharing, marketing and advertising (involved exchange of customer), and product support from local bait and tackle shops. Information sharing was typically about the location and movement of wildlife (e.g., location of fish or waterfowls, bait used in catching fish, or movement of waterfowls). Information sharing and exchange of customers with peers were common yet important supports received from the WT business network. Therefore, promoting their networking at the local community level is crucial step towards the success of WT microentrepreneurship in the region, and as a result to the health of the local economy.

**Overall Conclusions**

Overall, this study explores a WT microentrepreneur network in terms of its network structure, underlying processes for network formation and maintenance, the extent of social capital (e.g., cognitive as well as bonding and bridging), and the effect of social influence on cognitive social capital. This dissertation offers following main theoretical, methodological, and practical implications:

- This study found that weak ties (i.e., business ties) were more prevalent than strong ties (i.e., family and friends ties) among WT microentrepreneurs. Mature stage microentrepreneurship, where business ties were established on average for more than a decade ago, was a major factor contributing for the prevalence of weak ties (Hill et al. 1999). Meanwhile, 76% of the total support was accrued from business ties; therefore, dependence on weak ties for major support, such as marketing and
advertising, information sharing, and product support, was also responsible for prevalence of weak ties over strong ties.

- WT microentrepreneurs developed weak ties with business peers through working in the same locations, such as meeting peers at the marinas, on the water, or in the same hunting range; participating in professional platforms, such as fishing and hunting expos, seminars, and workshops; and seeking sponsorship, such as looking for free or discounted products associated with the WT business, especially it was prominent among fishing guides. Most importantly, cognitive social factors, such as reciprocity, togetherness, and trust were considered important for nurturing those weak ties in the long run.

- This dissertation integrates insights from broad theories of social capital and social influence. This study revealed that the levels of trust and reciprocity among WT microentrepreneurs exhibit the effect of social influence level of trust and reciprocity. In general, WT microentrepreneurs with higher levels of trust were tended to connect themselves with less trusting peers, and vice versa. Conversely, WT microentrepreneurs with high levels of reciprocity tended to connect themselves with peers also with high levels of reciprocity. These findings indicate that the effect of social influence on cognitive social capital is highly complex and that this topic warrants further research.

- It is generally assumed that extensive social networks tend to foster entrepreneurial success (Burt 2000) because networks with more dense ties among members should afford increased opportunities to access information and resources. However, this
study found that higher number of business ties diminishes the levels of trust, reciprocity, and togetherness among WT microentrepreneurs. Since cognitive social capital reflects the quality of the ties in a network, these findings revealed that in the case this WT microentrepreneur network, more ties hindered success. This evidence provides additional challenges to earlier “more is better” approaches to networking because trust, reciprocity, and togetherness are very important in facilitating cooperation among network members (Jones 2005, Light and Dana 2013).

• This study revealed that WT microentrepreneur’s business network exhibited bridging network structure with presence of four cut-points (i.e., bridging ties) that connected sub-groups in redundant ways, and without which the network would be fragmented. Those bridging ties were important to prevent fragmentation in the network and were also influential members and often role models for other WT microentrepreneurs. Even though some bridging ties were more active members than others, they were generally considered key players in the network (i.e., WT microentrepreneurs limited to fewer connections). The selected bridging ties, which were also influencers, were markedly “outward-looking” or focused on “get ahead”. Other microentrepreneurs were “inward-looking” with a focus on “getting by” (e.g., Gittell and Vidal 1998, Agnitsch et al. 2006, Crowe 2007, Berardo 2014).

• This study enhances the empirical understanding of how WT microentrepreneurship functions in rural settings like North Carolina’s Pamlico Sound region. Most importantly, it employs the theoretical and methodological rigorousness in terms of recognizing the importance of theory of social influence and cognitive social capital
in regards to the concept of microentrepreneurship and microentrepreneurial networks. It reveals the possibilities for negative and positive social influence for different dimensions of cognitive social (i.e., trust and reciprocity), which further instigates future research to be pursued to examine the relationship among dimensions of cognitive social capital.

