Social Capital in Indian Country: The Effects of Bridging and Bonding on Job Acquisition

Stephanie Davison

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SOCIAL CAPITAL IN INDIAN COUNTRY:
THE EFFECTS OF BRIDGING AND BONDING ON JOB ACQUISITION

by

Stephanie Davison

A Dissertation
Submitted to the Graduate School,
the College of Arts and Sciences
and the School of Social Science and Global Studies
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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ABSTRACT

Native Americans living in Indian Country continue to experience poverty due, in part, to a lack of sufficient employment opportunities. Indian reservations, often situated in rural areas, can be difficult to access and complicated land and political issues can make it difficult to attract outside investors. However, as is the case for most people, Native Americans living on or near their respective reservation communities do not necessarily want to leave home to find work. This study examined the social networks of a sample of Native Americans from two tribes in Montana. A social network analysis was conducted to understand how job networks in Indian Country affected job acquisition in terms of location. Individual networks were analyzed to determine if they were primarily bridging or bonding and then compared to a respondent’s job location preference, on, adjacent to, or off reservation. In addition, individual job acquisition methods were analyzed and compared to job location preference. Results show that there was no relationship between network type and job location preference and that the methods used to acquire jobs were the opposite from what was expected. That is, the respondents whose networks, overall, were more bridging acquired their jobs using bonding methods more frequently and the respondents whose networks, overall, were more bonding acquired their jobs using bridging methods more frequently. If resources are scarce, using strong network ties to access jobs may be necessary; however, if resources are abundant, using weak network ties within the bonded networks that exist in Indian Country is useful. Recommendations for future research include studying how dense networks function to benefit tribal development, the way that network ties are defined in Indian Country, and
who are the people that act as network bridges relative to their specific tribes. This study contributes to the network strand of the social capital literature, to the literature on indigenous people and jobs, and to the development literature, especially as it relates to socioeconomics.
ACKNOWLEDGMENTS

I am very grateful to Dr. Robert Pauly for his guidance and support during this process and especially for his willingness to serve as the chair of my committee. His kind demeanor and practical advice made this arduous process much easier.

I also want to acknowledge and thank Dr. Paul Lachapelle for his encouragement and continued support, even as I faltered along the way, Dr. Candace Bright for her exceptional and thorough feedback, and Dr. Joseph St. Marie, and Dr. Tom Lansford for the time and energy they put into serving on my dissertation committee.

Finally, I wish to acknowledge Dr. David Butler, the original chair of my committee for getting me started.
DEDICATION

This dissertation is dedicated to the people who participated in this study in acknowledgment and much appreciation of their time.

It is also dedicated to my parents who spent many hours reviewing my work, offering advice and feedback, and supporting me through this very long process.

Finally, it is dedicated to my children who have hardly known me when I have not been in school and to Greg with whom I could talk about my ideas and missteps and who would not let me quit.
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CHAPTER I -
INTRODUCTION

This dissertation focuses on the relationship between individuals’ social networks and their employment. The purpose is to identify how Native Americans living on one of two Indian reservations in Montana use their social networks to acquire jobs and to determine if network types, through access to different kinds of information, lead to jobs on or off reservation. This study examines the individual cognitive social networks of 61 Native Americans from the Crow and Confederated Salish and Kootenai Tribes (CSKT). The knowledge gained from this study is expected to be useful for tribal leaders who are concerned with economic development strategies and, generally, for scholars interested in how social networks function among traditionally underserved and marginalized tribal populations in the United States. This introductory chapter provides an overview of the context of the study, the research problem, and its purpose. The research questions and hypotheses are identified and the central arguments, the research methods, the researcher’s frame of reference and assumptions are discussed. The rationale and significance of the study are outlined, and key terms are defined.

Background and Context

Native Americans in Indian Country continue to suffer from poverty due, in part, to a lack of sufficient employment opportunities (Camel 2015, Austin 2013, Alvarez 2011, Mantonya and Wall 2007). The Flathead Nation, a confederation of three tribes (Salish, Kootenai, Pend’Oreille) located in Northwestern Montana consistently ranks lower on poverty indicators and higher on economic indicators than the Crow Tribe.
(Appsalooke) located in Southeastern Montana. This disparity tends to be explained in terms of differences in institutional, political, and historical factors (Cornell and Kalt 2003, 2000), but little has been attributed to the way that individuals and groups interact. Not only are social factors more difficult to measure because they are often, in Bourdieu’s (1986) description, “symbolic,” but also because they are part of a larger political economy that examines and understands political and economic structures within the context of social structures. While social factors can be more difficult to tease out, they are important to an understanding of how communities develop.

Table 1

*Poverty, labor participation and unemployment rates*

<table>
<thead>
<tr>
<th>Year</th>
<th>CROW</th>
<th>CSKT</th>
<th>Montana</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017&lt;sup&gt;1&lt;/sup&gt;</td>
<td><strong>Unemployment Rate</strong></td>
<td>24%</td>
<td>10.3%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2017</td>
<td><strong>Poverty Rate</strong></td>
<td>28.2%</td>
<td>23%</td>
<td>13.3%</td>
</tr>
<tr>
<td>2015</td>
<td><strong>Percentage of people not working (ages 16-64)</strong></td>
<td>39.1%</td>
<td>28.4%</td>
<td>19.9%</td>
</tr>
<tr>
<td>2015</td>
<td><strong>Poverty Rate</strong></td>
<td>38.2%</td>
<td>31.1%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

<sup>1</sup> Crow, CSKT 2017 data from Haynes and Schumacher, Montana State University (unemployment, poverty rate); 2017 Montana, U.S. unemployment rate from National Conference of State Legislatures; poverty rate from U.S. Census Bureau; All 2015 data from Headwaters Economics (percentage of people not working, poverty rate) [https://headwaterseconomics.org](https://headwaterseconomics.org).
Though Native American communities in Montana continue to struggle with poverty, their leaders are aware of the issues associated with such conditions and work to improve conditions for their people through community and economic development initiatives, such as boosting tourism revenue with gambling enterprises, golf courses, hotels, and investments in technology (Alvarez 2011), and using natural resources like coal to their advantage. In addition, tribal leaders recognize both the need for entrepreneurship and other job training initiatives, so their constituents will be competitive in the marketplace, and the need to create jobs locally (Camel 2016, Azure 2014). Tribal members, and especially young tribal members, want to know they have jobs to look forward to that do not require them to leave their homes, or to venture too far from their homes.

Hardin, Montana is approximately 14 miles from Crow Agency where the Crow Tribal headquarters is located and Billings, Montana is about 60 miles from Crow Agency. On the Flathead Reservation, the closest non-Reservation communities are Missoula to the south and Kalispell to the north, both about 60 miles from Pablo where the Salish Kootenai Tribal headquarters is located. While jobs do exist on or near reservation communities, there are fewer people per thousand employed than in larger urban centers (Table 2). Other problems like a lack of ready access to capital (Pickering, Mushinski, and Allen 2006), complicated land and property ownership issues (Alvarez

---

2 Personal conversations with Crow Tribe members.
3 US Census Bureau American Fact Finder 2012 Survey of Business Owners and 2010 Demographic Profile. An establishment is defined as "a single physical location where business is conducted or where services or industrial operations are performed" (U.S. Census Bureau Glossary).
2011), and institutional issues like a lack of judicial contract enforcement making capital investors wary of doing business (Cornell and Kalt 2010) have kept Native Americans among the poorest ethnic group in the United States (Krogstad 2014).

Using their existing resources while creating new economic opportunities is crucial for Indian communities to survive and thrive (Cornell and Kalt 2003) and this requires them to capitalize on their strengths. Flora, Flora, and Fey’s community capitals approach (in Emery, Fey and Flora 2006) recognizes a community’s existing assets along seven dimensions—natural, cultural, human, political, financial, built, and social. Their framework is a useful way to understand a community’s strengths and will be used to provide context for the two Native American communities that are part of this study.

![Figure 1. Number of Establishments and Total Employees in Towns Adjacent to the Crow and Flathead Reservations Compared to Same in Nearby Urban Centers](image)

Figure 1. Number of Establishments and Total Employees in Towns Adjacent to the Crow and Flathead Reservations Compared to Same in Nearby Urban Centers

---

4 American FactFinder, U.S. Census Bureau
Crow and CSK Tribes from a Community Capitals Perspective

The Crow Reservation and the Flathead Nation have different strengths. Both tribes have abundant natural capital: The Crow Tribe’s land is adjacent to and atop large reserves of coal (McGrath 2016) and includes the Yellowtail Dam and Reservoir, the Bighorn Canyon National Recreation area, and the wild beauty of the Pryor Mountains. The natural beauty of the Northern Rocky Mountains, Glacier National Park, and Flathead Lake that surrounds the Flathead Reservation is a boon to tourism. Cultural capital also is plentiful in both areas. The Crow Indians have benefitted from their rich heritage and cultural traditions by sharing them with people within and outside of their communities. For example, the annual Crow Fair attracts many thousands of visitors every year (Brown 2016) and the battlefield where Little Bighorn was fought is a regular tourist stop on cross-country road trips. On the Flathead Reservation, the land adjacent and belonging to the Confederated Salish and Kootenai is vast and beautiful, with abundant wildlife, lakes, and recreational opportunities. Indeed, tourists come from all corners of the world to visit Glacier National Park and to spend time on Flathead Lake.

Both tribes are keenly aware of the need to develop human capital through education and are doing so by offering two- and four-year degree programs at their respective Tribal colleges: Little Bighorn Tribal College on the Crow Reservation has several two-year degree programs and Salish Kootenai College on the Flathead Reservation is the only tribal college in Montana to offer four-year degrees. From the political capital perspective, the CSKT have used their confederated history to their advantage and adopted a nation-building approach to development (Cornell and Kalt
2003) by asserting their sovereignty, backing this with strong, capable, legitimate
governing institutions such as independent courts with appellate systems in place
(Montana Legislative Services Division 2016), adopting a long-term approach to resource
acquisition and distribution, and “thinking strategically” (Cornell and Kalt 2006, 19). The
CSKT Tribal Council, representing each of eight districts and three tribes, with staggered
terms⁵ meets regularly to discuss issues important to the operation and development of
the tribe. The Crow Tribe is learning that strong, consistent leadership is important for
maintaining a healthy society and economy. Tribal leaders adopted a new constitution in
2001⁶ to reflect their commitment to making positive institutional changes.

Financial capital is evident from the Flathead Nation’s ownership and operation
of 13 businesses, including two banks, three gaming enterprises, and several technology-
related businesses. CSKT is a major employer in the Flathead valley⁷, for example, the
Tribe operates two utility companies, a manufacturing operation, has banking, leasing,
gaming operations, and a tribal college, employing Native Americans and non-Indians
alike (Camel 2015). On the other hand, the Crow Tribe struggles with attracting
independent, outside investors, due, in part, to inconsistent leadership and weak
institutions (Cornell and Kalt 2000). Although there has been institutional change since
the adoption of a new constitution in 2001, unemployment and poverty continue to
burden the area. In addition, a lack of economic diversity has led to high unemployment

⁵ www.csktribes.org
⁶ www.crow-nsn.gov/crow-tribe.html
⁷ Go to www.cskt.org for more information on the Tribe and its business holdings.
rates as the tribe relies on its extensive coal resources for capital and employment (McGrath 2016).

Both tribes have improved roads, water, and sewer systems that show their commitment to infrastructure (built capital). The Crow Tribe is in the middle of a 10-year project (partly funded by the federal government) that will bring municipal water to Reservation households\(^8\), helping to mitigate some of the water issues that include e-coli bacteria (Bienkowski 2016), high nitrate content, and “inadequate water treatment methods and inadequate water supply” (U.S. Bureau of Reclamation 2017). Most residents on both reservations have stable access to internet and cellular towers, although in more remote locations, there is still a lack of service consistency.

\[\text{Figure 2. Percentage of Whites and American Indian/Alaska Natives Whose Income Over the Last 12 Months is Below the Poverty Level}^{9}\]

---

\(^8\) Some Crow Tribe members believe the proposed project is unrealistic in terms of the amount of financial resources available not only for project development, but also for the long-term maintenance of a complicated system (conversation with a Tribal member, September 2018).

\(^9\) American FactFinder, U.S. Census Bureau
Social capital is evident in the strong bonds and allegiance between Tribal members, Tribal heritage and in the community norms and behavioral expectations that exist. However, from a network perspective of social capital, it is not clear how people in these areas use their networks to their benefit to connect with outside communities, to strengthen their social positions, to gain access to jobs, or to acquire information. It is this gap in information about social networks in Indian Country, how they work, and how network types affect employment on the Crow and Flathead Reservations that this study seeks to address.

Problem Statement

Research shows that Native American communities continue to struggle with poverty\(^\text{10}\) (Akee and Taylor 2014) even as they make concerted efforts to mitigate these issues by capitalizing on their strengths. Rich in cultural and natural capital, the Crow and CSK Tribes have developed human, built, financial, and political capital. However, their social capital resources are unknown and understudied, especially how these are used to their benefit. Perhaps the problem is not only a lack of jobs, but also a poor understanding of how to acquire information about available jobs. Often, it is assumed that because Tribal members live in remote areas and have common ethnic backgrounds that their networks are strong, bonded, and perhaps limited to their immediate surroundings. While this may be true, it also may be that tribal members have network ties outside of their communities that help them to access resources that are not immediately available and that provide bridges to people outside of their usual networks. If social ties or networks

\(^{10}\) American FactFinder, U.S. Census Bureau
enable individuals to learn about job opportunities more readily (Yakubovitch 2005, Montgomery 1992, Granovetter 1973) or give them access to influential people (Burt 2000), it would be useful to know how and if networks in Indian Country work to increase access to job information. And, since unemployment in Indian Country continues to be high, learning how individual social networks facilitate or obstruct job acquisition, if different types of networks exist, and how those differences affect job acquisition would be useful to the tribes and to the individuals who participate in the study.

Social capital theory can be divided into two important strands of literature, the trust theory and the network theory, and it is the best framework for understanding how social networks affect job acquisition. A general discussion of these two bodies of literature follows. An in-depth discussion of the literature will occur in chapter two of this dissertation.

*The Trust Theory of Social Capital*

The trust strand of social capital research usually is attributed to Robert Putnam (1993) who studied institutions, civil society, democracy, and economic development in Italy and the United States (Putnam 2000), arguing that societies with networks that are broad or cross-cutting build trust and norms of cooperation that enable growth (Putnam 1995, 1993). Cross-cutting, horizontal ties or bridges are useful and or necessary for connecting otherwise disconnected networks, for building good will, and for facilitating the flow of resources (Borgatti and Halgin 2011). Social relations and networks of trust represent the concept of social capital as well as refer to social capital in the economic
sense in which capital is acquired, built or enhanced through policies or other directives. To build social capital, it is necessary to increase trust and reciprocity through bridging social capital (Fukuyama 2001, Putnam 1993) and to enhance bridging social network structures that provide access to resources. On the other hand, bonding social capital, with its vertical, perhaps hierarchical connections and closed or exclusive networks can limit trust across groups making growth less likely (Putnam 1993) and increasing transaction costs (Fukuyama 2001). And bonding social network structures limit access to diverse, external resources. Indeed, Portes (1998) argues that there is a downside to social capital when groups are so bonded that they exclude outsiders or impose downward leveling norms (Ibid) that keep people from pursuing opportunities outside of their immediate social networks. Salzman (2008), in his work related to Middle Eastern tribes discusses how tribal networks, when exclusive, make governance, security, and other development issues more difficult. Because tribes are made up of kin groups (clan, tribe, direct family), they have a “responsibility for the defense of each member” (1). While Salzman’s work is specific to Middle Eastern tribes, the concept of kin groups with deep attachments that affect their behavior is not unlike Indian Country in the United States. And strong, bonded networks also affect behavior through spoken and unspoken rules or sanctions that encourage people to adhere to group norms.

Putnam (1993) demonstrated that horizontal versus vertical ties increased reciprocity and trust across a large and diverse swath of people. Fukuyama (2001) argued that a large radius of trust decreased transaction costs associated with contract enforcement, leading to better economic outcomes. However, the distinction between
bridging and bonding social capital came with its identification by Gittell and Vidal (Woolcock and Narayan 2000) who studied community organizing and social capital. As Woolcock (2000) states, “bridging is essentially a horizontal metaphor…implying connections between people who share broadly similar demographic characteristics” (10). The term was developed, in part, based on Granovetter’s strength-of-weak-ties (SWT) theory (Woolcock 2000) which posits that weak versus strong ties are useful for resource acquisition because weak ties expand one’s resource base.

*The Network Theory of Social Capital*

Granovetter’s (1973) study of job acquisition (change of jobs) among white collar workers in Massachusetts examined the way that information passes from one person to another. He was interested in the relationship between the person who acquired a job and the person who supplied information about that job. Specifically, he was interested in the structure of the relationship or in whether the ties between the two were “weak or strong…” (6). Granovetter (1973) based his inquiry on Rapoport and Horvath’s scholarship which demonstrated that because “acquaintances…move in different circles than one’s self” (52), the information to which they have access is different than what they already know, and that information spread through weak ties reaches more people. Granovetter’s SWT theory posits that actors with diffuse or weak ties are better-positioned to receive new information through their network ties than are those with dense, strong networks. Thus, while dense networks with strong ties are useful to the degree that they enforce behavior and lead to cooperation, the information that passes
through these networks tends to be redundant and may limit group members’ access to new information.

Important to the SWT theory is the way that information flows from one person (its origin) to another (its destination) and the distance or “chain length” (Granovetter 1973, 50) between the two. A short chain between people requires fewer intermediaries for information to flow so the information-provider has more influence; whereas, a longer chain between people, with more intermediates, limits influence. This means that if someone acquires information about a job from one other person (a chain length of one), that person is more likely to try to influence a potential employer by “putting in a good word” for someone (Granovetter 1974). Additionally, chain length is related to tie strength because SWT theory says that frequency of contact matters. Occasional or frequent contact between someone and an acquaintance, friend, or family member may consist of two or more chain lengths between them and their contact. However, when someone has rare or infrequent contact with another, perhaps a distant acquaintance, only one chain length exists between them so that this weak tie becomes a better purveyor of information because there are fewer intermediaries. Furthermore, because of homophily (McPherson, Smith-Lovin, and Cook 2001) or the idea that birds of a feather flock together, friends and family, or those who are seen occasionally or often are assumed to be part of the “same information pool” (Granovetter 1973, 61) whereas those who are seen rarely are assumed to be part of a different information pool.

Granovetter’s (1973) understanding of the distance between people and how resources flow between them is what underlies network theory. Network analysts are
interested in “who is linked to whom, the nature of that linkage, and how the nature of the linkage affects behaviour” (Bossevain 1979, 393). Network theory is the conflation of the SWT theory with other theories like Burt’s (2000) theory of structural holes which says that when a person (network node or ego) is connected to other networks through a hole that links networks, a flow of new information is possible (Borgatti and Lopez-Kidwell 2011). Resources and the progression or “chain” (Granovetter 1973) through which they flow is a network’s structure. For example, if person A gets information about a used car for sale from person B who got the information from his contact, person C, the information is indirect and there are two links in the chain. In other words, person A and person C do not know each other, but person B is the link between the two.

Understanding a network’s structure is important to the network strand of social capital theory.

Social capital and social networks are rooted in relationships, the nature and function of relationships and the degree to which they are important, instrumentally or for their own sake. In Indian Country, relationships tend to be bonded, based on kinship and ethnic similarity (Emery, Wall, Bregendahl, and Flora 2006). Using the SWT framework, ties in Indian Country are strong and networks are highly connected not only because of physical distance, but also because of homophily or the tendency for people to associate with others with similar interests, backgrounds, or values. The premise behind this study is that because American Indians tend to be interdependent and to rely on each other for social, emotional, and financial support, their networks are bonded and perhaps closed (Ibid). While this phenomenon also may be true of other small, rural, non-Native
communities, American Indian communities may be more insulated due to a historical
distrust of “outsiders” related to longstanding injustices.