- The “network approach” of looking at bonding and bridging forms of social capital is still emerging and not employed by many researchers. The strength of analyzing the bonding and bridging forms of social capital relies not just on understanding the level of connections in the network but also about the bridging ties that connect sub-groups which would otherwise be fragmented. In addition, the use of “network approach” offers better understanding about the forms of social capital while providing critical insights from both the researcher’s and policy maker’s perspective as the network visualization provides networking behavior among WT microentrepreneurs along with the key players. From the practical implications point of view, the networking behaviors of WT microentrepreneurs allow to understand the pattern of information dissemination in the network. Meanwhile knowing the existence of key players or bridging ties in the network indicates the fragility of the network in the absence of bridging ties; however, identifying those key players is important as they seem to influence the behaviors of other WT microentrepreneurs in the network.
References


APPENDICES
Appendix A: Structured Interview Protocol

Date:
Time interview started:
Time interview ended:

A: Background and Entrepreneurial Motivations:

1. Please indicate your associations with wildlife-related businesses (check all that apply).
   [ ] Recreational fishing
   [ ] Hunting
   [ ] Wildlife viewing
   [ ] Other: Specify ____________

2. Could you please describe the type of wildlife-related business you are involved in and how you became involved in this business?

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

3. When did you start your business (year or month): ________

4. Is your business full time or part time?

5. How many employees do you have?

<table>
<thead>
<tr>
<th>Job status</th>
<th>Family</th>
<th>Non family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. On a scale of 1-5, please circle your level of agreement with each of the following statements (1 indicates strongly disagree and 5 indicates strongly agree).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am highly passionate about owning a business</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel like my involvement in owning a business reflects my personal interests</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have a love for my business work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Owning a business makes me independent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I enjoy being a boss in my business</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Owning a business gives me greater flexibility for my personal and family life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Owning my business allows me to support my family</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My business provides me with greater income than other equally enjoyable careers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Owning a business provides financial security</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I own a business to continue family traditions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I own a business to follow the example of a person I admire</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>One particular person has had a great influence on my decision to own a business</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am highly motivated in owning a business</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

7. How do you visualize yourself in 5 years as a successful tourism entrepreneur? (Probe: what do you need to accomplish to achieve your envisioned success?)

8. How satisfied are you with your current entrepreneurial activities? (circle one)

<table>
<thead>
<tr>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither satisfied nor dissatisfied</th>
<th>Satisfied</th>
<th>Very satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
B: Social Network Analysis

9. Next, I would like to ask your help to map out the social network related to your wildlife-related business. If you can, please work with me filling out this table by listing persons/businesses/organizations **who you think are important to your business (in terms of support you received in starting a business, and are helping with your business growth)**.

<table>
<thead>
<tr>
<th>Name of person/business/organization</th>
<th>Type of support provided (check all that apply)</th>
<th>Relationship to you (check all that apply)</th>
<th>Length of connection (years or months)</th>
<th>Mode of communication (check all that apply)</th>
<th>Frequency of communication</th>
<th>Importance of these ties in business success</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Financial</td>
<td>[ ] Marketing (advertising &amp; finding customers)</td>
<td>[ ] Business Ties</td>
<td>[ ] Email</td>
<td>[ ] Daily</td>
<td>[ ] Not at all important</td>
<td>[ ] Slightly important</td>
</tr>
<tr>
<td>[ ] Accounting &amp; credit management</td>
<td></td>
<td>[ ] Family Ties</td>
<td>[ ] Phone</td>
<td>[ ] Weekly</td>
<td>[ ] Slightly important</td>
<td>[ ] Moderately important</td>
</tr>
<tr>
<td>[ ] Information sharing</td>
<td></td>
<td>[ ] Friends Ties</td>
<td>[ ] In person</td>
<td>[ ] Monthly</td>
<td>[ ] Very important</td>
<td>[ ] Extremely important</td>
</tr>
<tr>
<td>[ ] Emotional</td>
<td></td>
<td>[ ] Other: ______</td>
<td>[ ] Other; _____</td>
<td>[ ] Quarterly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[ ] Financial</td>
<td>[ ] Marketing (advertising &amp; finding customers)</td>
<td>[ ] Business Ties</td>
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<td>[ ] Daily</td>
<td>[ ] Not at all important</td>
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<tr>
<td>[ ] Accounting &amp; credit management</td>
<td></td>
<td>[ ] Family Ties</td>
<td>[ ] Phone</td>
<td>[ ] Weekly</td>
<td>[ ] Slightly important</td>
<td>[ ] Moderately important</td>
</tr>
<tr>
<td>[ ] Information sharing</td>
<td></td>
<td>[ ] Friends Ties</td>
<td>[ ] In person</td>
<td>[ ] Monthly</td>
<td>[ ] Very important</td>
<td>[ ] Extremely important</td>
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<tr>
<td>[ ] Emotional</td>
<td></td>
<td>[ ] Other: ______</td>
<td>[ ] Other; _____</td>
<td>[ ] Quarterly</td>
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<tr>
<td>[ ] Financial</td>
<td>[ ] Marketing (advertising &amp; finding customers)</td>
<td>[ ] Business Ties</td>
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<td>[ ] Not at all important</td>
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<tr>
<td>[ ] Accounting &amp; credit management</td>
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<td>[ ] Family Ties</td>
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<td>[ ] Information sharing</td>
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<td>[ ] Very important</td>
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<tr>
<td>[ ] Emotional</td>
<td></td>
<td>[ ] Other: ______</td>
<td>[ ] Other; _____</td>
<td>[ ] Quarterly</td>
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<tr>
<td>[ ] Financial</td>
<td>[ ] Marketing (advertising &amp; finding customers)</td>
<td>[ ] Business Ties</td>
<td>[ ] Email</td>
<td>[ ] Daily</td>
<td>[ ] Not at all important</td>
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<tr>
<td>[ ] Accounting &amp; credit management</td>
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<td>[ ] Family Ties</td>
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<td>[ ] Information sharing</td>
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<td>[ ] Monthly</td>
<td>[ ] Very important</td>
<td>[ ] Extremely important</td>
</tr>
<tr>
<td>[ ] Emotional</td>
<td></td>
<td>[ ] Other: ______</td>
<td>[ ] Other; _____</td>
<td>[ ] Quarterly</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