Following Putnam (1993) and Fukuyama’s (2001) definition of social capital, it is
logical that more bonding and less bridging social capital in Indian Country limits growth
because there is a narrower radius of trust leading to higher transaction costs. In
addition, and important for this study, following SWT (Granovetter 1973) and the theory
of structural holes (Burt 2001), it is logical that strong network ties that tend to be typical
of homogenous communities, especially single ethnic communities, in combination with
the principle of homophily limits access to resources like information, especially new
information thus making it difficult to know about jobs off reservation. However, if there
are bridges (Granovetter) or structural holes (Burt) between networks, these are useful to
the degree that they provide access to information. Hence, individuals who have bridges
or more bridging social network structures are more likely to have access to new
information from networks outside of their local networks and such access provides them
with more information, more opportunities to act on the information they receive, for
example, apply for jobs they hear about, and more opportunities to be hired. It is also true
that individuals who have fewer to no bridges are less likely to acquire new information
about jobs and therefore have less opportunity to apply for jobs or to be hired into them.
It could also be true that individuals who have more weak than strong ties may have more

11 While bridging social capital and trust may be useful for external economic opportunities, bonding social capital and
internal trust have positive outcomes for communities in terms of reciprocity, cooperation, and norm enforcement
(Levitte 2004). In addition, some scholars have demonstrated positive economic outcomes for entrepreneurs who use
bonded networks to access capital (Ibid).
bridges because, in general, weak ties act as bridges to new information (Granovetter 1973).

Table 2

*Characterization of Social Networks*

<table>
<thead>
<tr>
<th>Type of Contact</th>
<th>Acquaintance</th>
<th>Acquaintance/Friend</th>
<th>Close Friend/Family</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Frequency of Contact</em></td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Often</td>
</tr>
<tr>
<td><em>Relational Type</em></td>
<td>Heterophily</td>
<td>Heterophily or Homophily</td>
<td>Homophily</td>
</tr>
<tr>
<td><em>Tie Type</em></td>
<td>Weak/Bridge</td>
<td>Bridge or Bond</td>
<td>Strong/Bond</td>
</tr>
<tr>
<td><em>Network Structure</em></td>
<td>Structural hole</td>
<td>Structural hole</td>
<td>Network closure</td>
</tr>
<tr>
<td><em>Network Function</em></td>
<td>Instrumental</td>
<td>Helpful/constraining</td>
<td>Helpful/constraining</td>
</tr>
<tr>
<td><em>Outcome of Contact</em></td>
<td>New information</td>
<td>Information (new or redundant)</td>
<td>Redundant Information</td>
</tr>
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Purpose and Research Questions

The purpose of this study is to examine how individual social networks in two American Indian communities affect job acquisition in terms of job location. Identifying and exploring the networks in both communities and how they function provides a deeper understanding of the ways tribal communities use their social ties to their individual, and perhaps, collective benefit, especially as the information relates to jobs. It is hoped that the results of the study are useful for Native American policymakers working to change the development trajectories in their communities.
The following research questions arise when considering how individual social networks in Indian Country affect job acquisition: 1) How do bonding social networks affect job acquisition for members of the Crow and Confederated Salish and Kootenai tribes living on or near their Reservations? 2) How do bridging social networks affect job acquisition for members of the Crow and Confederated Salish and Kootenai tribes living on or near their Reservations?

Table 3

Research Questions and Hypotheses

<table>
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<th>Then</th>
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<tr>
<td>Primary bonding type of social networks for individual members of the Crow Tribe</td>
<td>Job on or in a community adjacent to the Crow Reservation</td>
</tr>
<tr>
<td>Primary bonding type of social networks for individual members of the CSKT</td>
<td>Job on or in a community adjacent to the Flathead Reservation</td>
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<tr>
<td>Primary bridging type of social networks for individual members of the Crow Tribe</td>
<td>Job on, near, or off the Crow Reservation</td>
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<tr>
<td>Primary bridging type of social networks for individual members of the CSKT</td>
<td>Job on, near, or off the Flathead Reservation</td>
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It was hypothesized that strong, bonding social networks would affect job acquisition by giving people access to homogenous information related to the types of jobs that are available (Borgatti and Halgin 2011; Granovetter 1973). In addition, as getting a job, or even access to information about potential jobs, is often about who one knows, it was hypothesized that bonding social networks link job seekers to the same people that their neighbors know, thus making the job search more competitive.
It was hypothesized further that because of the principle of homophily (Bakshy, Marlow, Rose, and Adamic 2012; McPherson et al., 2001), that people with strong bridging networks would have access to new, non-redundant information (Bakshy et al., 2012; Granovetter 1973) about, among other things, the types of jobs that are available through their contacts who act as bridges (Burt 2000) between their immediate, close network and their wider and more distant network contacts (Borgatti and Halgin 2011, Yakubovich 2005, Granovetter 1973). Furthermore, in the same way that people with strong ties in bonded networks may make their job searches more competitive by contacting the same people as their neighbors, individuals with weak ties in bridging networks may not compete with their neighbors for jobs, although they may compete with people from outside of their immediate networks. Thus, individuals with bonding networks and strong network ties would have access to existing jobs that are on or near their reservations, while people with bridging networks and weak network ties would have access to jobs that are on, near, or off their reservations. The above hypotheses were based on social capital and network theories, and specifically on Granovetter’s (1973) SWT theory described previously.

Research Approach

Research participants were enrolled tribal members 18 years of age or older who volunteered to complete surveys with an offer of a monetary incentive whether they completed the survey or not. After obtaining permission, the researcher sat in tribal headquarters at the Crow Tribal offices in Crow Agency, Montana, and at the offices of the Confederated Salish and Kootenai Tribes in Pablo, Montana, and asked people as
they passed by if they wanted to complete a survey about their social networks and jobs. If they said “yes,” the appropriate consent forms were reviewed with each participant and they were given a $10 bill, along with a paper survey and a writing implement. The $10 was given in advance of the completion of the survey so that participants were not obligated to complete it. The University of Southern Mississippi Institutional Review Board (Protocol Number CH17020206) and both tribes approved the survey instruments and individuals from each tribe helped to recruit participants by telling others that the research was occurring. Approximately 30 persons from each tribe completed the survey.

Sampling

Hanneman and Riddle (2005) argue that social network analysts do not draw samples because they study relations among units (people, groups, institutions, countries, et al.); therefore, they analyze a full or entire network with boundaries specified by the research question. When a full network is impossible to analyze, due to size, budget restrictions, or because the research question does not call for it, social network analysts also conduct ego network studies. These are conducted using sampling methods like those used in traditional survey research (Ibid). In ego network studies, egos are identified and asked to identify alters who are relevant to the research question. Probability or nonprobability sampling methods are used to the extent feasible, depending on access, budgets, time frame, and desired level of generalizability (Lynch n.d.).

In this study, the intention was to randomly select a representative sample from each population (Crow Tribe and Flathead Nation), but the researcher was limited by a lack of access to contact information for all tribal members; thus, a convenience sample
was used. It was a convenience sample because the researcher conducted the research on specific days and specific locations identified by the respective tribes and those who were on or near those locations on the specified days were made aware of the research. Because a convenience sample introduces bias, it is not the best or preferred sampling method; however, as Lynch (n.d.) argues, “one of the strongest rationales for this method is when the group or phenomenon under study is generally difficult to access but the researcher is able to establish a sufficient degree of contact or trust with particular participants to conduct a viable project” (n.p.) While the researcher had an established relationship with several individuals from each tribe, in general, the groups can be difficult to access because of a general lack of trust in research, and the concern that non-Native people’s motives do not always have the best interests of the tribes or of tribal individuals in mind12 (Burhanssitipanov, Christopher, and Schumacher 2005).

Survey Design

The survey was designed to gather information about a respondent’s social network specifically related to jobs and whom the respondent would go to for information or advice about a job. Using a name-generator (Borgatti, Everett, and Johnson 2013), each respondent or ego was asked to name 10 people (alters). Name-generators are used in social network analysis to help respondents identify their networks in a systematic manner (Ibid), in this case those to whom the respondent would go for

12 Private conversation with a member of the CSKT, 2017
information or advice about a job. At the same time, respondents were asked to complete a name-interpreter (Ibid) in which they specified their relationships to the people they had named. Respondents also identified characteristics, such as age, sex, ethnicity, and employment status, about each person (Ibid). Following this, respondents were asked to complete an adjacency matrix or name-interrelater (Ibid) that identified which people in their networks knew each other. An adjacency matrix is derived from graph theory and is an approach to visualize relations using a binary system where the value 1 means a network tie exists between two individuals and 0 means there is no network tie (Ibid).

In addition to the ego network questions, respondents provided demographic information - age, sex, education level, tribal affiliation, employment status. They also noted their current and past two jobs, and their relationship to the people who helped them get those jobs. Finally, respondents answered several open-ended questions related to job opportunities on their respective reservations and about their “ideal” jobs.

Respondent’s demographic data was compared to demographic information collected about each of their alters to get a good picture of the network structure and to understand homophily or the tendency to “have stronger ties with people who are similar to themselves” (Borgatti and Lopez-Kidwell 2011, 41). Understanding homophily is important in this context because homogeneous networks may keep new information about job opportunities from flowing (Borgatti and Lopez-Kidwell 2011). The information about each respondent’s current and past jobs and how they learned about them, along with their opinions about the job opportunities that are available provided tribal officials with a clearer picture of how their constituents look for and acquire jobs.
In addition, providing tribal officials with information about their constituents’ ideal jobs may be useful for strategic planning.

Several changes to the survey, as indicated below, were made from one reservation to the next to try to reduce survey fatigue (Borgatti, Everett, and Johnson 2013). The Crow Reservation was the first place the researcher visited. The name-generator and name-interpreter questions were designed originally for the respondents to provide information about each alter they named on a single page, making the instrument very long as each person was asked to name 10 alters. The same was true for the employment question where the respondent was asked to list their current and past two jobs and then to identify their relationship to the person who helped them acquire each job or who gave them information about each job. As a result, the survey was 26 pages and people found it tiresome (response fatigue) (Choi and Pak 2005) and may not have responded thoughtfully. After data collection at the Crow Tribal complex, the survey was re-designed to include a table where all 10 alters could be named on a single page and the ego’s relationship to each alter could be noted in the same table. The employment question was re-designed in the same manner. These changes reduced the page number to seven. While the questions were the same from the first, 26-page survey instrument to the, second, 7-page survey instrument, it may be difficult to compare results because the instruments were not identical. The difference in the two survey instruments may have contributed to response bias particularly a change in format (Ibid); therefore, the two sets of results are not directly comparable.
Researcher Assumptions

A primary assumption of this study is that Native Americans living on Indian reservations are part of strong, bonded networks of trust and that these networks may limit access to people, organizations, and communities outside of these networks. This assumption is based on the fact that the tribes are rural and difficult to access and that tribal members live on reservation land designated for them. In a review of literature explaining the reasons for poverty on native lands, Anderson and Parker (2009) review studies that examine the relationship between human capital, culture and employment and wages. Findings from several of these articles note that “living on a reserve or reservation can slow the rate of acculturation into mainstream culture” (Ibid, 118) which may affect economic outcomes.

Another assumption is that Native Americans, in terms of distance, prefer to work on or near their homes so finding and creating local jobs is important. This assumption is based on the researcher’s experience working with middle and high school youth on the Crow and Flathead Reservations, and their stated desires to stay close to home. It may be that Native Americans from other tribes and other groups within the Crow and Confederated Salish and Kootenai tribes do not have the same desire, although Houghton (2014) notes that many Montana Indians experience a conflict about living on or off their respective reservations. As is the case with many people, living close to home provides one with a sense of place, roots, and support from friends and family.

The Researcher
The researcher is a doctoral student in international development at the University of Southern Mississippi but living and working in Montana. The researcher has spent nine and a half years working with youth at a school on the Crow Reservation and four and a half years working in partnership with teachers at a school on the Flathead Reservation. The researcher supports economic development initiatives that enable youth, their extended families, relatives, and other community members to remain in their communities. While this support is noted, it should not bias the results as the results will not affect policy as much as give a picture of what is occurring for constituents from these communities. The results from this study provide tribal leaders with a better idea of how some of their constituents use their existing social networks to get jobs and how their social network types affect job acquisition.

Rationale and Significance

The rationale for this study came from the researcher wanting to provide the Crow and Flathead Reservation communities with information to help them with their economic development initiatives. Understanding individual social networks and how those facilitate job acquisition in terms of job location provides tribal leaders with a map of their constituents’ networks, and a better overall picture of the social capital in their communities. Further, the study contributes to a greater understanding of social capital in Indian Country and defines how a community’s capitals work together to create positive change. From an international development perspective, Tribal nations are sovereign nations whose leaders, in the same way as leaders of other countries, are charged with
caring for and improving their economic, political, and social institutions and circumstances for the benefit of their people.

**Definition of Key Terms**


*Social networks* – a set of people, organizations, groups, communities, states, countries (or other entities) whose members are connected to each other (Butts 2008).

*Bonding ties* – bonding ties are the strong, dense, within-group ties (Lancee 2012) between people that provide cohesion, support, or resources. Bonding ties usually occur between people who are frequently in contact or who are considered close or well-known, such as close friends or family members.

*Bonding social networks* – bonding social networks are networks that provide cohesion and cooperation by enforcing norms (Putnam 2002) and may impose sanctions (Coleman 1988) on community members by excluding people who do not follow the spoken and unspoken community rules (Portes 1998).

*Bridging ties* – these are diffuse, weak ties between people that facilitate the flow of information as well as access to new information (Burt 2000, Putnam 2002, Panth 2010). Commonly these ties are between people who do not know each other well (Granovetter 1973).

*Network bridges* – these are people who act as bridges between networks. Whereas bridging ties tend to be weak, network bridges may have strong ties with people
in two networks and their ability to cross networks gives members from both networks access to each other or other resources.

Bridging social networks – these networks flow horizontally and are based on reciprocity and generalized trust that leads to cooperation (Putnam 2002).

Native American – this refers to indigenous Americans, the people who lived on the land before it was colonized.

Indian Country – Indian Country is the land and communities within a certain geographic area that is inhabited by Native Americans, primarily on land “reserved” for them by the United States Government under treaties signed by both parties.

Summary

Social trust and the networks this trust engenders are essential for knowledge transfer and knowledge transfer is facilitated by social capital networks (Adler and Kwon 2002; Inkpen and Tsang 2005). The resources that social networks provide are wide and varied and include information about job opportunities, markets, and other forms of exchange (Adler and Kwon 2002). While closed or dense networks can reinforce social norms and behavioral expectations and facilitate collective action, they may not be as useful for knowledge acquisition as open networks (Ibid).

The research questions in this study arise from the social capital literature, particularly from Mark Granovetter’s (1973) strength of weak ties hypothesis and the importance of social ties for information dissemination. Weak ties are strong ties insofar as they connect people to resources and information outside of their immediate (and perhaps closed) networks (Ibid). In addition, Ronald Burt’s (2000) work on structural
holes provides a way to understand how people’s social networks link them (or do not) to other networks, thus giving them access to resources. Robert Putnam (2000) distinguishes between bridging and bonding social capital and how each type links people to those who are different from or like themselves. His work informs this study to the degree that access to different people also provides access to different resources or information.

Chapter two reviews the social capital literature as it relates to social networks, social capital type, and economic development, and to indigenous people. Chapter three describes the methods used in this study to include instrument design, sampling, data collection, and analysis. In addition, chapter three describes the sample populations in more detail. Chapter four explain the results and Chapter five synthesizes them based on the extant literature. In addition, the study’s limitations, delimitations, and its implications are discussed, as are suggestions for future research.
CHAPTER II
LITERATURE REVIEW

The purpose of this study is to identify and explain how Native Americans living on or near the Crow and Flathead Indian Reservations in Montana use their social networks to acquire jobs and to determine if certain network types lead to job locations on, adjacent to, or off reservation. To explore this question more thoroughly, it is essential to read and understand the literature that contributes to the research question and to highlight the context in which the study takes place. First, this chapter begins with general literature on social capital as it relates to networks, network ties, the flow of information, and tie types with emphasis on the dimensions of social capital. Next, the literature related to social capital and economic development is reviewed and critiqued, followed by an explanation of the ways social capital has been studied with indigenous populations. Resulting from the literature reviews, a conceptual framework for this study is discussed. Finally, this chapter concludes with a section on the contributions of this study.

Concepts and Theories Reviewed

Social Capital

The concept of social capital has been developed by scholars across academic disciplines, with its definition varying among them. However, overall most scholars agree that social capital describes social relationships, networks, and norms such as trust (Onyx and Bullen 2000, Fukuyama 2001) that enable people to work together for a common purpose (Woolcock and Narayan 2000). The networks and relationships that exist, built
on mutual trust, are important for people because these networks give them access to each other, to information, and to possibilities.

Social Capital as a General Concept

Because social capital is broadly defined and has been used to explain differences in economic development (Knack and Keefer 1997), political organization (Putnam 1993), crime (MacGillivray and Walker 2000), immigration (Portes and Sensenbrenner 1993), and education (Hanifan 1916; Coleman 1988), and is used as both a micro-(individual) and macro-level (community) concept (Bhandari and Yasunobu 2009), it can be difficult to grasp; however, it has an intuitive appeal. As social beings, we understand that our connections to each other are useful, formally and informally, and the concept of social capital helps to explain these relationships.

Two general perspectives are prominent in the social capital literature: 1) a focus on the individual as one who uses social capital acquired through network interactions and 2) a focus on the community as not only the place from which social capital is created, but also as a source used to harness collective action (Ostrom and Ahn 2008). Individual level social capital is “similar to human capital in that it assumes that such investments can be made by the individual with an expected return (some benefit or profit) to the individual” (Lin 2001, 21). Group level social capital is represented by the interactions and networks of which people are a part that then become collective assets (Lin 2001).

The term social capital dates at least to L. J. Hanifan (1916) who studied how the superintendent of a rural school district in West Virginia empowered community
members through “goodwill, fellowship, mutual sympathy and social intercourse” (130) to improve their community. Hanifan refers to these communal acts as social capital, recognizing that their accumulation leads to common goals and positive outcomes for the community. Hanifan’s observations of the ways in which a community behaves contributed to the subsequent development of social capital as a theory of collective action (Ostrom and Ahn 2003), but it would be many years before the concept of social capital, arising from sociology and thinkers like Simmel, Durkheim et al., became a mainstream concept (Ibid).

Pierre Bourdieu (1986), among the first to theorize about social capital, argued that all forms of capital - physical, human, cultural, social – can be accumulated and used as a resource to generate more capital.

Social capital is the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group - which provides each of its members with the backing of the collectivity - owned capital, a 'credential' which entitles them to credit, in the various senses of the word (Bourdieu 1986, 49).

According to Bourdieu, in the same way that physical capital is acquired and used for individual spending or investment, and human capital is acquired through education and is used, perhaps, to advance oneself in a career, social networks and relationships are used as resources for future exchanges (Lin 2001). Bourdieu’s work was the source of subsequent studies about social capital, primarily from economists (Maluccio, Haddad
and May 2000; Rupashinga, Goetz and Freshwater 2000; Topa 2001; Grootaert 1999; Knack and Keefer 1997) who wanted to determine if social capital could be accumulated in the same way as physical and human capital. As the theory advanced, the notion of relationships discussed by Bourdieu evolved to a theory of social values like trust (Putnam 1995), social norms like cooperation (Ostrom and Ahn 2003), and social affiliation like networks (Granovetter 1973). The following section distinguishes between the view of social capital as trust and norms of cooperation and social capital as the social networks in which people are embedded.

**Social Capital as Trust and Norms of Cooperation**

Social capital, when defined as something that communities accrue based on trust and norms of reciprocity (Gouldner 1960), is a macro-level concept that examines how communities, groups, organizations, or institutions work together to acquire resources that are distributed or used by all. James Coleman (1988), in two bodies of work about high school dropouts and diamond merchants in New York City, analyzes the ways that people and groups interact, stating that social capital is “the structure of relations between actors and among actors” (S98). This relational view places importance on the trust between people and groups as a source of strength especially for facilitating market transactions (Ibid, S99) or for calling groups to action (Ostrom and Ahn 2008). Coleman (1988) also argues that when a group or social structure is closed, that is, when every person within the structure is connected to every other person, the ability to impose behavioral sanctions exists because of a fear of rejection or social isolation; thus, a closed
system makes it difficult for any network actor to behave in a way that violates a group’s norms.