215
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
| Financial | Marketing (advertising & finding customers) | [ ] Not at all important | [ ] Slightly important | [ ] Moderately important | [ ] Very important | [ ] Extremely important |
| Financial | Accounting & credit management | Information sharing | Emotional | Other: ________ | Daily | Weekly | Monthly | Quarterly | Annually |
Now, I would like to go through a few questions to help me better understand your wildlife-related business networks listed above.

10. Could you please talk briefly about how you established a network of wildlife-related business connections? (Probe: how do you get to know people in your business network; how are business ties, family ties, and friends ties established and maintained; do you have to do anything to maintain that relationship; what would happen to your business if that relationship dissolved?)

11. What type of information do you share with members of your wildlife-related business? (Probe: what types of resources are exchanged; how does that help your business growth?)

12. Do you use social media for your business?
   [ ] Yes       [ ] No

   If yes, please indicate which one of these social media tools do you use (check all that apply).
   [ ] Face book       [ ] Twitter       [ ] LinkedIn
   [ ] Blogs           [ ] YouTube      [ ] Other: Specify_____________

13. How helpful are these social media tools in marketing of your business? (Probe: could you please explain how and to what extent they have been helpful; does any of these social media tools help in developing and maintaining networks?)
C: Social capital

14. On a scale of 1-5, please circle your level of agreement with each of the following statements (1 indicates strongly disagree and 5 indicates strongly agree).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most people in my business network are honest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I think people in my business network can be trusted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel like people in my business network trust me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>People in my business network are not solely interested in their own welfare</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>If I have a problem, there is always someone in my business network to help me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am willing to offer help to people in my business network, if needed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have a good rapport with people in my business network</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I think people get along very well in my business network</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>People in my business network socialize with each other very often</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel like there is a great social bonding among members of my business network</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

D: Demographic Questions:

15. Please indicate your annual household income before taxes for 2013?

[ ] Less than $10,000 [ ] $50,000-$74,999
[ ] $10,000-$14,999 [ ] $75,000-$99,999
[ ] $15,000-$24,999 [ ] $100,000-$149,999
[ ] $25,000-$34,999 [ ] $150,000-$199,999
[ ] $35,000-$49,999 [ ] $200,000 or more

16. What proportion of your income came from wildlife-related business in year 2013?

________
17. Gender:
[ ] Male    [ ] Female

18. In what year were you born?
_____

19. What is your education level?
[ ] Less than 9th grade    [ ] Associate’s degree
[ ] 9th to 12th grade, no diploma    [ ] Bachelor’s degree
[ ] High school graduate    [ ] Graduate or professional degree
[ ] Some college, no degree

20. Can you please give me the names and contacts of at least 3 other individuals involved in a similar type of wildlife-related business?

Thank you for participating in a survey, we would like to appreciate your time and valuable contribution for this study. Please feel free to contact me (bkc@ncsu.edu or phone: 919/809-2502) if you have any questions regarding this study.
Appendix B: Additional Results from the Linear Network Autocorrelation Model

Findings from Chapter 3 led me to consider whether dimensions of cognitive social capital might be the predictors of success. Although this question was beyond the scope of the study, I conducted the following two exploratory analyses examining the effect of dimensions of cognitive social capital and social influence on entrepreneurial satisfaction and on proportion of income earned from wildlife tourism.