Following Coleman, Putnam, Leonardi, and Nanetti (1993) conducted a study on the differences between northern and southern Italy and their different development trajectories. Putnam et al. (1993) argue that Northern Italians have horizontal ties to each other and to political organizations and networks more broadly and perhaps external to their local communities; Southern Italians, by contrast, have vertical ties or hierarchical relationships and insular networks. The Northerners’ “bridging” networks enable them to access resources they need to support entrepreneurial enterprises and to form a strong civil society, rooted in norms of reciprocity (Ibid). Voluntary networks strengthen their communities because membership in the networks leads to reciprocal exchanges that take place, if not immediately, then at some point in the future (generalized trust) (Ibid). In contrast, southern Italy’s history keeps them from growing in the same way as their northern counterparts because their communities are organized with vertical, hierarchical ties. The networks in southern Italy are strong, familial networks and “a primitive substitute for the civic community” (Ibid). People in communities in southern Italy rely on each other and on small kin groups for support but also on people in positions of power and authority rather than on institutional power and civil society organizations, thereby creating conditions that lead to distrust.

In Putnam’s (2000) subsequent examination of economic prosperity and social change in the United States, he explains how voluntary organizations are important for societal-level trust-building and for promoting and enhancing collective norms (Lin 2001,
23). Putnam’s theory of social capital builds on network theory, although not explicitly; however, the idea that network ties are important to a community’s development because of the trust and cooperation they engender led to a large and significant literature on social capital and economic development. For example, Francis Fukuyama (2001) argues that networks of trust reduce transaction costs. The more people trust each other and the institutions that serve them, the less there is a need for added levels of bureaucracy and systems to ensure compliance. Fukuyama (2001) argues that a larger radius of trust leads to lower transaction costs which can lead to increased growth due to fewer costs associated with institutional maintenance (Ibid).

While there is a broad base of literature on social capital theory, the above theorists represent some of the most influential in the literature related to trust and its effects on social systems. The following section highlights some of the scholars whose work focuses more specifically on networks and their importance to social capital theory.

A network view of social capital

The network view of social capital in terms of information exchange was best developed by Mark Granovetter (1983, 1973) who theorized that social networks are, among other things, “the most fruitful micro-macro bridge” (Granovetter 1973, 1360) because the micro interactions between and among individuals are bridges to macro patterns of behavior (Ibid). He was interested in the relationship between social network ties and resources arguing, counterintuitively, that people with “weak,” bridging network ties acquire new information from people who are not in their immediate social networks, while those who rely on their immediate, strong, bonding relationships receive redundant
information and “are likely to know the same people and hear of the same opportunities” (Putnam 2000, 319; Borgatti and Lopez-Kidwell 2011). Granovetter’s (1973) seminal strength-of-weak-ties (SWT) theory posits that there is a transitive relationship among groups of people so that if person A knows person B and person B knows person C, there is a strong likelihood that persons A and C know each other, especially if the relations are close (Borgatti and Lopez-Kidwell 2011). This premise combined with his notion of weak and strong network ties led Granovetter (1973) to conclude that weak network ties among transitive groups are more likely to be sources of new information.

The idea of transitivity also was studied by Ronald Burt (2000) who argues that a network’s structural holes allow an individual to broker between two groups thus increasing not only that person’s social capital, but also social capital of the whole network. As Burt (2000) notes, “structural holes are thus an opportunity to broker the flow of information between people, and control the projects that bring together people from the opposite sides of the hole” (353). A network broker is important to the flow of information because this person has access to more and different information. This happens not only because the individual knows more people (brokering across two networks), but also because access to the two networks whose members have connections to different people provide a “higher volume of information containing fewer redundant bits of information” (Burt 2000, 354).

In addition to Burt, Nan Lin (2001) conceptualizes social capital as an individual asset, defining it as “the resources embedded in social networks accessed and used by actors for actions” (25). Lin (2001) sees resources as symbolic as well as material and
argues that the value of such resources varies across communities or groups based on their cultural assumptions. In addition, Lin views social capital as the resources that are embedded in social structures and that are acquirable based on the makeup of those structures. In any given network, people with more power have resources that others in similar positions can acquire, but that are not necessarily available to those with less power. Lin’s theory of social capital implies that a network’s broker has the potential to bridge social and power structures. In addition, Lin (1999) argues that open and closed networks serve different purposes, open networks to broaden access to resources and closed networks to consolidate existing resources.

In sum, social capital is both an individual and a group concept, but, in general, the distinctions are related to levels of analysis (micro versus macro) (Lin 2001) rather than to large conceptual differences. Micro-level studies that examine how individuals use social capital to get jobs, for example, are not conceptually, significantly different than macro-level studies that examine how communities use network resources to call for community action. Woolcock and Narayan (2000) argue that taking a “synergy approach” to the study of social capital is not only the most empirically-sound, but also that such an approach incorporates micro- and macro-levels, the positive and negative, or downsides of social capital (Portes and Landolt 1996), and its different dimensions.

Dimensions of Social Capital

As the concept of social capital was refined, the idea of social capital types or dimensions – bridging and bonding - arose from Putnam, Leonardo and Nanetti’s (1993) concept of network ties (horizontal and vertical), Granovetter’s (1973) concept of
network ties (weak and strong), Lin’s (1999) concept of open and closed networks, Burt’s (2000) concept of structural holes and network brokers, and Coleman’s (1988) concept of network closure. In addition, Adler and Kwon (2002) distinguish between external and internal types of social capital, noting that “a focus on external relations foregrounds what has been called ‘bridging’ forms of social capital, whereas a focus on internal ties within collectivities foregrounds ‘bonding’ forms of social capital” (19). Borgatti, Mehra, Brass, and Labianca (2009) note that tie type as conceived by Granovetter, evolved into “a general theory of social capital – the idea that whom a person is connected to, and how these contacts are connected to each other, enable people to access resources that ultimately lead them to such things as better jobs and faster promotions” (7).

Distinguishing between bridging and bonding dimensions of social capital helps to explain how communities operate (Putnam 2000) and how social networks can be advantageous or constraining (Woolcock and Narayan 2000; Portes 2000). Patulny and Svendsen (2007) argue that social capital should be studied using the dimensions of bridging and bonding or else most research will “agglomerate social capital into the one catch-all concept…” (33) making it difficult to clarify and measure. The following section explains, in more detail, the dimensions of social capital that are most often cited in the literature.

Bonding

Bonding social capital - “‘the ability of people to work together for common purposes in groups and organizations’” (Adler and Kwon 2002, 20) - is a phenomenon that helps people and communities to organize and perhaps mobilize around specific
issues or problems. Bonding ties connect like people, perhaps members of the same ethnic or social group. Such network ties are useful for everyday informal interactions between neighbors or friends who do favors for each other and may be prominent in small or single ethnic communities. According to Panth (2010), bonding social capital exists among homogenous groups and are the ties that provide cohesion, solidarity (Putnam and Goss 2002) and, in some cases, community action. These ties are understood as close, familial, kinship connections because they may be with people from the same socioeconomic background, especially those with similar levels of education, and similar values. Bonding ties imply a strong level of trust among individuals and groups, necessary for one to count on another for financial, emotional or other direct support.

Bonding ties tend to be homophilous or among people that are based on “sameness” (sex, age, socioeconomic status, ethnicity, and race) (McPherson, Smith-Lovin, and Cook 2001) and tend to keep network distances narrower than heterophilous ties, thus limiting the emotional (and perhaps physical) distance between two individuals (Ibid). Distance between individuals is important when examining how information flows. In homophilous networks with bonded ties, the distance for information to flow is much shorter than in heterogeneous networks. Bonding networks can be used for expressive and/or instrumental action (Lin 2001). Expressive actions, “taken for their own sake…” (Lin 2001, 58) are linked to homophily where reciprocity is expected. Instrumental actions are “taken for the purpose of achieving certain goals” (Ibid) and are linked to heterophily where people are dissimilar and thus have access to different
resources. In other words, networks can be used intentionally to acquire resources such as getting a job (Lin 2001) or they can exist for their own sake without expectations for immediate or even long-term reciprocity, but with the knowledge that members benefit simply from being part of a network; that is, social norms enforce specific behaviors and network members know what to expect from each other.

O’Brien, Phillips, and Patsiorkovsky (2005) distinguish between exclusive and inclusive forms of social capital, arguing that a focus on the concept of bonding versus bridging is limiting because it puts indigenous people whose networks tend to be strong and bonded into an all or nothing situation in which they are forced to choose “between retaining traditional culture and social organizations versus participation in the larger US [sic] society and the global economy” (1049). If a group is bonded because of homophily, conceptualizing the group as inclusive or exclusive means that the group, despite its bondedness can be inclusive which may expand its resource base, or it can be exclusive which may limit its resource base. Indeed, to fully understand the bonding dimension of social capital, it is important to understand its downside (Portes 2000).

Portes (2000) argues that highly bonded, “particularistic” networks or ethnic groups can and often do exclude outsiders from social, political, and economic resources. When bonding networks become too tight or exclusive, they limit resource acquisition. For example, if a tightly bonded network of self-interested politicians is exclusive, they may limit their constituents’ access to resources. Indeed, this exclusivity is similar to Robert Putnam’s (1993) theory about northern and southern Italy’s different development trajectories in that the vertical or hierarchical network ties typical of southern Italian
families limited their access to political resources and kept them reliant on self-interested political brokers. Another downside to highly bonded networks is the concept of “downward leveling norms” (Portes 2000). Such norms impose sanctions on people who veer too far from a group’s accepted behavior, even when the behavior may seem positive, such as acquiring an education or moving to another place for a better paying job. Downward-leveling norms often exist in indigenous (Hunter 2004) and poor communities where allegiance and “acting within predetermined cultural parameters” (Hunter 2004, 15) is expected. In addition to close-knit, bonding ties, people also are part of networks that link them to distant others or to people with whom they are loosely-affiliated; these loose network ties may be bridges between networks.

Bridging

Bridging social capital tends to link heterogeneous groups. Bridging ties are the ties that allow “different groups to share and exchange information, ideas and innovation and [to] build consensus among…groups representing diverse interests” (Panth 2010). These ties may be with people from other communities or social groups, and/or with people who are not well-known to the individual or who would not be counted on for everyday emotional support, but who are nonetheless connected to an individual.

Scholars studying bridging social capital tend to view it as networks that provide links for individuals outside of their immediate groups. These bridging networks are used for support or as resources to access external people, organizations, and networks (Adler and Kwon 2002). Bridging social capital links community members, perhaps across ethnic or social groups, tying together secondary relationships “such as loose friendships
and workmates” (Bhandari and Yasunobu 2009, 498). Bridging ties may help different communities organize around broad issues of concern because they are more “outward-looking, civically engaged, [and they] narrow the gap between different communities” (Ibid). In general, following the principle of homophily, bridging networks tend to be more heterophilous (McPherson et al., 2001). Lin (2001) expounding on Granovetter’s SWT theory, argues that the closer someone is to a network bridge “the better the social capital to which they will have access” (71). Brisson (2009) argues that bridging and bonding social capital are not mutually exclusive and distinguishes between informal and formal bonding social capital and formal bridging social capital; informal bonding social capital involves relationships among people that occur every day at the grocery store or local park, whereas formal bonding relations are associational, perhaps board memberships, among people who are part of the same broad networks. Formal bridging social capital is the relationships with outside or external others, organizations, or networks. The importance of this distinction is not in the typology itself, but in the recognition, that both bridging and bonding social capital can operate within a bonded network. This is especially important for indigenous networks that tend to be bonded.

Brisson’s (2009) description of formal bridging social capital is similar to the concept of linking social capital, another dimension described in the literature (Jordan 2015; Lollo 2012; Hawkins and Maurer 2010; Titeca and Vervisch 2008; O’Brien, Phillips, and Pastiorkovsky 2005; Woolcock 1998). Linking social capital is like bridging, but it occurs between people of different socioeconomic groups, for example, or with differences in power; it is a hierarchical concept (Lollo 2012). The concept of
linking social capital arose because scholars noticed that the links between people with status or power and those with less status could be useful in terms of resource acquisition, for example, citizen to government, or municipalities to national organizations (Patulny and Svendsen 2007). While linking social capital is an important concept, this study does not examine it directly.

Table 4

*Dimensions and Characteristics of Social Capital Types*

<table>
<thead>
<tr>
<th>Social Capital Dimension</th>
<th>Characteristics</th>
<th>Possible negative characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding</td>
<td>Tight, dense, strong ties, homogenous, expressive or instrumental</td>
<td>Particularistic, Exclusive</td>
</tr>
<tr>
<td>Bridging</td>
<td>Loose, weak ties, heterogeneous, inclusive, primarily instrumental</td>
<td>Power differences, Loss of Identity</td>
</tr>
<tr>
<td>Linking</td>
<td>Loose, heterogeneous, external, primarily instrumental</td>
<td>Power and/or status differences</td>
</tr>
</tbody>
</table>

Overall, social capital is an intuitively simple, but very broad concept that crosses disciplines. As such, it can be difficult to grasp and measure (Van der Gaag and Webber 2007), but its importance should not be underestimated because human behavior emerges from social structures, organizations, and interactions. Understanding how those function to benefit (or not) an individual and/or a community is necessary for understanding why political, economic, and social systems operate in certain ways. To understand its relevance to this dissertation and the research questions, it is necessary to examine more
specifically how networks function as social capital. The remainder of this section will focus on the networks concept of social capital, followed by a review of the literature related to economics and social capital and how social capital has been studied with indigenous people.

Social Networks

The study of social networks and how they function dates to ancient Greece and Plato (Borgatti et al., 2009). Philosophers and scholars have long wondered how societies function and how social order contributes to or impedes functioning. Social networks provide information about everything from how (and why) people move from one job to another, how community elites make decisions, markets function, and coalitions form, to the nature of belief systems and the ways in which communities solve problems (Wasserman and Faust 1994). The study of social networks is relational, meaning that networks are examined in terms of the type of resources, information, or support that flow from one person to another or structural, meaning that they are studied in terms of their network properties such as size or density (Streeter and Gillespie 1993) to determine how structure functions in support of resource acquisition, mobilization, and social groups. Researchers examining relational networks “seek to understand why a network exists and to ascertain the functions performed by the relations among the members” (203). Within relational networks, transaction content refers to the kinds of transactions that flow through networks; for example, information, resources (material or otherwise), influence, or social support (Ibid). Structure describes the way networks fit together
(Scott 1988) and when analyzed helps to identify people’s roles within networks, for example, as a bridge from one group to another (Streeter and Gillespie 1993).

As noted previously, Coleman (1998) argues that network closure facilitates trust and cooperation. While this may be true, it is also true that information flowing within a closed network may be redundant, causing outside resources to be more difficult to acquire (Burt 2000). While network closure is useful in some circumstances, in the case of information flow, closed networks may limit breadth. For example, Coleman’s (1988) study of diamond merchants in New York city illustrates the utility of a closed network because of the trust required of group members when they permitted others to examine their stones without any formal contracts or paperwork. If any single merchant had violated the group’s norms by cheating another for example, he would be ostracized. However, if the diamond networks had been too tight, without any bridges to other networks, it may have been difficult for new information to circulate, for example information about new mining or retail locations or new ways to cut diamonds.\footnote{This example was not part of Coleman’s study, but from Granovetter’s (1973) SWT proposition, it makes sense that while the closed network of New York city wholesale diamond merchants was beneficial in terms of trade, in terms of information flow, limiting their networks to each other would have stifled the flow of new information.}

Juxtaposed with Coleman’s theory is Burt’s (2000) network theory of structural holes which posits that a hole in the structure can separate networks, leaving a gap between groups. Brokers, can bring disparate networks together, enabling cross-over and sharing of unlike resources. Burt’s view of networks is instrumental in that people use their network ties to access resources that will benefit them.
Nan Lin (1999) argues that networks made up of social relations between classes are vehicles for investing in and acquiring resources outside of one’s “designated” class. He argues that networks are useful as sources of information and credentials and for influence and reinforcement. Lin (2001) proposes a strength-of-location hypothesis based on Granovetter (1973) and Burt’s (2000) work and based on network bridges where people’s positions in a network can benefit them; however, Lin also suggests that access to resources (like information) is only as good as the information itself. For example, if someone, for instrumental purposes, is tied to a person who acts as a network bridge, that “bridge” should be positioned to access resources that are not only different from the ones he has access to, but also more advantageous; Lin calls this the location-by-position proposition.

Bian (1997) conducted a study on the use of network ties among Chinese workers based on Granovetter’s SWT theory. He concludes that because of guanxi or informal exchange networks in which trust is high and reciprocity is obligatory (Ibid), Chinese workers acquire jobs and especially better jobs when network ties are strong, not weak as Granovetter (1973) suggested. However, Bian (1997) distinguishes between information flowing through the worker networks versus influence from important others, in this case a “personal helper” (Ibid). The author concludes that when influence flows through a bridge to a person of higher status who can offer a more prestigious job, ties are strong indicating the presence of guanxi; whereas, when information flows through worker networks their ties are weaker (Bian 1997). Perhaps this is the case because linking
someone to information about a job, for example, is not the same as having influence over whether that person is hired.

Jackson (2010) argues that “understanding how network structure influences economic activity” (2) is important because social interactions are the ways in which information is communicated to unemployed individuals about jobs, to employers about job fit and to communities about development opportunities or policy changes (Ibid). In particular “it can be useful to keep track of tie strength” (Jackson 2010, 7) in relation to labor markets (Ibid). Another, equally important reason to study networks is because they provide context about specific settings and specific behavior patterns (Marin and Wellman 2011; Borgatti et al., 2009).

Borgatti and Foster (2003) discuss the differences between social capital and diffusion in networks. The authors argue that social capital is opportunistic for those who take advantage of their networks to access position or influence and that studies related to social capital versus diffusion explain why one person’s network is more successful than another’s. Studies on network diffusion examine how processes are shared or spread and explain how networks can be constraining if information does not flow effectively. In addition, Borgatti and Halgin (2011) consider the differences between Granovetter’s SWT hypothesis and Burt’s structural holes hypothesis noting that the function of an individual’s network is its structure in terms of how information flows or is distributed across a network. The authors suggest testing a network’s structure against possible outcomes to determine how information flows, how quickly it flows, and how, or if, an individual’s position within a network is advantageous (Ibid).
Haythornthwaite (1996) argues that social networks operate in the same way as a network of roads. In her view, the researcher’s job is to analyze relational patterns, such as content, direction, and strength (Ibid) as they relate to the flow of information. She argues that there are three types of ties that are important for receiving information about jobs: 1) intimate or close ties; 2) formal or work-related, associational ties, and 3) leisure, or informal friendship ties. Frequency and duration of contact between individuals in a network, levels of intimacy and reciprocity, and tie type are important indicators of the way information flows (Ibid).

Yakubovich (2005) also argues that examining tie strength and network structure is the best method for understanding how networks contribute to job acquisition. In a study using data from the Russian urban labor market, Yakubovich (2005) contends that most research related to social networks and job acquisition focuses on the attributes of a job that are already in place; for example, type of job or salary. He argues that using network tie strength as an independent variable, rather than job attributes is more useful for understanding social capital outcomes. He focuses on the type of information or influence that flows through an individual’s network and how these differences affect job acquisition, finding that weak ties are better for accessing information about potential jobs, but that strong ties are better for indirect access to specific employers, again, the notion of influence. Trimble and Kmec (2011) also find that social capital is important in terms of accessing information about potential jobs and for influence. They find that more diverse networks increase the amount of informal information one receives about
job opportunities and that the type of contacts within one’s network, such as high-status individuals, increases influence.

Maru and Davies (2011) examine aboriginal networks in rural Australia using data from interviews and focus groups to see how high rates of unemployment relate to individual social networks. They find that the people interviewed have dense, bonded networks that restrict them from acquiring non-redundant information, but that also reinforce their cultural identities and traditional values making work outside of the network, not only difficult to acquire, but also, to sustain. Confirming Burt’s structural holes theory, the authors note that network brokers can provide information about alternate jobs, as well as recruit and provide support to indigenous individuals who take jobs outside of their typical networks. Maru and Davies (2011) argue that policymakers should recruit and support these network brokers because they understand how to cross cultures, values, and networks.

The literature on networks and the way people use them to acquire resources, expressively or instrumentally, is relevant to the question of the effects of social capital on job acquisition because networks are determined to be an important form of social capital. A specific understanding of how networks function in terms of resource acquisition and information flow helps the reader understand how social capital is related to resources like jobs. Next is a discussion of the large body of literature on social capital and economics.

Social Capital and Economics
Rooting economics in social organization is not new. Adam Smith associates morality and ethics with “orderly social organizations” (Maridal 2013, 137) that promote trust, a necessary component of exchange (Bhandari and Yasunobu 2009). German sociologist and philosopher Max Weber explains capitalism in terms of social norms and Calvinist theology (Maridal 2013). Karl Marx explains economics in terms of social class and the manipulation of the proletariat as the means of production for the bourgeoisie. Following Marx, Bourdieu (1986) argues that economic structures are upheld by class access to cultural and social knowledge that enable actors to remain in positions of power. As scholars crossed disciplines a body of literature related to social organization and its effect on economics emerged; the remainder of this section will review some of the literature that is relevant to this dissertation. The section is organized around three broad research questions that emerge from the literature: 1) What are the effects of networks on access to jobs, occupational and socioeconomic status? 2) What are the effects of social capital on income, household welfare, and labor market outcomes, and 3) What are the effects of social capital on economic development? (see Table 5 for a summary of the literature). The first body of research points out the effect of networks on individual outcomes and is particularly relevant to the present study. The second and third bodies of literature are relevant to the degree that they illustrate the general effect of social capital on development, which includes network and individual level outcomes as well as the distinction between bridging and bonding.

The Effects of Networks on Access to Jobs, Occupational and Socioeconomic Status

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The early literature on employment focuses on social networks, specifically, the differences between formal and informal network contacts (Rees 1966; Bridges and Villemez 1986) and network structure, like network ties (Wahba and Zenou 2005; Flap and De Graaf 1985; Granovetter 1973). Using data from a study of the Chicago labor market, Rees (1966) asks whether people use formal or informal information networks more frequently to acquire jobs, finding that informal mechanisms are used most often by people with “blue-collar occupations” and at least 50 percent of the time by people with “white-collar occupations” (559). Rees (1966) notes that the importance of informal networks is the rich information that these contacts provide, information not necessarily available from formal contacts like job services.

Following Rees, Granovetter (1973) asked workers in the Eastern United States “how and when the job-changer first came to know the person who ultimately supplied the information, whether the tie was weak or strong, forged in work or in social situations, and in what ways the relationship was maintained between the time it began and the time that information was passed” (6). Finding that most people used weak network ties to acquire information about jobs, he developed the SWT theory. This study paved the way for a subsequent large body of research on strong versus weak network ties and the types of resources those ties can help people attain, as well as how they attain them. For example, Lin, Ensel, and Vaughn (1981), followed by Flap and De Graaf (1986) examined the relationship between network ties and status, finding that weak ties help people to acquire resources such as jobs by reaching others of similar status. The more social resources (capital) a person has the higher status position they will be able to
attain. For example, a sample of Dutch managers who were members of elite organizations used their informal, but weak ties to find jobs (Boxman, de Graaf, and Flap 1991).

In another study, Wahba and Zenou (2005), using an Egyptian labor market survey, developed a theoretical model to test how the size and quality of a person’s network affected their ability to get a job through informal means. Using population density as a proxy for network size, they find that as network size increases, so does the probability of finding a job (more frequently for the uneducated, and only if they are already employed and network density is not too large). Campbell, Marsden, and Hurlbert (1986) find a positive relationship between network resources and socioeconomic status, confirming the idea that networks can be used instrumentally to acquire higher status or higher paid positions. A study on German immigrant men and their economic returns supports this finding (Lancee 2012). Using 1996-2007 data from the German Socio-economic Panel Survey, Lancee (2012) examines the degree to which immigrant men have “contact with natives” (666), a proxy for bridging ties and the relationship of this contact to occupational status and job type, superior or inferior. Like Campbell et al., (1986) Lancee (2012) finds that more bridging ties relate to higher occupational status; however, the author demonstrates that bonding ties and closed networks are important to the extent that people use their family and kinship ties to find jobs. Closed networks lead to “inferior” jobs because they restrict the flow of “unique” information (Ibid) that contacts with natives provide and provide access to jobs that exist among the immigrant population. While this provides employment and a way to earn an
income, it may not provide access to jobs that are embedded in mainstream social and occupational networks, networks from which “superior” jobs may be acquired.

_Social Capital Effects on Income, Household Welfare, and Labor Market Outcomes_

Much of the research on social capital and income or other labor market indicators is performed on the micro level, using associational memberships as an indicator of social capital. These studies tend to focus on social capital dimensions (bridging or bonding) rather than on network ties (Zhang, Anderson, and Zhan 2011; Growiec and Growiec 2007; Hermann and Kopasz 2005; Malaccio, Haddad and May 2000; Grootaert 1999; Narayan and Pritchett 1999). Several other studies use network ties to examine the relationship between social capital and income, household welfare, and other labor market indicators (Campbell, Marsden, and Hurlbert 1986; Tassier 2006; Kahn and Lehrer 2013). For example, Narayan and Pritchett (1999) use data from the 1995 Social Capital and Poverty Survey in Tanzania to examine how individuals are connected through associational memberships and then to see how the memberships, which they proxy for social capital, contribute to community welfare. The authors demonstrate that the more social capital someone has, for example, the more associations to which they belong, the greater their household income.

Grootaert (1999) conducted a study like Narayan and Pritchett’s (1999) using data from the Local Level Institutions project that compares communities, districts, and households in Indonesia, Bolivia, and Burkina Faso. Grootaert (1999) confirms Narayan and Pritchett’s (1999) finding that the higher the level of social capital a household has,
the greater the household income; however, he goes a step further and determines that the type of associations in which households are members is important. Heterogeneous associations, and specifically “memberships in production and social associations have the largest impact on household welfare [because] the potential pool of knowledge to be shared is larger and hence the potential benefit to members is higher” (63-64). This finding is consistent with the literature about networks and the way their size and structure can benefit network members.

Tassier (2006) finds that network size benefits network members precisely because the larger the size of the network, the greater the number of weak ties there are with the potential to provide new information, and the greater the ability for the network to expand more quickly. Tassier (2006) argues that in addition to weak ties, individuals must also have a network of strong ties who act as bridges across networks and who connect to other weak ties. In addition, he shows that weak network ties are related to higher incomes but notes that the data measuring social networks needs to be “substantially better and more complete” (718) for this finding to be meaningful.

In separate studies examining the relationship between social capital dimensions and economic well-being and income and earnings, Zhang, Anderson, and Zhan (2011) using the National Surveys of Families and Households and Growiec and Growiec (2007) using the Polish Social Diagnosis Survey find that bridging social capital improves well-being and income and earnings while bonding social capital does not. The Zhang et al. (2011) study examines longitudinal data and finds a small, but significant, effect of bridging social capital (proxied by associational memberships) on future economic well-
being. Whereas, Growiec and Growiec (2007) find that friendship networks (bridging) as opposed to family networks (bonding) are associated with higher earnings because bridging social capital levels start low and it is not necessary to invest as much time in friendship relationships as it is in family relationships; thus, bridging networks (weaker ties), if nurtured, will only increase in their efficiency. While the opportunity costs of nurturing relationships with friends (bridging) or family (bonding) is similar in terms of time spent away from work building social capital, there are spillover effects from bridging social capital such as “matching…workers and firms, speed[ing] up information transmission, and reduc[ing] transaction costs and deadweight losses in economic activity” (Growiec and Growiec 2007, 5) that are not necessarily present from bonding interactions. When these spillover effects from bridging social capital are maximized by achieving a balance between relationship-building and loss of work, higher earnings are realized (Ibid).

**Social Capital Effects on Economic Development**

This body of literature focuses, broadly, on economic development rather than on specific outcomes like job acquisition. In an important study about social capital’s role in economic performance across countries, Knack and Keefer (1997) conclude that “trust and civic cooperation have significant impacts on aggregate economic activity” (1283) while associational activity does not affect economic activity. This study focuses on Robert Putnam’s definitions of social capital - trust and norms of reciprocity - which support cooperation. This study is one of the first to demonstrate a positive relationship between social capital as it was then defined, along with economic performance. The
authors use a standard trust question from the World Values Survey\textsuperscript{14} to determine the effects of economic performance. Subsequent studies, that better define the concept, break down social capital into networks of bonding and bridging (Beugelsdik and Smulders 2003).

In a case study on several rural regions in France, Callois and Aubert (2007) argue that strong and weak network ties provide different sources of information: Strong ties provide \textit{reliable} information whereas weak ties provide \textit{diverse} information, a distinction that supports the notion that bonding and bridging ties should not be thought of as mutually exclusive. Both types of information, reliable and diverse, are important for resource acquisition, especially jobs. Diverse, but unreliable information may lead to mistrust and reliable, but redundant information is probably not useful if the networks through which the information travels are small.

In several other macro-level studies using large data sets, researchers find a positive relationship between social capital dimensions and economic development as measured by per capita income (Hoyman, McCall, Paarlberg, and Brennan 2016; Maridal 2013; Hoyman and Faricy 2009, Beugelsdik and Smulders 2009; Knack and Keefer 1997) and other indicators like educational attainment and national investment rates (Beugelsdik and Smulders 2009).

Table 5

\textit{Summary of Relevant Literature on Social Capital and Economics}

\textsuperscript{14} \url{www.worldvaluessurvey.org}
Table 5 (continued).

<table>
<thead>
<tr>
<th>Author(s), Year</th>
<th>Level</th>
<th>Measures</th>
<th>Location, Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wahba and Zenou 2005</td>
<td>Micro</td>
<td>Network ties</td>
<td>Egypt – 1998 survey</td>
</tr>
<tr>
<td>Flap &amp; De Graaf 1986</td>
<td>Micro</td>
<td>Network size</td>
<td>Comparative study – Netherlands, United States, Germany</td>
</tr>
<tr>
<td>Granovetter 1973</td>
<td>Micro</td>
<td>Network ties</td>
<td>United States – Eastern U.S.</td>
</tr>
<tr>
<td>Rees 1966</td>
<td>Micro</td>
<td>Network ties (formal/informal)</td>
<td>United States – Chicago labor market</td>
</tr>
</tbody>
</table>

**Social capital effects on income, household welfare, and labor market outcomes**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Level</th>
<th>Measures</th>
<th>Location, Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khan and Lehrer 2013</td>
<td>Micro</td>
<td>Network size</td>
<td>Canada – Community Employment Innovation Project</td>
</tr>
<tr>
<td>Growiec and Growiec 2007</td>
<td>Macro</td>
<td>Bridging/Bonding</td>
<td>Poland – Social Diagnosis Survey</td>
</tr>
<tr>
<td>Hermann and Kopasz 2005</td>
<td>Macro</td>
<td>Memberships</td>
<td>Europe – EU-SILC</td>
</tr>
<tr>
<td>Tassier 2006</td>
<td>Micro</td>
<td>Network Range</td>
<td>United States – General Social Survey</td>
</tr>
<tr>
<td>Malaccio, Haddad, and May 2000</td>
<td>Micro</td>
<td>Memberships</td>
<td>South Africa – KwaZulu-Natal Income Dynamics Study</td>
</tr>
<tr>
<td>Grootaert 1999</td>
<td>Micro</td>
<td>Memberships</td>
<td>Indonesia – Local Level Institutions survey</td>
</tr>
</tbody>
</table>
Table 5 (continued).

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Level</th>
<th>Measures</th>
<th>Location, Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoyman, McCall, Paarlberg, Brennan 2016</td>
<td>Macro</td>
<td>Memberships</td>
<td>2006 data from counties in the United States</td>
</tr>
<tr>
<td>Maridal 2013</td>
<td>Macro</td>
<td>Level of trust</td>
<td>Multiple – World Values Survey (WVS), waves 1995, 2000, 2005</td>
</tr>
<tr>
<td>Ring, Peredo, and Chrisman 2010</td>
<td>Macro</td>
<td>Network type (formal/informal)</td>
<td>United States – rural communities without adjacent urban centers</td>
</tr>
<tr>
<td>Callois and Aubert 2007</td>
<td>Macro/micro</td>
<td>Network ties (diverse/reliable)</td>
<td>France – case study and survey</td>
</tr>
<tr>
<td>Knack &amp; Keefer 1997</td>
<td>Macro</td>
<td>Memberships</td>
<td>Multiple – WVS, 29 economies</td>
</tr>
</tbody>
</table>

Existing research suggests that social capital affects development, whether social capital is defined as trust among groups, norms of reciprocity among people, or networks that facilitate the flow of resources. Economic development is defined, among other things, as jobs (Granovetter 1973), status (Burt 2000), business networks and entrepreneurial activities (Ring et al., 2010), income (Hoyman et al. 2016), transaction costs (Fukuyama 2010).
2000), and household and community well-being (Grootaert 1999; Narayan and Pritchett 1999). However, none of the previous studies examines the relationship of social capital and development in indigenous communities. The next section will review some of the literature on social capital and indigenous populations.

Social Capital and Indigenous People

The literature on social capital and indigenous people primarily focuses on indigenous populations outside of the United States and the role that social exclusion (Hunter 2000; Lahn 2012) or migration (Flores and Rello 2003; Munshi 2003; Skoufias, Lunde, and Patrinos 2010) has on poverty and development. In addition, Reingold (1999) studies urban poverty and social networks in Chicago. While Reingold’s research is not directly applicable to Indian Country, the research focuses on a similar phenomenon, namely the way that minority ethnic groups acquire resources from the dominant cultural system in which they live. Another body of literature in the community development field uses a community capitals framework (Flora, Flora, Fey 2004) to understand development issues in rural, U.S. communities (Emery, Fey, and Flora 2006; Emery, Wall, Bregendahl, and Flora 2006; Flora, Flora, Fey 2004). O’Brien et al., (2005) examine alternative ways for indigenous people to acquire bridging social capital with the assumption that bonding social capital is the typical form of social capital that exists in most indigenous communities.

In rural Mexico, social networks in indigenous populations play an important role for accessing employment in specific sectors, especially for women (Skoufias, Lunde, and Patrinos 2010), but the sectors, agriculture and self-employment, are “typically
associated with poverty and low welfare” (63). The authors use language as a proxy for social networks; that is, those who speak the same language are part of the same social networks. Their findings suggest that, at least in rural Mexico, social networks are necessary to access employment opportunities, but that networks are only one piece of the development puzzle. This makes sense because it is easier for an individual to access information about job opportunities from someone who speaks the same language than from someone who does not and it is consistent with some of the migration literature which finds that migrants tend to associate with like others to facilitate their integration, to locate work (Lancee 2012) or acquire loans for entrepreneurial enterprises (Gomez, Perera, Weisinger, Tobey, and Zinsmeister-Teeters 2015; OECD 2010). Similar to findings by scholars from the Harvard Project for American Indian Economic Development (HPAIED), strong institutions are also important for indigenous development, as is understanding how “structural disadvantages and…constraints to agency” (Skoufias et al., 2010, 64) limit capacity.

In another study on indigenous populations in Latin America (Bolivia, Ecuador, Guatemala, Mexico, and Peru), Patrinos, Skoufias, and Lunde (2007) find that social networks influence economic opportunities through the spread of information or norm enforcement. By comparing indigenous and non-indigenous populations, they assert that indigenous populations find employment through network ties more frequently than non-indigenous populations, and that indigenous people tend to use bonded network ties more frequently than non-indigenous people. This finding is consistent with other research that demonstrates that people in small, rural communities tend to be very connected to each
other (Kellogg Foundation 2002) and that kinship and community is important in indigenous societies (Patrinos et al., 2007). Indeed, as Peterson and Taylor (2003) write, an indigenous “child is…born into a web of connectedness with many people having interests in them that entail reciprocal obligations for the child. This web, expressed mainly in the idiom of kinship, largely subsumes the individual such that they are seen and see themselves in terms of their relations with other people” (109). This description of the indigenous child refers to the examination of the “domestic moral economy” (Ibid) of indigenous Australians and the importance of understanding contextual factors that may account for social behavior. People who are part of highly connected networks and are obligated to each other necessarily behave differently than those whose obligations are to themselves. The indigenous people of Bolivia, Ecuador, Guatemala, Mexico, and Peru, referenced in the Patrinos et al. (2007) study locate employment using their network connections more readily than non-indigenous people, but the types of employment they are connected to – agriculture, informal, self – do not provide new or perhaps better-paying opportunities, so their network contacts are “perpetuating the current poverty and inequality patterns” (21). In other words, while bonded social networks do help indigenous people acquire jobs, the types of jobs they acquire may not be particularly useful in terms of advancing incomes and rising from poverty.

Flores and Rello (2003) examine social capital in rural Mexican and Guatemalan communities defining social capital as the capacity to use social networks to obtain resources. They find that social capital is useful to the extent that community leaders are endowed with linking social capital that can be used to increase community capacity
The authors compare adjacent communities, those with linking social capital and those with fewer bridging contacts and find that “in every case, the former [were] more successful than the latter as regards the construction of collective assets, obtaining external resources and the development of more highly paid activities” (Flores and Rello 2003, 9). The importance of this finding is that communities with strong leaders whose interests are communal can use their social networks, not only to obtain resources, but also to strengthen their communities by increasing capacity.

In a body of literature on aboriginal populations in Australia, Lahn (2012) finds a general connection between social capital dimensions and employment, but also finds that there is a problem of social exclusion that keeps indigenous people in poverty (Ibid). In addition, Walter (2015) conducts a qualitative exploratory case study on the Aboriginal and Torres Strait Islander people that examines the relationship between social capital and social mobility. Importantly, Walter (2015) notes the difficulty that indigenous people experience when trying to access resources from “mainstream networks of power and privilege” (81). This means that even if indigenous people increase bridging network ties, resource access is dependent on their acceptance as equals into the dominant culture. As she notes, this is a two-sided dilemma in that the highly bonded networks that are common among indigenous people may limit interaction with outside others. Walter’s (2015) finding, consistent with Lahn (2012), indicates that social capital in indigenous populations operates differently than in non-indigenous populations, due, in part, to historical and contemporary inequities (Alfred 2009, Alfred and Corntassel 2005) that lead to misunderstandings between the indigenous and non-
indigenous populations. For this reason, some scholars discuss the idea of an “indigenous social capital” (O’Brien et al., 2005) that distinguishes between exclusive and inclusive forms. For example, Lahn (2012) suggests that rather than using formal or informal networks or bonding and bridging as measures when examining the relationship of social capital to employment with aboriginal populations, that researchers distinguish between aboriginal and non-aboriginal networks.

In a social network analysis using data from four U.S. tribal colleges, O’Brien et al., (2005) seek to understand how indigenous populations balance their need to assimilate into majority culture with their desire to maintain their cultural heritage. O’Brien et al. (2005) state,

If Native Americans reject mainstream culture and social organization too much, they run the risk of remaining isolated from material benefits of the larger society, especially education and higher skilled employment opportunities. On the other hand, too much assimilation into mainstream society may mean a loss of one’s identity (1049).