Linear Autocorrelation Model for predictors of entrepreneurial satisfaction

<table>
<thead>
<tr>
<th>Residuals:</th>
<th>Min</th>
<th>1Q</th>
<th>Median</th>
<th>3Q</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.1503</td>
<td>-0.3286</td>
<td>0.1462</td>
<td>0.4149</td>
<td>1.2566</td>
</tr>
</tbody>
</table>

Coefficients:

|          | Estimate | Std. Error | Z value | Pr(>|z|) |
|----------|----------|------------|---------|---------|
| Trust    | 1.00723  | 0.18959    | 5.313   | 1.08e-07*** |
| RS       | 0.02688  | 0.2775     | 0.118   | 0.90604 |
| Togetherness | -0.20406  | 0.16033    | -1.212  | 0.22542 |
| rho1.1   | 0.05012  | 0.01326    | 2.745   | 0.00605** |

Signif. codes:  0 '****' 0.001 '***' 0.01 '**' 0.05 '*' 0.1 '.' 1

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sigma</td>
<td>0.5799</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Goodness-of-fit:

Residual standard error: 0.6297 on 24 degrees of freedom (w/o Sigma)
Multiple R-Squared: 0.4434, Adjusted R-Squared: 0.3506
Model log likelihood: -21.5 on 23 degrees of freedom (w/Sigma)
AIC: 59 BIC: 65.66

Null model: meanstd
Null log likelihood: -23.4 on 26 degrees of freedom
AIC: 50.8 BIC: 53.46
AIC difference (model versus null): -8.207
Heuristic Log Bayes Factor (model versus null): -12.2

*Note: Entrepreneurial satisfaction (i.e., self-reported success) is a dependent variable*
Linear Autocorrelation Model for predictors of proportion of income from wildlife tourism

Residuals:

<table>
<thead>
<tr>
<th>Min</th>
<th>1Q</th>
<th>Median</th>
<th>3Q</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-47.6167</td>
<td>-17.7406</td>
<td>0.4212</td>
<td>20.0452</td>
<td>55.9479</td>
</tr>
</tbody>
</table>

Coefficients:

|          | Estimate | Std. Error | z value | Pr(>|z|) |
|----------|----------|------------|---------|----------|
| Trust    | 7.02023  | 8.39476    | 0.836   | 0.4036   |
| RS       | -9.46817 | 9.42190    | -1.005  | 0.3149   |
| Togetherness | 15.31591 | 7.08335    | 2.163   | 0.0306 * |
| rho1.1   | 0.04971  | 0.04832    | 1.029   | 0.3036   |

---

Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Estimate Std. Error
Sigma   25.35     11.48

Goodness-of-Fit:

Residual standard error: 27.04 on 24 degrees of freedom (w/o Sigma)
Multiple R-Squared: 0.1727, Adjusted R-Squared: 0.03485
Model log likelihood: -130.3 on 23 degrees of freedom (w/Sigma)
AIC: 270.6 BIC: 277.2

Null model: meanstd
Null log likelihood: -132.2 on 26 degrees of freedom
AIC: 268.5 BIC: 271.1
AIC difference (model versus null): -2.081
Heuristic Log Bayes Factor (model versus null): -6.078

*Note: Wildlife tourism (WT) income is a dependent variable

Findings suggest that trust is a significant predictor of entrepreneurial satisfaction, and that togetherness is a significant predictor of proportion of income from wildlife tourism. These findings are inconclusive but they have motivated me to research further into ways to measure microentrepreneurial success, as well as the antecedents of this construct.
Appendix C: IRB Letter of Approval

From: Deb Paxton, IRB Administrator
North Carolina State University
Institutional Review Board

Date: September 2, 2014

Title: Social networking and social capital in wildlife tourism micro-entrepreneurs in Inner Banks region of North Carolina

IRB#: 5204

Dear Birenda KC,

The project listed above has been reviewed by the NC State Institutional Review Board for the Use of Human Subjects in Research, and is approved for one year. This protocol will expire on 8/26/15 and will need continuing review before that date.

NOTE:

1. You must use the attached consent forms which have the approval and expiration dates of your study.

2. This board complies with requirements found in Title 45 part 46 of the Code of Federal Regulations. For NCSU the Assurance Number is: FWA00003429.

3. Any changes to the protocol and supporting documents must be submitted and approved by the IRB prior to implementation.

4. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days by completing and submitting the unanticipated problem form on the IRB website.

5. Your approval for this study lasts for one year from the review date. If your study extends beyond that time, including data analysis, you must obtain continuing review from the IRB.

Sincerely,

Deb Paxton
NC State IRB

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