The authors select U.S. tribal colleges for the study based on each college’s mix of bridging (external revenue diversity) and bonding (tribal public welfare expenditures) social capital (O’Brien et al., 2005). Results indicate that bonding social capital networks or exclusive networks are useful to tribes to a point, but too much exclusivity makes it difficult for tribes to “participate in a global economy” (Ibid, 1050) and to reap the potential benefits that come with global market interactions. In addition, the authors examine the link between bridging and bonding social capital in rural U.S. and Russian communities. The premise and primary findings of the study are that bonding and bridging social capitals are not mutually exclusive, and that a “one-size-fits-all”
approach” (Ibid 1043) to social capital accumulation is detrimental because it assumes a relationship between bonding and bridging in which one form is accumulated and the other is lost. In the authors’ view, bonding and bridging social capitals should exist in sync and in context. Furthermore, the authors argue that defining social capital in terms of its strength (bonding) or weakness (bridging) of ties is too narrow and suggest that, instead, the concepts should be defined in terms of inclusivity and exclusivity which allows for both types of social capital to operate at the same time. Indigenous people must strike this balance because their history of kinship and the obligations this implies necessitate bonding connections (Patrinos et al., 2007), but bridging connections may increase their access to outside resources.

To understand more fully how rural communities work Flora, Flora, and Fey (2004) developed the community capitals approach, an asset-based, framework. This framework is useful in understanding how the values and norms of indigenous people are different from the dominant culture. Broader in scope than exclusive and inclusive or informal and formal networks, the community capitals framework includes cultural, financial, natural, human, political, built, and social capitals while a networks theory of social capital looks specifically at individual social networks. An asset-based approach focuses on strengths rather than deficits, pointing out, for example, the strength of indigenous peoples’ cultures or, in the case of most Indian reservations in the U.S., their natural surroundings which can be used for economic endeavors such as tourism.

Cornell and Kalt (2000) from the HPAIED recognize the importance of strong, capable economic, political and social institutions, and self-governance as two important
keys to economic development in Indian Country; the community capitals framework succeeds in including all the components necessary for a community to develop.

Mignone’s (2003) framework for measuring social capital in indigenous communities in Canada is like the community capitals approach (Flora et al., 2004) in that it distinguishes among financial, human, natural, physical, and symbolic capital or resources, but it also examines how these dimensions function relative to bonding, bridging, and linking social capital. Thus, community capitals or resource types are considered in terms of internal, within-community, bonding networks, as well as in terms of external bridging or linking networks, rather than bridging and bonding being used as separate dimensions that provide access to different resources.

In a study on social capital and networking for indigenous entrepreneurs in urban settings, Foley and O’Connor (2013) find that indigenous social capital, not surprisingly, is different across cultures. Their comparative case study of an Australian aboriginal, native Hawaiian, and New Zealand Maori community leads the authors to conclude that both the majority and minority cultures need to be considered to understand indigenous social capital. Indigenous people and in this case, entrepreneurs are often negotiating between two cultures and crossing between majority (non-indigenous) and minority (indigenous) cultures to network. This calls for a unique understanding of both cultures and the ways in which networks function in each.

Hunter (2004) calls for a simple conceptualization of social capital in indigenous cultures. He argues that the downsides of social capital can be especially problematic in indigenous or even rural communities. For example, downward leveling norms (Portes
2000) that pressure people to stay within their own communities, factionalism, restrictions on individual freedoms, and family obligations are important, but negative, aspects of social capital. These, along with the positive effects of networks and norms of reciprocity make defining and measuring social capital in indigenous communities like the many-headed “Hydra” of Greek mythology (Hunter 2004).

Overall, studying social capital with indigenous people requires understanding how contextual historical and cultural factors contribute to a community’s structure and how indigenous communities often operate in two worlds. Social exclusion and lack of trust between indigenous and non-indigenous populations may perpetuate network closure despite efforts to create bridges.

Theoretical Framework

The theoretical framework employed for this study rests on the assumption that individual social networks in Indian Country, specifically the Crow and Salish Kootenai people who live on or near their respective reservations are tight, kinship-based networks of mutual trust and affiliation. The literature on social capital and economic development indicates that if social capital in the form of bonding or bridging networks is too tight or perhaps exclusive, then growth suffers. This occurs because social network theory demonstrates that information flowing through closed networks is redundant; whereas, information flowing through or across networks is likely to be new or unique. Since job information is likely to be new information, for individuals to access information about jobs, they need access to new information. If their social networks are broad or if they are connected to others who act as bridges between one or more networks, they will have
access to more job information. The more knowledge there is about potential jobs, the greater the potential number of jobs applied for, and the greater the chance of acquiring a job (Hunter and Gray 2006). Conceptually, this means that individuals with bridging networks are more likely to have connections to people who live and work on, adjacent,

**Figure 3. Conceptual Framework**

to or off reservation while individuals with bonding networks are more likely to have connections to people and jobs that are on the reservation. Thus, the hypothesis is that people with bridging networks will have or will prefer jobs on, adjacent to, or off reservation and people with bonding networks will have or will prefer jobs on their reservations.
This Study’s Contribution

The proposed study is significant because there is evidence that a prevalence of strong, bonding ties in a community limits information flow and can lead to social exclusion while weak, bridging ties can increase information flow (Bhandari and Yasunobu 2009; Granovetter 2005; Zhang, Anderson, and Zhan 2011). There is also evidence to suggest that when community resources (capitals) are leveraged and especially when there is a good mix of bonding and bridging social capitals (Emery, Wall, Bregendahl, and Flora 2006; Evans and Syrett 2007), communities can grow internally and externally to interact with regional, national, or international networks and access resources that, perhaps, would not be available otherwise. Much of the social capital literature is related to communities with inner city minority populations (Brisson 2009), with populations outside of the U.S. (Hunter 2000, Giorgas 2007; Pickles, Savage, and Li 2005; Middleton, Murie and Groves 2005; Mignone 2009; Lahn 2012) or considers social capital from a community action perspective (Agnitsch, Flora, and Ryan 2006; Emery and Flora 2006). In addition, much of the literature related to economic development in indigenous communities focuses on institutions (Cornell and Kalt 2003-03; Sandefur 1989), land issues (Kopisch 2011), locational issues (geography) (Leichenko 2003; Levitte 2004) and/or historical factors that have kept these communities in poverty (Gilio-Whitaker 2015; McLaughlin 1998; Wilkins 1993). This study’s examination of social capital through the lens of social networks and their effect on job acquisition is unique because of the location of the study on the Crow and Flathead Indian Reservations and because of the way the study is designed. Other studies
that examine the relationship between social network ties and economic outcomes with indigenous populations are case studies or analyses of large datasets or the focus is on entrepreneurship which is prevalent in rural and often isolated indigenous communities, but there is not a specific focus on how job information flows through indigenous networks and how that information is used to acquire jobs. By looking at individual social networks, determining the type of networks that predominate (bonding, bridging, or a mix of both), and how the network types affect job acquisition in terms of job location, it is hoped that this study will provide a unique and exceptional understanding of networks in Indian Country.

Furthermore, American Indians are part of the broad international development research that includes Canadian First Nations groups, aboriginal Australians, New Zealand Maori and other indigenous groups whose social, political and historical narratives, while different, affect their development trajectories. Unfortunately, the international development research field does not regularly include indigenous populations; rather, indigenous populations are studied more often within the realm of community development (Flora et al., 2004). This study bridges the two disciplines especially by studying American Indians who are, too often, considered in the same manner as other ethnic minority groups in the U.S. While there are some similarities, the major, and significant, difference between other ethnic minority groups and American Indians is the issue of sovereignty. American Indian tribes are sovereign, but also are restricted by state and federal policies making it difficult and complicated for tribal leaders to make community changes. This study not only contributes to the international
development literature by focusing on development in terms of economic outcomes, but also to the community development literature by focusing on social capital. Social capital is an international and community development concept and a network analysis is a different and tangible approach to studying economic outcomes in Indian Country. The results will inform the leaders of the tribes involved in this study, but also leaders of other indigenous populations within the U.S. and internationally. While tribal leaders intuitively understand the networks that exist in their communities, they may not know how those networks impact economic outcomes.
CHAPTER III
METHODOLOGY

Introduction

The purpose of this study was to examine how individual social networks affected job acquisition in Indian Country, specifically among Native Americans living on two Indian reservations in Montana. According to social capital theory, there are several ways that social capital influences economic outcomes. The trust strand of social capital says that groups, organizations, communities, and even states and countries with high levels of generalized trust, norms of reciprocity, and horizontal, “cross-cutting” ties are more successful economically than those with lower levels. This is because a larger radius of trust enables groups to do business with each other, given the perception that contracts will be enforced, and other facets of doing business will be imposed, leading to lower transaction costs and higher economic outcomes (Fukuyama 1999; Putnam 1993). In addition, horizontal ties enable people to meet and associate with dissimilar others, thus increasing resource diversity.

The other major strand of social capital theory is related to networks and the way that information or resources flow through them. Tightly-knit, bonded groups with limited contact to outside others have access to resources, but because their networks may be highly connected and homogeneous, their resources may be limited; by contrast, groups with more diffuse networks and bridges from one group to another, potentially, have access to more resources. Weak ties, that is, ties that are more distant in terms of
frequency of contact, relationship type and strength are useful for the acquisition of
resources, such as jobs (Granovetter 1973).

This dissertation based the overarching research question on the network strand of
social capital theory and on the fact that poverty and unemployment rates in Indian
Country are among the highest in the United States (Krogstad 2014). The research
question arises from the assumption that networks in Indian Country are tightly-
connected and dense and that people living in their reservation communities are
geographically isolated and that bonded network ties have limited their access to
information about jobs outside of their immediate communities, perhaps contributing to
insular networks that limit overall growth. How do individual social networks affect job
acquisition in terms of job location for members of two Montana Indian tribes living on
their reservations leads to two sub-questions: 1) How do bonding social networks affect
job acquisition for members of two Montana Indian tribes living on their reservations? 2)
How do bridging social networks affect job acquisition for members of two Montana
Indian tribes living on their reservations? The researcher hypothesized that strong
network ties provided individuals with access to tautological information and linked
them, as job seekers, to the same people that their neighbors knew. In addition, because
of the homophily principle (Bakshy, Marlow, Rosem, and Adamic 2012; McPherson et
al., 2001), strong ties to like others limited the diversity of an individual’s network,
causing them to acquire job information that limited their knowledge, while individuals
with weak network ties to unlike others had access to non-tautological information and to
people who acted as network bridges. The researcher also sought to determine if
individuals made their job searches more competitive by contacting people about jobs who also were being contacted by their neighbors, while individuals with bridging ties competed for jobs with people from outside of their immediate networks. Those with bridging ties would have access to jobs on, adjacent to, or off their reservations, while those with strong ties would have access to jobs on their reservations.

To examine the research questions and hypotheses in more detail, it was necessary to study the relationships people had to each other as well as to define their networks. This investigation of structure called for the use of a social network analysis, a method that was developed “to predict the structure of relationships among social entities as well as the impact of said structure on other social phenomena” (Butts 2008, 13). The remainder of this chapter explains in more detail the research methodology and approach, information about the research sample, the research design and the type of data that was collected and why, and how the data were analyzed. The study’s limitations are discussed, followed by a summary and concluding observations.

Social Network Analysis

A social network analysis (SNA) was used because it was the most efficient way to determine individual networks and because the method examines “relations and the patterns formed by these relations,” (Marin and Wellman 2011, 11) which was important for understanding whether ego networks were primarily bonding or bridging. While a purely qualitative approach could have been used, it would not necessarily have generated the type of data needed to determine a network’s structure; for example, a person’s position in it or a network’s characteristics. Thus, this study uses mixed
methods, combining qualitative (narrative) and quantitative (relational) approaches (Herz, Peters, Truschkat 2015). Hanneman and Riddle (2005) explain that networks are a “structure of connections, within which the actor is embedded” (n.p.) so understanding the network structures for individuals on both reservations was an important step in defining their network types; for example, whom they were connected to and how, and how those connections affected the resources they acquired. In addition, understanding how respondents viewed their circumstances related to job availability and the usefulness of their social networks provided context to the study that would not have been evident had the study’s focus been solely quantitative. The quantitative approach to this study relies “on descriptive statistics drawn from [the] survey” (Pauly 2018) instrument, and on the structural characteristics of each person’s network. The qualitative approach examines the responses from open-ended questions using content analysis to identify common themes.

Typically, researchers study whole (complete) or egocentric (ego-centered, personal, individual) networks. Whole network studies examine the structure of an entire population, that is, the relationships among all the possible dyads of a defined, total population; ego-centered networks, on the other hand, “capture individual social environments” (Hennig, Brandes, Pfeffer, and Mergel 2012, 52) and their relationships to others. In either case, relations between and among actors are studied. These can be general relationships, such as friendships (relation-based approach) or specific, such as people who attend an event together or who hold certain organizational positions (event-based and position-based approaches) (Marin and Wellman 2009). In addition, relational
ties often are categorized further based on things such as similarities (ethnicity), social roles (church attendees), interactions (someone helping his neighbor), or on the way resources flow between people (information exchange) (Ibid). Katz, Lazer, Arrow, and Contractor (2004) note that networks vary based on

communication ties (such as who talks to whom, or who gives information or advice to whom), formal ties (such as who reports to whom), affective ties (such as who likes whom, or who trusts whom, material or work flow ties (such as who gives money or other resources to whom), proximity ties (who is spatially or electronically close to whom), and cognitive ties (such as who knows who knows whom) (308).

An egocentric network is created from an actor or ego’s perspective by identifying those with whom ego has ties (name-generator). The people to whom ego is tied are known as alters. The ego-alter relationship can be defined based on an exchange relationship (Ruan 1998) (for example, an ego could be asked to name alters with whom he works) or an ego can name “general” alters and his relationship with them (for example, his friends, co-workers, neighbors, family members). The primary difference between the two is that one network is elicited based on a specific type of interaction or exchange (Ruan 1998) while the other network asks people to name those to whom people turn, in general, when discussing important matters (Marsden 1990). The latter network type is based on a question in the General Social Survey (GSS) often used in social network analyses (Bearman and Parigi 2004).

Marin and Hampton (2007) maintain that there are four approaches to studying egocentric networks using name-generators, based on: 1) role-relations; 2) interactions; 3) affective ties; and 4) exchanges. The role-relations approach examines the relationship between ego and alter based on their different roles, for example, a student generating the
names of his teachers (Marin and Hampton 2007) or an employee generating the names of his co-workers. The *interactions* approach examines the frequency or type of interactions that occur between ego and alter during a specific time frame, for example, test interactions over a semester (Marin and Hampton 2007) or interactions that occur during staff meetings. The *affective* approach examines ties between ego and alter based on feelings; for example, a student naming a teacher or a boss of whom he is fond (Marin and Hampton 2007). And, the *exchange* approach, used in this study, examines the relationship between ego and alter based on the exchange of information or content, for example, a teacher providing a graduating student with information about potential jobs (Marin and Hampton 2007). The advantage to the exchange approach to name generation is that an ego’s network is based on a specific, defined question which mitigates memory issues that often occur when someone is asked about who, in general, is part of their network as people tend to name those with whom they have daily contact rather than thinking broadly about their contacts (Borgatti, Everett, and Johnson 2013). In addition, Marin and Hampton (2007) argue that name-generators increase reliability and validity, especially with the “exchange approach [because they] provide a clear theoretical framework” (5) for the respondent. That is, the exchange approach identifies specific criteria or specific relationships for ego to consider when naming alters (Marin and Hampton 2007).

In general, it is recommended that multiple name-generators are used to keep an ego’s network from being too narrowly defined (Ruan 1998) as can be the case when a single name-generator is used; for example, based on a single type of relationship or
exchange interaction. The intention of the GSS name-generator was for researchers to generate an ego’s strong ties using a single name-generator (Small 2013) which was linked to specific outcomes like finding jobs (Shakya, Christakis, and Fowler 2017) or to health outcomes (Perry and Pescosolido 2010). The assumption was that people talk about important matters with those who are closest to them. However, subsequent researchers questioned this assumption and wondered if the GSS name-generator represented the sorts of discussions or conversations that people actually have (Shakya, Christakis, and Fowler 2017; Small 2013; Perry and Pescosolido 2010; Bearman and Parigi 2003). In a study on general and health-related discussion networks, Perry and Pescosolido (2010) find that people do not always go to their closest others to discuss health issues making the GSS network generator less relevant. They argue that “functional specificity” or the tendency for people to choose whom to discuss important matters with depends on the specific issue and the function of the tie (Ibid). Furthermore, the authors argue that social network “research could benefit from a clear definition of the mechanisms underlying the effects of social networks on a given outcome, and an appropriate match between the networks and outcomes measured” (346). Small (2013) in a study on discussion networks hypothesizes, based on the social capital theory of resource acquisition (Lin 2001), that people mobilize their resources in a targeted or opportunistic way (Small 2015). That is, people choose the alters with whom to discuss important matters, based on the topic at hand or if, and when an opportunity presents itself. Bearman and Parigi (2003) conclude that “researchers would benefit from focusing
on specific conversation domains, and comparing networks arising from those domains.” (20).

Based on the information presented above, the present study examines the relationship between an individual’s social network and job-related information. The outcome of interest and the dependent variable is job acquisition and the independent variable is the network type and the way in which it affects job acquisition. Thus, a “role-topic” (Bearman and Parigi 2003) approach to generating names was used. In addition, a single name-generator was used. While using multiple name-generators is recommended in terms of validity especially when using a general name-generator (Marin and Hampton 2007), single name-generators can be used when a specific type of exchange or outcome is sought or measured. Ruan (1998) notes that asking hypothetical name-generating questions can elicit valid networks because they are based on naming people for instrumental purposes rather than those to whom they are closest. In this study, a hypothetical name-generator asks respondents to identify people whom they would, hypothetically, approach for information or advice about a job. In addition to naming alters, egos were asked to identify how their alters were related to each other; this is known as a name-interrelater and is a necessary component of network analysis as “without information on the interrelationships among the alters, no structural analysis can be performed” (Hawe, Webster, and Shiell 2004, 972).

An egocentric approach was used to study the two tribes because it was the best way to understand how networks affected job acquisition. If a whole network study had been done, in which every member of the defined boundary was named and the
relationships to each other collected, it would have been difficult to collect data related, specifically, to an ego’s job network. Using an egocentric approach allowed the researcher to specify the information sought. In addition, an egocentric design allowed respondents to remain anonymous because, unlike a whole network design in which every ego in a network is named, in an ego network the egos name alters based on their relationship to them, often without names attached (Borgatti, Everett, and Johnson 2013).

As noted, when conducting egocentric network analyses, first, a name-generator is used. In general, name-generators are open-ended questions that ask respondents to name people in their lives based on their roles, for example, friend, family, co-worker (Borgatti et al., 2013). However, researchers also ask questions that focus on specific topics (Marina and Hampton 2007, 165) such as, in this case access to information and/or advice specific to employment. Following a name-generator, a name-interpreter asks respondents to identify alter attributes. Next, a name-interrelater question asks respondents to specify the relationship between their alters (Borgatti et al., 2013). This is the method that was used in the present study. Every ego was asked to generate a list of alters whom they would go to for information about a job or from whom they would get general advice about employment. Once named, egos were asked to define their relationship to their alters and to identify their alters’ attributes - age, sex, tribal affiliation, ethnicity, employment status, and job location. Borgatti et al., (2013) argue that using a name-interpreter based on a name-generator decreases name recollection issues that can be a problem with open-ended questions such as those found in a whole network design. However, because egos specified their alters’ attributes, rather than the
alter doing so him or herself, there was a higher chance that the information that the respondents provided about their alters was, potentially, incorrect (Ibid).

Following the name-interpreter, participants responded to a name-interrelater question in the form of an adjacency matrix (fig. 5) which specified the relationship ties among their alters. As with the name-interpreter, the name-interrelater was completed by ego who specified whether two people in their network knew each other. It may be that if a network alter were asked the same question, he would complete the adjacency matrix differently. A concern with this research design is response fatigue\textsuperscript{15} because the task of identifying the relationship between and among each alter “can be tedious and time-consuming” (Borgatti et al., 2013, 267). To mitigate response fatigue, a respondent can be asked to limit the number of alters they name (Ibid), which is the method that was used here. Egos were asked to name up to 10 alters and then to specify if those people knew each other. While this method can reduce response fatigue, it also can “introduce significant bias” (Borgatti et al., 2013, 268) because egos tend to name their daily contacts first (Ibid). This potential for bias existed in the present study but was mitigated by asking respondents to name alters based on a specific type of information exchange. Importantly, Hanneman and Riddle (2005) note that without the final, name-interrelater step the resulting data is descriptive, but not necessarily a true network.

\textsuperscript{15} Initially, the survey was a position-generator in which a list of occupations was listed, and the respondent was asked to name one to three people whom they knew with each occupation. The intent was to examine the instrumental (gaining resources) function of individual networks (Van der Gaag, Snijders, and Flap 2008) as acquiring a job is a resource to be gained. Approximately 50 possible occupations were named, and this proved to be much too long, and survey fatigue was apparent. The decision was made to use a name-generator and to ask respondents to name 10 people (alters) whom they would go to for information about a job.
Description of Research Sample

The first step for sampling when using social network analysis is to identify a boundary. A boundary exists through some form of connection or tie from one individual to the next. It can occur naturally as in the reservation boundaries specific to this study or it can be specified based on certain criteria (Hanneman and Riddle 2005). Butts (2008) identifies three types of boundary specification: exogenous, relational, and methodological. Whether to specify a boundary exogenously depends on the research question and if “the entities…are relevant for some phenomenon of interest, and…[their] ties are, hence, relevant for subsequent analysis” (17). In the present study, the boundary could have been defined exogenously because of the natural geographic boundary (those living on their respective reservations); however, a full roster of people within the natural boundary was unavailable to the researcher. A relationally-defined boundary (Butts 2008) is defined by a network based on common relationships, such as all those who bowl together or who are part of a book group; the boundary “satisf[ies] some condition of social closure” (Butts 2008, 18). A methodologically-defined boundary is based on a study’s design. The respondents and the alters they name fall within a specified methodological boundary, in this case a person’s job network.

This was a volunteer, convenience sample as participation was voluntary (Jupp 2006) based on the respondents’ understanding of the research and on an incentive ($10 bill). It is a non-probability sampling method, meaning that participants were not selected randomly or statistically and that “the probability that a subject is selected is unknown and results in selection bias…” (Acharya, Prakash, Saxena, and Nigam 2013). The
difficulty with a volunteer, convenience sampling method is that the results cannot be
generalized, especially if the population is large and the sample is small and not
representative of the whole population. However, if a population is homogeneous,
because of homophily or “the tendency for individuals to share social ties with others
exhibiting similar characteristics” (Crawford, Aronow, Zeng, and Li 2018, 153), a
volunteer sample may result in a representative group. The homophily principle suggests
that people tend to befriend and/or associate with people like themselves so sampling
from a homogenous group may result in a representative sample because the sample and
the general population share similar traits such as ethnicity and geographic location.
Bornstein, Jager, and Putnick (2013) note that homogenous sampling has the advantage
of reducing “noise” related to sociodemographic characteristics “that could cloud the
study results” (14). To determine the degree to which a sample of people from a
homogenous group is representative of the population, it is useful to compare the
demographics of the sample population to the larger population. This was done by
comparing respondent demographics to tribal demographics using data from the U.S.
Census Bureau’s American FactFinder and comparing it to the sample. Regardless,
homogenous sampling even when sociodemographic characteristics are not related to the
research question are not generalizable to the larger population (Bornstein et al. 2013).

Specific to volunteer sampling, there is a “research bargain” (Jupp 2006) between
the researcher and the research participants because they are participating for some
personal gain (Ibid) and so sampling bias is inherent. While the researcher may gain data,
research participants may gain from monetary compensation or from being able to offer
their opinions. However, an important reason for using a volunteer sample is because a population might be difficult to access (Ibid). The sampling method used in this study is different from other sampling methods that are used with hard-to-reach populations such as snowball (Acharya et al., 2013) or respondent-driven sampling (Heckathorn 1997). When using either of these sampling methods, an initial research subject is identified who then names others who are recruited in subsequent waves (Ibid). In this study, there was a single wave and the participants self-identified at a single location over several hours on one or two days and recruited each other. Perez, Nie, Ardern, Radhu, Ritvo (2013) identify this sort of recruiting as “participatory recruiting…[which is] a form of social validation” (212). Snowball or respondent-driving sampling is often used when trust is an issue, for example, when people participating in a study do not want to be identified. In this study, it was important for participants to recruit each other because trust of outside researchers often is low.

The original intention of this study was to generate samples from the entire tribal populations by randomly selecting every tenth enrolled person living on or near their reservation; however, because the tribes wanted to protect their membership, neither one was willing to provide contact information for its enrolled members. Rather, the researcher was invited to sit in tribal headquarters to recruit participants who met the research inclusion criteria: 18 years and older and an enrolled tribal member living on or near their reservations. A sign was posted noting that the survey was about jobs and

16 Native Americans often feel as though they are used to check a research box, but that they do not benefit from the research. This leads to distrust between researchers and research participants (Common Threads Group, Montana State University, 2018).
people’s social networks and that $10 would be paid for participation\textsuperscript{17}. To reduce haphazard responses from those who might complete the survey quickly to receive the incentive, and so respondents did not feel compelled to respond, the incentive was paid regardless of whether participants completed the instrument. When others heard about the incentive, the number of people interested in completing the survey quickly snowballed, leading the researcher to conclude that at least some of the people decided to participate based on the incentive. However, because they were paid in advance of the survey’s completion, participant responses were not necessarily based on receiving the incentive. Due to budget constraints, the target response for each tribe was 30 people, which in each case, represented less than one percent of the total population of individuals ages 18-65 (Crow) and 20-74 (CSKT). Thirty-two people from the Crow Tribe responded to the survey and 29 people from CSKT.

\textit{Crow Tribe}

The average age of respondents from the Crow Tribe was 40. Forty-two percent of the respondents are male, and 58 percent are female. In the general population, 48 percent males and 53 percent females. Approximately 53 percent of the total population is employed while 74 percent of the sample population are employed, which means that the sample respondents over-represent the general population in terms of employment. The research was conducted at Crow Tribal headquarters which is in a small, rural community in Southeastern Montana, where many Tribal members live. In addition to

\textsuperscript{17} Completion of the survey was not required to receive the incentive.
Tribal headquarters, the community is home to other Tribal agencies, and a Tribal college. The community is surrounded by other Reservation communities as well as a non-Reservation community that is within a 20-minute drive. Data collection occurred over a two-day period.

CSKT

The 29 respondents from CSKT represented less than one percent of the total population (3,744) ages 20-74. The general population of the enrolled members of CSKT is comprised of approximately 51 percent males and 50 percent females while the sample population is made up of 34 percent males and 66 percent females. The average age of the research participants is 37. Seventy-six percent of the research participants from CSKT are employed while 56 percent of the general population is employed. CSKT Tribal headquarters is in a rural and perhaps more isolated area than the Crow Tribe because the main road is more difficult to travel, especially in winter. The Tribe’s headquarters are surrounded by Reservation communities and non-Reservation communities are within a 15- to 20-minute drive. Data collection occurred on a single day.

Table 6

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Sample Crow=30, CSKT=29</th>
<th>General Population</th>
</tr>
</thead>
</table>

18 The age range for CSKT was higher than for the Crow Tribe (20-64) because one of the CSKT respondents was 71 years old and the oldest respondent from the Crow Tribe was 62.
Table 6 (continued).

<table>
<thead>
<tr>
<th></th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Age</strong></td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td><strong>% Employed</strong></td>
<td>79</td>
<td>53</td>
</tr>
<tr>
<td><strong>% Male</strong></td>
<td>41</td>
<td>48</td>
</tr>
<tr>
<td><strong>% Female</strong></td>
<td>59</td>
<td>53</td>
</tr>
<tr>
<td><strong>Sample as a % of total population</strong></td>
<td>less than 1%</td>
<td>6434 (ages 20-64)</td>
</tr>
<tr>
<td></td>
<td>less than 1%</td>
<td>3744 (ages 20-74)</td>
</tr>
</tbody>
</table>

Data Collection

The kinds of questions that are asked when studying relationships and social networks are those that ask about frequency of interaction, method of contact and types of social network support (Hanneman and Riddle 2005; Granovetter 1973). In addition, some studies ask about the diversity of people’s personal networks to understand how their contacts are formed or ask questions about specific types of contacts, for example, “If you are looking for a new job, to whom would you turn to first [sic]?” (Scrivens and Smith 2013, 48). To answer the research question, how does social capital type affect job acquisition in Indian Country, it was necessary first to determine the social capital type and then to determine how each type affected job acquisition. The network strand of social capital defines social capital type by the nature of one’s network ties. Granovetter (1973) categorized people’s social connections or ties as strong, medium or weak. In this study, to determine social capital type, the researcher had to determine if an individual
had more bonding than bridging ties. To do this, Granovetter’s frequency of contact scale (Jackson 2010) was used to specify: 1) the interactions that occurred between two individuals at least two times per week (strong ties); 2) the interactions that occurred less than twice per week, but more than once per year (medium ties); and 3) the interactions that occurred less than one time per year (weak ties) (Ibid). In addition to frequency of contact, type of contact (relative, friend, acquaintance) and degree of closeness were requested, as well as attributes - age, sex, employment status, and job title (if known) (name-interpreter).

In addition, it was necessary to determine how close the respondents were to the people they named because degree of closeness affects the type of information that flows between people (Haythornthwaite 1996). For example, if alter2 was ego’s neighbor’s adult child whom ego saw when alter visited home two times per year, the information that flowed between them would be different than if they were best friends (degree of closeness). And degree of closeness was asked because frequency of contact alone can be misleading. For example, there may be a high degree of daily contact with a coworker, but the relationship may not be very close. Information that comes from a person who is very close may be different than information that comes from someone who is not so close (Haythornthwaite 1996). Following the questions to determine tie strength, the respondents were asked about how and if the alters they had named knew each other (name-interrelater). Respondents were asked to visualize their networks by completing an adjacency matrix (Figure 4) (Edwards 2010). An adjacency matrix provides a graphic representation of a social network where the presence of ties between two people is
recorded as 1 and the absence as 0. The resulting data can measure overall network properties such as density, node centrality, ‘brokerage’ and ‘closure’ (Burt in Edwards 2008, 11). Edwards (2008) argues,

… structural measures provide indications, for example, of how ideas or resources may flow through particular types of network (e.g. dense or sparse networks, centralized or decentralized networks, open or closed networks). They also help in analyzing the opportunities and constraints that actors experience as a result of their position within particular types of networks (e.g. as ‘isolates’, ‘brokers’, or members of ‘cliques’) (11-12).

Respondent demographic data was collected so that the response data could be compared to the general population. Both a “factual” and a “hypothetical” name-generator were used (Shakya et al., 2017). The factual name-generator, or actual job network (AJN) generated names from a respondent’s current and past two jobs (Table 7). Respondents were asked how they acquired their jobs, and if acquired with help from an individual (rather than by answering an advertisement), about the nature of their relationships (relative, friend, acquaintance), the degree of closeness (very close, somewhat close, not at all close), and their degree of contact (everyday, often, sometimes, hardly at all); these name-interpreter questions were included for a respondent’s current and past two jobs. The AJN resulted in small networks that were used to understand how people had used their network contacts to acquire jobs in the past. Because no name-
interrelater was included, these networks were not used to determine if a network was primarily bonding or bridging. In addition, as Hanneman and Riddle (2005) note, without

Figure 4. Adjacency Matrix

a name-interpreter or name-interrelater, the list of alters is not a true network because their relationship to others is unknown. Still, the AJN provided important information
about the methods people used to acquire their jobs as well as information about the potential density of the AJNs. For example, if all three of the jobs a person named were acquired with help from a relative, the implication is that the person’s network was dense and, perhaps, insular.

A second name-generator, a hypothetical name-generator (Shakya et al., 2017) or hypothetical job network (HJN) asked respondents to name up to 10 people whom they would go to if they were looking for information or advice about employment. Asking hypothetical questions mitigates the issues related to recall and the tendency for people to name people in their immediate networks (Ruan 1998). In addition, hypothetical questions encourage respondents to think about how they would approach a situation such as job acquisition and potentially broadens the list of names generated (Ibid).

The HJN provided more information than the AJN because respondents were asked to identify the relationships among their alters. After respondents generated a list of alters, they moved each person’s initials or first names to a matrix embedded in the survey and noted who knew each other (or did not), generating a graphical network. This was used to understand network structure and to determine if individuals tended to have more bonding or bridging networks. Finally, the information related to a respondent’s ideal job was collected. This information was collected to share with tribes as they strategize about job creation and economic development.

Table 7

<table>
<thead>
<tr>
<th>Actual Job Network (AJN)</th>
<th>Hypothetical Job Network (HJN)</th>
</tr>
</thead>
</table>

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Research Design Overview

The research design began with the research question and a review of the social capital literature. The research question necessitated a network approach and the instrument was developed to elicit relational information. Following instrument development and a small pilot of the instrument, Institutional Review Board (IRB) permission was sought and received and then data collection commenced. After data collection, the data was transferred, cleaned, and analyzed. The following section explains these steps in more detail.

Literature Review

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19 The initial instrument, piloted by one Native American, asked the respondent to name up to three people they knew based on an already-generated list of job types. There were 50 types listed and the instrument was too long. The second instrument was piloted by approximately eight people none of whom were Native American.
A review of literature began with social capital theory and its relationship to economic development (Hoyman, McCall, Paarlberg, Brennan 2016; Maridal 2013; Ring, Peredo, and Chrisman 2010; Beugelsdik & Smulders 2009; Callois and Aubert 2007; Knack & Keefer 1997) and economic outcomes, specifically, the effects of networks on access to jobs and occupational status (Wahba and Zenou 2005; Burt 2001; Flap and DeGraaf 1986; Granovetter 1973; Rees 1966), and the effects of social capital on income, household welfare, and labor market outcomes (Khan and Lehrer 2013; Zhang, Anderson, and Zhan 2011; Growiec and Growiec 2007; Hermann and Kopasz 2007; Tassier 2006; Malaccio, Haddad, and May 2000; Grootaert 1999; Narayan and Pritchett 1999; Boxman, De Graaf, and Flap 1991; Bridges and Villezmez 1986). In addition, the literature related to social capital and indigenous populations was reviewed (Walter 2015; Foley and O’Connor 2013; Lahn 2012; Skoufias, Lunde, and Patrinos 2010; Lunde, Patrinos, and Skoufias 2007; O’Brien, Phillips, and Patsiorkovsky 2005; Flora, Flora, Fey 2004; Hunter 2004; Flores and Rello 2003; Mignone 2003; Cornell and Kalt 2000; Reingold 1999). As the research question became more focused, a more detailed review of the network strand of social capital was undertaken (Maru and Davies 2011; Trimble and Kmec 2011; Jackson 2010; Borgatti and Halgin 2011; Borgatti, Mehra, Brass, and Labianca 2009; Yakubovich 2005; Borgatti and Foster 2003; Lin 2001, 1999; Burt 2000; Streeter and Gillespie 1993; Bian 1997; Haythornthwaite 1996; Wasserman and Faust 1994; Coleman 1988; Scott 1988) and the question was further narrowed to review the social capital dimensions – bonding and bridging (Jordan 2015; Lollo 2012; Panth 2010; Bhandari and Yasunobu 2009; Brisson 2009; Van der Gaag and Webber 2008; Patulny
Instrument Development

The survey instrument was developed based on the information that was necessary to answer the research question. The first section of the survey collected respondent demographic information, followed by information about how the respondent would approach getting a job in the future. Initially, the survey included a position-generator meant to elicit an individual’s networks based on occupational types (Van der Gaag, Snijders, and Flap 2008). Approximately 50 occupations were listed, and respondents were asked to name up to three people per occupation. After piloting this instrument, it was apparent that the instrument was too long. Thus, the instrument was revised, and the position-generator was replaced with a name-generator, enabling people to name anyone they would approach about any sort of job; this was less limiting, more informational, and less burdensome for the respondent.

Two versions of the revised survey were used. The first version was 26 pages because the HJN question asked a respondent to name an alter and his or her attributes on a single page. When a respondent named 10 alters, the instrument became very long. This version was used with the Crow Tribe, but it was evident that respondents were experiencing survey fatigue. To mitigate this problem, the survey was reworked into a table format (Figure 6), so respondents could name an alter, their attributes and other relationship data in a single table which reduced the page number to nine. Not only was
the information easier to see, it also took less time for respondents to answer and reduced survey fatigue.

Two name-generators asked respondents to: 1) name their current and past two jobs (AJN) and 2) to name people (alters) whom they would go to for information or advice about employment (HJN). Marin and Hampton (2007) argue that multiple, rather than single name-generators should be used to fully capture the extent of an individual’s network. However, both single and multiple name-generators are valid depending on the name-generator’s purpose (Ibid) for example, single name-generators that are designed to elicit information about specific types of relationships such as an individual’s exchange network. If a researcher wanted to examine more than one type of instrumental relationship, multiple name-generators would be appropriate to elicit networks based on different role relations; however, the network in question in this study was the job network, so a single name-generator was used to elicit this information. Marin and Hampton (2007) note that “these [exchange] generators have strong face validity and are less likely to be interpreted differently across respondents” (4). The limit to this approach

<table>
<thead>
<tr>
<th>Q12 How would you go about getting a job if you wanted one (select all that apply)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑ Want ads (newspaper or online)</td>
</tr>
<tr>
<td>❑ Walk-in</td>
</tr>
<tr>
<td>❑ Ask a friend</td>
</tr>
<tr>
<td>❑ Ask a family member</td>
</tr>
</tbody>
</table>

Figure 5. Example of a Survey Question.
is that scenario questions such as “whom would you go to for information about a job?” ask people to predict a future response or to remember something in the past, making recall and predicted behavior difficult (Ibid). While the HJN question that was used in this study asks respondents to predict a future response, the specific nature of the question, rather than a question about general resources, helped to frame their responses.

<table>
<thead>
<tr>
<th>Q11</th>
<th>In the yellow boxes, please write the title of your past three jobs (12 hours or more per week)</th>
<th>Current Job If no job, skip to Q12</th>
<th>1st past job If no previous jobs, skip to Q12</th>
<th>2nd past job If no previous job, skip to Q12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Example: Rancher</td>
<td>Teacher</td>
<td>Security worker</td>
</tr>
</tbody>
</table>

In each box, write the number that corresponds to your answer

**How long is or was the commute to the jobs you listed? (select one)**

<table>
<thead>
<tr>
<th></th>
<th>Example: 1</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 50 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Where is or was the location of the jobs you listed?**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In a town or community on a Reservation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a town or community adjacent to a Reservation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a town or community off a Reservation, and not adjacent to it?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Did you get information about the jobs you listed using any of the following methods? (select all that apply)**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Someone you know</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Want ads - electronic or other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk-in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>other __________ please specify</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If you got information about any of the jobs you listed through someone you know, how well do you or did you know them? (select one)**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very well?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat well?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardly at all?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**What is your relationship to the person who gave you information about the jobs you listed? (select one)**
Another approach recommended by Bidart and Charbonneau (2012) is a two-step contextual approach in which an ego creates “a personal network based on contexts” (9). First, the respondent identifies individuals based on the different contexts of his life, for example, church, school, parent, spouse, or worker, etc. (up to 50 contexts were used in the Bidart and Charbonneau study). The authors argue that a contextual approach helps respondents remember people more readily because the context in which they know someone triggers their memory. Second, the respondents are asked to identify which members of each context matter most to him and then to assume these people to be alters. The disadvantage to this approach for this study is that the research question required the identification and categorization of bonding and bridging types of social capital and
identifying alters based on the importance of an alter to an ego is not the same as identifying people that would be useful in a specific situation like acquiring a job. Indeed, respondents may have named people who did not matter very much to them emotionally, but who could provide them with information.

Another consideration is the number of names that can result from a name-generator. Too many names can be a burden on a respondent who not only has to recall names, but also must identify the relationships between them, leading to response fatigue (Merluzzi and Burt 2013; Bidart and Charbonneau 2012; Marin and Hampton 2007). In their study on the effectiveness of a single versus a multiple name-generator approach, Marin and Wellman (2006) allowed respondents up to six alters, arguing that respondent burden for over six alters would be too high and that “previous studies have found that less than 3 percent of respondents listed more than 6 alters…” (8). However, because a single name-generator was used (rather than multiple name-generators asking for six alters each), the researcher asked respondents for ten alters. This number was selected because the researcher was aware of the tribal kinship system and was concerned that asking for fewer alters would result in individual networks with the same alters identified. Asking respondents to think beyond their immediate, daily contacts was intentional.

In addition to the AJN, respondents were asked to name up to 10 people whom they would ask for information or advice about a job. Since the question was hypothetical this network data is termed hypothetical job network (HJN). For each person named, respondents were asked how they knew the person they had named (relative, friend, or acquaintance), how close they felt to that person, and the amount of contact they had with
them. In addition to these measures of tie strength (Granovetter 1973), respondents were asked the reason for contacting each person, for example, because the person had influence, more information, or knew more people than the respondent, or because the respondent was interested in the named person’s job. The HJN also asked respondents to note if the person they named was employed, and if so, the name of that person’s job, where it was located (on, adjacent to, or off reservation), the person’s age, sex, ethnicity, and if Native American, their tribal affiliation. The purpose of these questions was to determine the degree to which homophily existed, and how or if, homophily affected job acquisition. For example, if a respondent’s HJN was comprised of people of similar age, sex, ethnicity, was there a different effect than for those whose networks were more heterogeneous20. Finally, the question about where a named alter’s job was located demonstrated if a respondent was tied to people who were working on, adjacent to, or off reservation.

To understand the degree of strength of a respondent’s network, the final step in the HJN was for respondents to note if the people they had named knew each other (name-interrelater). Examining a respondent’s network structure in relation to the location of his or her current job explains how well information flows through their networks. For example, if a respondent’s network was very dense and his current or one of his past two jobs was on the reservation, it could be that the respondent did not have information about jobs off reservation because everyone he knew worked on reservation.

20 The expectation was strong homophily which would lead people to apply for and know about the same jobs.
Whereas, a less dense network with weaker ties or bridges from one part of a respondent’s network to another may be related to job location (in this case off reservation) implying that information about opportunities off reservation was available.

Every person’s network of alters, including ego is part of his neighborhood as are the ties among them (Hanneman and Riddle 2005). Usually, the path between ego and his alters is a length of one indicating that they are “directly adjacent” (Ibid n.p.). This makes sense as a person names people he knows. In addition, an ego’s neighborhood includes the relations among his alters; thus, the sum of all neighborhoods in ego’s network is the network boundary (Ibid). The characteristics of each ego’s neighborhood that are included in this analysis are density, two measures of structural holes (efficiency, and effective size), and a measure of structural balance (transitivity and triad census).

Network density is calculated by dividing the total number of actual connections or ties among all nodes in a network by the total number of possible ties or n (n-1) where n = alter. The higher the number (closer to 100), the denser the network. Very dense networks may constrain those within them because everyone knows everyone. For this study, it was expected that the ego networks would be dense because the communities are small, ethnically homogeneous, and isolated. However, even dense networks often have some variation (unless they are so dense that every person knows every other person)21. Rather than asking respondents for a general network where egos named alters and then indicated how they knew them, asking them for a job network forced them to consider

21 This was the case for CSKT where close to half of the ego networks were fully connected.
people who were, perhaps, outside of their immediate social circles, thus increasing heterogeneity.

An ego’s position in a network is important to the degree that the position is constraining or that it increases opportunities. According to Ronald Burt (2001), a structural hole is advantageous when it enables information or opportunity to flow from one network node to another, through a common node or ego. For example, if Jane knows Sally and Jane knows Teresa, but Sally and Teresa do not know each other, there is a hole in the structure and information must pass through Jane. This structure can be constraining if Jane takes advantage of her position to keep information or resources from either Sally or Teresa, but it can be advantageous if Jane facilitates the flow of information or resources. There are two measures related to structural holes that are relevant to this study: effective size and efficiency (Hanneman and Riddle 2005; Borgatti, Everett and Freeman – UCINET 2002).

One measure of structural holes, effective size, measures the average number of ties among an ego’s alters in relation to the total number of alters, giving a picture of network redundancy. It follows that the larger a network’s effective size, the less redundant are an ego’s contacts because the measure is the number of alters in an ego’s network minus the average number of ties they have to each other. If all an ego’s alters are tied to each other (and to ego) the effective size of the network is small and information that passes through the network may be redundant. However, if an ego has many alters not tied to each other, it implies that those alters have ties apart from ego’s
network and so information the alters receive from their other networks may be new to ego.

Whereas the effective size of a network examines the number of redundant contacts, the *efficiency measure* examines the proportion that is redundant. For example, if, in Jane’s network, Sally and Teresa know each other, the effective size is 1 (total number of alters = 2 minus the average number of ties between alters = 1), but its efficiency is .5 (effective size/actual size) then Jane’s network is neither effective nor particularly efficient in terms of resource acquisition (Hanneman and Riddle 2005; Borgatti, Everett, and Freeman 2002).

Two measures of structural balance are examined: Transitivity and triad census. *Transitivity* measures the type of tie between dyads. In any given triad, the type of tie between dyads is important because a closed triad, while in some circumstances is beneficial (Coleman 1988), in the case of information flow, too many closed triads can limit flow. Transitivity is determined by examining the proportion of transitive (connected) triads to all possible triadic connections in a network (Prell 2012). A *triadic census* goes further to show how many and what kind of triads exist. Using Davis and Leinhardt’s (Stolz 2017; Prell 2012) MAN designations of 16 possible triads, UCINET’s (Borgatti et al., 2002) triad census shows the number of transitive and intransitive triads and delivers a transitivity score. Important to this analysis is the “forbidden triangle”
It is forbidden because, logically, it should not exist and its presence implies weak ties (Prell 2012).

**Frequency of Contact** is another measure of a network’s structure, particularly its weak or strong ties (Granovetter 1973). While a triad census gives a picture of the number and kinds of relationships that exist in a network (for example, forbidden (201) or fully transitive (300) triads), indicating a network’s potential (Snijders 2008), in this case the transitivity scores are based on every ego’s adjacency matrix which only describes the presence or absence of a tie between two people, but not the strength of that tie. To better understand an ego’s relationship to his alter, the networks were examined in terms of the frequency of contact scale (FoC) identified previously (AJN data analysis). Granovetter (1973) argues that frequency of contact is a measure of weak ties and that weak ties, in the case of job acquisition, are more useful than strong ties. However, since it is assumed that the frequency of contact among people in a relatively small, and isolated geographic area will be high, the degree to which an ego felt close to his alter was also measured, again, using the **Degree of Closeness** (DoC) scale previously described. Borgatti (2010) explains that transitivity not only indicates a reciprocal tie, but “g-transitivity” explains why a friend of a friend is a friend or Granovetter’s notion of a forbidden triad (when a friend of a friend is NOT a friend). The degree of closeness matters because the closer (the stronger the tie) Sally is to Teresa and the closer Sally is

---

22 Using Davis and Leinhardt’s MAN designation, triad 201 has two mutual (M) ties, no asymmetric ties (A), and one null (N) tie (Prell 2012). The null tie creates the forbidden triangle because, logically, when a person has two mutual (strong) ties or friends, the principle of homophily says that the two friends should be friends (McPherson, Smith-Lovin, and Cook 2001). In the forbidden triangle, the null tie indicates that an ego’s two friends are not friends.

23 Snijders (2008) says that a network’s transitivity is the number of transitive triads divided by the number of potentially transitive triads.
to Jane, the greater the likelihood that Teresa and Jane will “have at least a weak tie” (Ibid, n.p.).

The rest of this section explains how the above measures were examined to answer the research question. The respondent’s network structure indicated the degree of bonding and the structural holes, and the structural balance data indicated how well information and/or resources flowed through a respondent’s network. The results of the above measures were compared to a respondent’s current and ideal job location to help answer the research question.

To decide if a network was primarily bridging or bonding, it was necessary first to calculate its density and to categorize a network as bridging or bonding based on a cut-off point (Hanneman and Riddle 2005). The cut-off point was determined by taking the median scores for density, effective size, efficiency, and transitivity and categorizing egos with scores below the median as bridging and those above as bonding\(^{24}\). Scores above the median was categorized as bonding and anything below it was categorized as bridging. For each new measure, the median score was determined, and a new set of bridging and bonding networks emerged. These were compared to the original set to see where the networks fell across all the measures with a final set of network types identified for comparison to their current and ideal job locations. To calculate the measures, each ego’s data was transferred from their adjacency matrix into UCINET (Borgatti et al., 2002) and then egonet basic measures were run to look at density.

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\(^{24}\) For some measures, bridging networks fell above the median and bonding below it. For example, the lower a transitivity score, the less bonded it is.
Structural holes measures were run to look at effective size and efficiency and transitivity scores and triad censes (Ibid) were run to examine structural balance and open versus closed triads.

**IRB Process**

A survey was developed based on the research question and the information the researcher would need to know to understand the relationship between individual social networks and job acquisition. Prior to data collection and while the survey was being reviewed by the dissertation committee, the tribes were contacted. Following contact with the tribes, and tribal and committee approval, the instrument was submitted to IRB along with letters of support from each tribe and a proposed recruitment letter. The first instrument, which used a position-generator, was submitted and approved. After revising the instrument to replace the position-generator with a name-generator, a modification was submitted to and approved by IRB. In addition, when designing the study initially, the researcher, to reduce bias, did not intend to provide a participation incentive. However, the researcher was aware that it could be difficult to recruit participants without some form of incentive and brought $10 bills to the research site and asked tribal leaders what they recommended. Offering an incentive was recommended because tribal populations often are asked to participate in research that benefits the researcher, but not the research participant. An Unanticipated and Adverse Events form was submitted to IRB\(^\text{25}\) to include the addition of the incentive.

\(^\text{25}\) Because the incentive was not part of the original research protocol and because an incentive was given out once, the IRB treated it as an adverse/unanticipated event rather than a modification.
Data Collection

The research occurred on June 29 and 30, 2017 at Crow Tribal headquarters and on July 25, 2017 at CSK Tribal headquarters. To conduct the research, Tribal councils and/or representatives were approached, and these people gave permission for the research to occur and identified the place for data collection. The specific days for data collection to occur were flexible, but they needed to be cleared with tribal representatives. In both cases, tribal representatives allowed the researcher to identify specific weeks to visit, but they specified the days of the week based on the daily activity that was expected. On the assigned dates, the researcher set up a table at both sites with a sign posted asking for participants. At Crow Tribal headquarters, on the first day, the researcher sat at a table with a Tribal employee and on the second day, as directed by another Tribal employee, sat outside at a picnic table in front of the headquarters. At CSK Tribal headquarters, the researcher had a separate table indoors. As the survey was distributed, respondents were asked for their names and contact information in case there were follow-up questions. This information was written on the top of each survey and then handed out to individuals after the research and survey were explained, and a consent form was signed and dated. At the first data collection point, the researcher did not have access to a copy machine so consent forms were copied after the researcher left the site. The copies were mailed to the Tribal leader who had given permission for the research to occur and who had asked for a list of participants. The consent forms noted the respondent’s name, but Tribal leaders had no access to specific data contained in the respondent’s survey.
At the second collection point, the researcher asked respondents to sign two consent forms; one went to the respondent and the other stayed with the researcher. At both sites, a survey instrument, a writing implement, and a $10 bill were handed to people after they consented to participate. The survey was self-administered and semi-supervised in that the survey was distributed, and the researcher was available to answer questions (Borque and Fielder 2003). The disadvantage to this method is that the researcher has no control as to the survey’s return or if the person completing the survey is “consult[ing] with others when completing it” (Ibid, 23). In three cases, the survey was not returned, and these were not counted among the final responses. Collecting data on-site and in-person helped reduce non-responses that often occur when survey instruments are mailed (Borque and Fielder 2003).

Although the researcher was available to answer questions, when word spread about the incentive, at times, there were people lined up waiting to take the survey. In these cases, the researcher explained the survey, specifically the adjacency matrix, requested consent and then handed the survey out without follow-up unless the respondent had questions. When a respondent returned the survey, the researcher checked to see if there were unanswered questions (item non-response) and if so, the respondent was asked to answer them. Most of the items that a respondent was asked to revisit were demographics such as age or tribal affiliation of the alters they had named. In some cases, the respondent did not know age or job title, and many assumed the researcher would know their alter’s tribal affiliation based on the respondent’s tribal affiliation. To mitigate
item non-response and survey bias, Fink (2003) recommends following up with non-respondents.

Respondents completed an adjacency matrix by transferring the first names or initials of those they had named as alters in the HJN into a matrix that was embedded in the survey. They were asked to place an X in the box whenever two people knew each other and to leave it blank if they did not. Subsequently, the Xs were recorded as 1 to indicate the existence of a tie and 0 for no tie. The results were analyzed using social network analysis software (UCINET) (Borgatti, Everett, and Freeman, 2002) to determine, first, the makeup of each ego network, and then aggregated to get a sense of the neighborhood.

Steps in Data Analysis

Following data collection, the researcher, using an alpha-numeric sequence, coded the surveys so that respondents would be unrecognizable and their responses confidential. To ensure confidentiality, it was necessary to code the surveys carefully so that initials were not recognizable. Reservation communities are small and because of the kin and clan systems, names, especially last names, are easily recognizable so the researcher took significant efforts to preserve confidentiality. After re-identifying each survey, they were separated by tribe and the paper responses were reviewed and then transferred by the researcher into Microsoft Excel. Once in Excel, the data were cleaned and non-responses to any item were coded as 99 (ICPSR 2012); for example, if a respondent, in naming one of their alters, entered the person’s age, sex, Tribal affiliation, but did not enter his employment status, the answered items were included in the data analysis and the
unanswered items were not\textsuperscript{26}. Three people from the Crow Tribe only provided demographic information and information about their ideal jobs and their location. Another person responded to everything except the hypothetical job network question and the adjacency matrix. Except for the demographics section, a fifth person’s response to every question was the same leading the researcher to believe that the responses were not valid. In each case, the portions of the survey that were responded to were included in the analysis. Data was missing from CSKT respondents, but it was intermittent and did not require discarding whole sections of the survey.

Because networks are relational, the resulting data is usually entered in to a graph or sociogram (Hanneman and Riddle 2005) to denote the presence or absence of a relation, no matter the type. These kinds of graphs, adopted from mathematics “show points (or nodes) to represent actors and lines (or edges) to represent ties or relations” (Hanneman and Riddle 2005, n.p.). A graph can be directed or undirected depending on the nature of the relationship that is graphed. A directed relationship is directed from ego to alter, but not necessarily the other way around; for example, if Sally names Teresa a friend, it is not necessarily the case that Teresa would name Sally a friend. However, if Sally and Teresa are mother and daughter, for example, the tie is reciprocal. In this case, the relationships were directed from ego to alter because ego named someone whom he would approach for information or advice about a job, but the reverse is not necessarily true. Because the survey question asked a respondent to indicate if two alters knew each other.

\textsuperscript{26} When the data was calculated, it was clear that the original non-response code (99) needed to be eliminated so that the data calculations (descriptive statistics) were correct. The code was removed, and the non-responses were left blank.
other or not a “simple” binary graph was used with 1 indicating the presence of a tie and 0 indicating its absence (Ibid). All data were converted into a binary format for ease of analysis. For example, the survey asked for a respondent’s level of education. In a single question, a respondent could select no degree, high school degree, associate degree, bachelor’s degree, or more than a bachelor’s degree. If the respondent selected, for example, “bachelor’s degree,” on the paper survey, when the data was transferred to Microsoft Excel, a 1 was placed into the bachelor’s degree category and a 0 was placed in all other categories related to level of education. This method was used for every response that could be converted to binary data.

For ease of entry, calculation, and data analysis, the data were entered into a single Microsoft Excel file, in separate sheets. This method provided an easy way to retrieve data when necessary. For example, if it was necessary during data analysis to revisit a respondent’s employment history, a Microsoft Excel sheet with the name “employment history” was easily accessible. In addition, the data could be calculated section-by-section making it easier to see how variables related to each other. The first sheet’s data contained respondent demographic information – age, sex, level of education, tribal affiliation, whether the respondent currently lived on the reservation, if they had grown up on it, and their employment status.

The second sheet contained results from the AJN (current and past two jobs) and asked respondents to indicate how they had acquired those jobs. If acquired by contacting someone for help, rather than by walking in to a business or responding to a want ad, the respondents were asked to name the people who had helped them acquire their current
and past two jobs. A name-interpreter asked respondents about the type of relationship they had with their alters, the frequency of contact and degree of closeness to their alter, the reasons they had contacted those people, if they were employed, and, if so, where their jobs were located (on or off-Reservation), and the title of their jobs. Most data were converted to binary data with 1 indicating the presence of a tie and 0 indicating an absence. The exceptions were the frequency of contact, degree of closeness, and degree of knowing scales. These categorical variables were entered as they appeared on the survey.

The third sheet asked for information about ways in which the respondent would approach getting a job in the future. This question asked the respondent to select from the following response options: Want ad (electronic or print), walk-in to a place of business, acquaintance, friend, relative, or all methods. The responses were entered into Microsoft Excel using a binary system, as indicated above. In addition, they were asked where they preferred to live (on, adjacent to or off reservation), and an open-ended question about if, in the respondent’s opinion, there were enough jobs on their reservation.

The fourth sheet contained the respondent’s HJN responses. For each person named, respondents were asked about their relationship to that person, the frequency of contact, degree of closeness between the respondent and the person they named, the reason for naming that person, the person’s employment status, and, if employed, the location of their job, the person’s age, sex, ethnicity, and tribal affiliation. Respondents were asked about their level of interest in the job that the person had named. This
information was asked so tribal leaders have an idea of the types of jobs in which their constituents are interested.

In the fifth sheet, the data from the HJN which, on the paper instrument, had been transferred to an embedded matrix, were entered as rows and columns to form a matrix or graph. The initials of each alter were entered as rows and the same initials were entered as columns (an adjacency matrix). After the initials were transferred into the matrix, the respondent was asked to note whether the alters knew each other by marking an X in the box if two people knew each other and leaving it blank if they did not. This information was entered into a fifth Microsoft Excel sheet as 1 if a tie was present and as 0 if no tie existed.

The sixth and final sheet contained responses to questions about one’s ideal job, where it would be, how it would be acquired (the response options were the same as for the question that asked about a future job), if more education would be necessary to get it, and if the respondent would contact someone from the second name-generator to help them in the acquisition of their ideal job. All data that could be converted to binary data were converted. The open-ended responses from the questions that asked about a person’s ideal job and if more education would be necessary to acquire it were recorded exactly as they were written. These were analyzed using content analysis, first by grouping similar jobs and then creating job categories.
The survey responses resulted in 30\textsuperscript{27} (Crow) and 29 (CSKT) ego networks with 480 alters. The first step was to create a spreadsheet with an ego’s ID listed in the first column. Next to an individual’s name were up to ten lines, one for each named alter; for example, line one might read 1MW which represents alter number one and that person’s initials. In subsequent columns, the variables were listed and a 1 or 0 was entered to indicate the presence or absence of a relationship; for example, the “relationship” variable consisted of three sub-variables – relative, friend, and acquaintance. Depending on an ego’s response (relative, friend, or acquaintance), a 0 or 1 was entered into each of the sub-variable columns as follows: If a respondent’s alter was a friend, the sub-variables would read 0 under the relative column, 1 under the friend column, and 0 under the acquaintance column. This process was repeated for every variable except age, and for questions in which the responses were categorical based on likert-type scales (degrees of knowing, closeness, and frequency of contact). These data were entered as 0, 1, 2, or 3 with 0 being the lowest degree of closeness or knowing and frequency of contact, 2 being the highest degree of closeness and knowing, and 3 being the highest frequency of contact. Following the data entry for each section, every ego’s adjacency matrix was copied and pasted, individually, into UCINET (Borgatti et al., 2002) and basic egonet density measures were run. These were examined individually and aggregated and then compared by tribe.

\textsuperscript{27} Two respondents did not provide hypothetical network information or adjacency matrices.
Table 8

*Data Entered in to Microsoft Excel Spreadsheets*

<table>
<thead>
<tr>
<th>Sheet 1</th>
<th>Respondent demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet 2</td>
<td>AJN, name-interpreter: Current, past two jobs, attributes</td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Approach to getting a future job; answer to open-ended question 1</td>
</tr>
<tr>
<td>Sheet 4</td>
<td>HJN, name-interpreter: People whom ego would go to for job information or advice</td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Name-interrelater or adjacency matrix</td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Ideal job; answers to open-ended questions 2 and 3</td>
</tr>
</tbody>
</table>

To answer the research question, it was necessary, first, to identify if networks were bridging or bonding and then to compare those results to the location of a respondent’s current or future/ideal job. In this case job acquisition (dependent variable) depended on network type (independent variable) but examining job acquisition in terms of respondent attributes as they compared to their alters’ attributes provided more detailed information about how (or if) a social network affected the method of job acquisition as well as its location. The UCINET (Borgatti et al., 2002) measures provided information about a respondent’s network structure, such as if alters were tied to each other, how the presence or absence of ties affected a network’s density, its effective size, its efficiency, and the ability for information to flow through it. From the analysis of these measures, a network was designated as bridging or bonding based on cut-off points. Once the networks were designated as bridging or bonding, they were compared to the respondent’s preferred job location (on, adjacent to, or off reservation), to job acquisition
method, and other attributes to determine if there was a relationship between bridging and a preference for working off reservation and between bonding and a preference for working on reservation.

Ethics

When conducting research as a non-native in Indian Country, it was important to respect the cultural norms of each tribe, be aware of the time and effort on the part of the respondents, be as unobtrusive as possible, protect confidentiality, acquire consent, and follow-through by sharing the research results with tribal leaders. The willingness of Tribal leaders to be part of the study indicated their commitment to learning more about their constituent networks and how people use those networks to acquire jobs. In addition, the researcher needed to be aware of imposing an Anglo-centric view when analyzing and reporting the data. For example, the values related to employment, types of employment, and status may be different for Native Americans and it was important for the researcher to be aware of these differences.

Limitations and Delimitations

Limitations

The limitations to this study were the small sample size that was not necessarily representative of the general population, although the type of sampling method used “can deliver accurate results when the population is homogenous”28 This was an ethnically and geographically homogeneous population with 100 percent of the respondents

28Statistics Canada http://www.statcan.gc.ca/edu/power-pouvoir/ch13/nonprob/5214898-eng.htm#tphp

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identifying as Native American, 100 percent identifying as members of the Crow Tribe, 96 percent identifying as members of CSKT, and four percent identifying as members of another Montana tribe. Furthermore, 90 percent of the alters for respondents from the Crow Tribe were Native American with 96 percent of those identifying as members of the Crow Tribe, and 85 percent of CSKT’s alters were Native American with 99 percent of those identifying as members of CSKT. While ethnic and Tribal affiliations are not the only measures of homo- or heterogeneity, the rural, and somewhat isolated nature of the tribes’ locations and the fact that 93 percent of the respondents live on their respective reservations and 92 percent were raised on them means that individuals belong to and have belonged to the same rural\textsuperscript{29} communities. In addition to the size, the sample was a volunteer, convenience sample with an incentive to participate so respondents may have been motivated by the incentive and because they self-selected, the sample is not necessarily representative of the whole population. Moreover, due to a small population of ethnically similar individuals who live near each other in rural areas, the results may be biased because the individual social networks may be comprised of same members. Because access to the population was difficult and data collection occurred at a single site on each reservation, the sample may also be biased toward employed individuals. The Tribal demographics indicate that about 50-60 percent of adults are employed, and the sample represents 79 percent employment. While Tribal headquarters tend to be the hubs of activity, housing departments like enrollment, finance, and other administrative

\textsuperscript{29}The Montana counties in which tribes and reservation land are located are designated as non-metro, rural by the Rural Health Workforce (Skillman, Patterson, Lishner, Doescher, and Fordyce 2013).
offices, collecting data at locations away from Tribal headquarters could have resulted in more and, perhaps, better data. For example, had data collection occurred at the Tribal colleges or at local shops, a broader section of the community may have participated in the research; however, the inclusion criteria were that respondents identified as members of their respective tribes and were 18 years or older. Thus, even if more locations had been canvassed, it is not clear that the population would have been less ethnically or geographically homogenous, although there may have been a greater range of employed versus unemployed people and degree types. Importantly, and different from traditional sampling methods, in network studies, “actors cannot be sampled independently to be included as observations” (Hanneman and Riddle 2005, n.p.) because it is a person’s network (or neighborhood) and how they are embedded in it that is surveyed and analyzed. The networks are “micro-network data sets – samplings of local areas of larger networks” (Ibid) which, in this case, means that the Crow Tribe’s 30 and CSKT’s 29 respondents represent micro-level network samples of the larger communities in which they are embedded. This occurs because the study was designed to include an ego’s alter connections rather than simply asking ego to identify alters which would have yielded information about who ego’s friends, relatives, or acquaintances were, but not how those people were connected to each other. For example, if Sally (randomly selected) names three people she knows and their attributes (sex, age, level of education), the attributes are used to determine if the people she and the people she named represent the larger population. However, when the relations among the people she named are considered, the sample consists of Sally’s network and their ties to her and each other, and not their
attributes. The limitation in this study is that the egos or nodes that were selected to participate were not randomly selected; however, the network data collected for the Crow Tribe represents 2,342 dyadic ties\(^{30}\) and for CSKT, 1,670 dyadic ties. Therefore, the results from this study can only be generalized to the population that was studied to include their named alters and the ties those people had to each other.

*Delimitations*

Delimitations include the choice to conduct this research with only two tribes in the same geographic area. This was done because the researcher had established relationships with the two tribes based on previous and ongoing work. Given that it can take a long time to build trust with communities that are used to outsiders coming and going the researcher may not have been granted access to other tribes with whom there was no existing relationship.

The research question could have been approached differently. For example, a social network analysis could have been conducted with any rural population to see if geographic location caused networks to be more bonded than bridging and to determine if and how those networks affected job acquisition. However, working with ethnically same populations rather than rural populations in which there may be a diverse make-up of people, may be useful for other Tribal populations when they examine how social networks influence job acquisition. Another delimitation was the choice to gather data using surveys rather than by interviewing people. The researcher made this decision to...

\(^{30}\) This number is \(n(n-1) \times 30\) where \(n=\#\text{alters and } -1\) removes ties to ego, and \(\times 30\) represents the number of egos surveyed (less 3 networks with no alters named and one network consisting of two alters). The CSKT number is lower because there were 29 respondents and more of them named fewer than 10 alters.
get a broader picture of the existing social network structures. Using a survey provided respondents with more anonymity and the ability to consider their networks instinctively rather than deliberately. Finally, the decision to offer an incentive to participate is a delimitation but was based on advice from the Tribal leaders and others who have worked with Native American groups in the past and if an incentive had not been offered, the response rate may have been lower.

Summary

A social network analysis was used to determine the way that individual social networks affected job acquisition on two Montana Indian Reservations. This method was selected because it was the best way to determine if networks were comprised of primarily bridging or bonding ties which the researcher hypothesized would affect job acquisition and the location of people’s jobs, on, adjacent to, or off reservation. Bridging networks are associated with weak ties that link distant\textsuperscript{31} others to an ego, perhaps, providing ego with new information. Bonding networks are associated with strong ties that link close\textsuperscript{32} others to an ego, perhaps providing him with redundant information. The researcher theorized that people with weak network ties would have access to new information about jobs as opposed to those with strong network ties who would have access to redundant information. Thus, an ego’s network type was important to understanding the relationship to job acquisition.

\textsuperscript{31} In this case distant refers to emotional distance and frequency of contact.
\textsuperscript{32} In this case close refers to emotional closeness and frequency of contact.
A survey instrument was developed based on the kind of information that was necessary to understand the relationship between an individual’s network ties and his jobs. In addition to participant demographics, two questions asked about participant networks, one specific to a respondent’s current and past two jobs and the other about his ties to people whom he would approach about jobs (for information or advice). Several other questions asked participants to note how they would approach acquiring a job in the future and about their ideal jobs. The survey instrument was piloted and then revised based on feedback that the instrument was too long and the researcher’s determination that the original instrument did not generate the necessary data. The instrument was reviewed by Tribal representatives, the researcher’s dissertation committee, and the University of Southern Mississippi’s IRB and approved for implementation.

To gather an individual’s network information, a name-generator was used which asked participants to name people whom they would go to for information about a job. This kind of name-generator requests specific rather than general relationship information, therefore increasing the likelihood that participants will not forget distant others. This is unlike general name-generators that ask participants to name people and then to specify their relationship to them. A general question would not necessarily have elicited people’s employment contacts. A name-generator typically is followed by a name-interpreter in which respondents identify the attributes of the people they name as well as their relationship to them. In this case since the question asked specifically about job contacts, the name-interpreter asked people to identify if the people they had named were family, friends, or acquaintances, the degree of contact the two parties had, and the
degree of closeness as perceived by the ego. One network question meant to determine a person’s current and past two jobs included a single name-generator and name-interpreter. Another network question meant to determine whom ego would go to about job information or advice included a single name-generator, a name-interpreter, and a name-interrelater. The name-interrelater helped identify an individual’s network; whereas, the first network question and sub-questions (current and past two jobs) provided only descriptive data. The name-interrelater data was transferred by the respondent into a matrix where he specified how and if the people in his network knew each other. This information provided the researcher with a better picture of network density and helped to identify the people who could act as bridges across networks. Network bridges are instrumental in moving information from one network to another and one of the reasons that weak network ties are useful for acquiring new information. Because the identified alters were people whom ego would go to for information or advice about jobs, the network bridges necessarily were people who potentially could provide job information to ego.

The first step in conducting a social network analysis is to define a network boundary. This is important not only because a sample is generated from a network’s boundary, but also because a researcher can conduct a social network analysis using whole or egocentric networks. In this case, an egocentric analysis was the best option because the roster of all individuals in the network was unavailable and because, even if it had been available, due to the sizes of the whole networks, it would have been impossible for individuals to identify their relationship to every other person in the
network. Furthermore, since the hypothesis was that individuals with weak network ties would have jobs on, adjacent to, or off their reservations while those with strong ties would have jobs on their reservations, an analysis of individual job networks was indicated.

The network boundary was defined methodologically by including in the network boundary egos and the alters they named based on the question of whom egos would go to for information or advice about jobs. Sampled individuals volunteered to participate, resulting in a sampling method that was not generalizable to anyone outside of the specified boundary. This non-probability method of sampling is like snowball sampling in which a seed node is identified who then identifies others and sampling occurs in waves. The volunteer sampling method is unlike snowball sampling in that it does not necessarily occur in waves which was the case for this study in which respondents volunteered to participate in a single wave. Another similarity to snowball sampling is the method by which others are recruited, often by word-of-mouth or recommendation. In this study snowball sampling occurred through participatory recruiting (Perez et al., 2013) where potential respondents were aware that others whom they trusted were participating in the research. This form of recruiting often is done with populations who may not trust an unknown researcher, but who trust those they know (Ibid). A limitation of this sampling method is that people self-select which introduces bias. The researcher was aware of this limitation, but access to the population was difficult and determined by the Tribal leaders. While the volunteer sampling method is limiting, because the populations were homogenous based on ethnic similarities, the researcher attempted to
include people whose demographics would mirror that of the general population. The age and sex of each tribe’s sampled individuals were close to their respective tribal populations, but the employment level for sampled individuals was higher than for the general population.

Data collection occurred at each tribe’s headquarters in cooperation with respective Tribal leaders. To recruit participants an incentive was offered to potential respondents, but they were not required to complete or return the survey to receive the incentive. This mitigated response bias that could have been present if respondents had been required to complete the survey instrument prior to receiving the incentive. The number of people sampled was limited by the research budget and resulted in 59 respondents with 480 alters.

After the data was collected, the researcher transferred the paper responses into an electronic database and began analysis using descriptive statistics (mode, median, mean) and social network software to analyze network density. Individual network density was analyzed first and then by aggregating responses from each tribe. The social network method of analysis is beneficial because it provides network clarity especially as network data can be drawn and presented visually. In addition, because social network analysis is based on mathematics, a network’s density and other measures can be calculated to demonstrate the breadth of a network.

In sum, a social network analysis was the best method to answer the research question, first by identifying ego networks and then by determining if the networks consisted of primarily bridging (weak) or bonding (strong) network ties. By specifying
the type of network, the researcher elicited job information networks that were useful in linking network type to job location. The resulting networks were examined individually and aggregated to understand how and if there was a difference between the two tribes. The next chapter explains the research findings in detail.
CHAPTER IV

FINDINGS

The principal purpose of this dissertation was to determine how the individual social networks of people from two Indian Reservations affected job acquisition. The researcher believed that people with primarily bonding social networks would acquire jobs on their reservation and that people with primarily bridging social networks would acquire jobs on, adjacent to, or off their reservation. To assess the validity of these hypotheses, research participants (egos) were asked to complete a survey in which they 1) noted their personal attributes such as age, sex, employment status, ethnicity, tribal affiliation, residence, and education; 2) provided information about their current and past two jobs, the location and title of those jobs, how they acquired them, and, if the jobs were acquired with someone’s help, what their relationship was to that person; 3) provided information about how they would approach getting a job in the future; 4) identified a network of people they would go to for information or advice about a job, the reasons they would approach these people (alters), their relationships to the named alters, and alter attributes such as age, sex, job location, ethnicity, and tribal affiliation; 4) completed an adjacency matrix in which they noted if their alters knew each other; and 5) provided information about their ideal job, its location, how they would approach attaining it, if more education would be required, and if they would use the network they identified for help.

Following data collection, the results were examined to determine if there was a relationship between a respondent’s social network and the location of their current job,
as well as the location of a potential future or ideal job. Hypothetical network data, in the form of adjacency matrices, were examined to determine a network’s structure (density, structural holes, transitivity) in relation to a person's current job and its location and their ideal job and its location. Networks were defined as either bridging or bonding based on their structure and on categorical variables such as ego’s relationship to his alters, the degree of closeness to and degree of knowing his alters, and the frequency of contact between ego and alter. After determining if a respondent’s social network was primarily bridging or bonding, these results were compared to a respondent’s job location. In addition, the ways in which a respondent acquired their current and past two jobs were examined to determine if their method of job acquisition – want ad, walk-in, personal contact – was related to their social network type, either bridging or bonding. Additional variables – employment status, level of education, ethnicity – were examined in relation to a respondent’s current, future, or ideal job to determine the effects (if any) of these variables on job location. Finally, a respondent’s reasons for naming the alters they named were examined in relation to the location of their current, potential future, or ideal jobs. The following sections will explain each of these in greater detail, first by summarizing the results for each tribe, and then by providing a more in-depth analysis of individual and aggregate data.

Results

*General Results – Crow Tribe*
Thirteen respondents from the Crow Tribe are male and 18 are female\textsuperscript{33}, with a median age of 40 (range=21-62). Twenty respondents earned high school diplomas, nine earned associate degrees, one person had no degree, and two people earned bachelor’s degrees\textsuperscript{34}. All are enrolled members of the Crow Tribe (n=32), 88 percent (28 people) were raised on their Reservation and 88 percent lived on it when the research took place. Twenty-three respondents (72 percent) are employed and 21 one of these people (91 percent) noted that their job, at the time that the research took place, was on the Reservation or that one or more of their past two jobs were on the Reservation. Five respondents (16 percent) were students at the time the research was conducted.

Ninety-four percent of the respondents’ current or past two jobs (66 from a total of 70 jobs) were acquired by contacting someone they know, 17 people from an acquaintance, 27 people from a family member, and 22 people from a friend. Four more people acquired their current or past two jobs by responding to a want ad or by walking in to a place of business. Most of the people knew their contacts well, but also noted that they were “not at all close” to these people and had contact with them “sometimes.”

The types of jobs people had, are safety and security jobs, education, administrative, health, manual labor, finance, food, transportation, retail, and one professional position. Eighteen respondents noted they would look for a future or ideal job by asking someone they know (friend, relative, or acquaintance), five people by

\textsuperscript{33} One person did not respond

\textsuperscript{34} The two people who earned a bachelor’s degree are included in the general results, but they did not complete adjacency matrices, so their results are not included in subsequent data reducing the N to 30 (from 32).
responding to a want ad, 13 people by walking in to a business\textsuperscript{35}, and 11 respondents noted they would look for a future or ideal job using all methods listed (respond to a want ad, walk in to a place of business, personal contact).

In their social networks 116 of the 262 alters named by 30 respondents (44 percent) were relatives, 83 (32 percent) were friends, and 63 (24 percent) were acquaintances. Two-hundred and forty-four (93 percent) of the alters named by egos were employed and 195 of them (74 percent) worked on the Reservation, 39 people (15 percent) worked adjacent to it, and 31 people (11 percent) worked off the Reservation\textsuperscript{36}. When asked why they would approach the alters they named for information or advice about a job, 38 percent of the time it was because an alter had more information than the respondent, 18 percent of the time because ego was interested in an alter’s job, 29 percent of the time because ego believed an alter had influence or knew more people, 30 percent of the time for all reasons, and two percent of the time for reasons not listed\textsuperscript{37}. The average age of ego’s alters was 46 (range=21-75; standard deviation=8.7), 40 percent (104) were female and 60 percent (157) were male, 90 percent (233) were Native American, 10 percent were white (25) and 81 percent (213) were enrolled members of the Crow Tribe.\textsuperscript{38}.

\textsuperscript{35} Eight respondents noted more than one response. For example, they would contact a relative, friend, or acquaintance, and respond to a want ad.
\textsuperscript{36} Three respondents noted that their alters worked in more than one location, for example, on and adjacent to the Reservation, in a job that required them to travel.
\textsuperscript{37} Eighteen respondents noted more than one response, for example, they would approach their named alter because that person had influence and knew more people than ego.
\textsuperscript{38} Eight respondents are enrolled members of other Indian tribes.
When considering their ideal jobs, 16 people (53 percent of 30 egos) said they would prefer their ideal job to be on the Reservation and 14 people (47 percent) said they would prefer their ideal job to be adjacent to or off the Reservation or had no preference. Twenty-four people (80 percent) indicated they would need more education to acquire their ideal job. Fifteen people (50 percent) reported that they would use every method listed to acquire their ideal job, including asking someone they know (12 people, 40 percent), responding to a want ad (2 people, 7 percent), or walking in to a business (11 people, 37 percent)\textsuperscript{39}.

\textsuperscript{39} Five respondents noted more than response, for example, they would contact someone they know and walk in to a place of business, but they would not use all methods listed.
General Results - CSKT

Nineteen respondents from CSKT (66 percent) were female and 10 respondents (34 percent) were male. Eleven people (38 percent) had a high school diploma, seven

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Table 9

*Tableplot Showing Gender and Degree Types*\(^4\)

---

\(^4\) Y=Crow Tribe; Z=CSKT. Tableplot created by Elizabeth Mery, M.S., lead statistician, Montana State University with contributions from Laurie Rugemer, M.S., Montana State University. Research reported in this publication was supported by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Awards P20GM103474, 5U54GM104944, U54GM115371, and 5P20GM104417. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.
people (24 percent) had associate degrees, five people (17 percent) had bachelor’s degrees, and six people (21 percent) had no degree. Twenty-eight respondents (97 percent) lived on their Reservation and twenty-seven people (93 percent) were raised there. Twenty-two respondents (76 percent) were employed and two people (7 percent) were students. The average age of respondents was 37 (range=18-71; standard deviation=14). Eighty-eight percent (70) of the respondents’ current or past two jobs were on their Reservation and 97 percent (28) lived on their Reservation at the time that the data was collected.

Fifty-one jobs out of a total of 80 current or past jobs were acquired by respondents through someone they knew. Twenty-eight people (35 percent) contacted a relative, seven people (9 percent) a friend, and 16 people (20 percent) an acquaintance. Nineteen people (24 percent) responded to a want ad, eight people (10 percent) walked in to a place of business, and four people (5 percent) used other methods. Most respondents knew the people they contacted for information or advice about their current or past two jobs very well, most reported being very close to these people, and most reported that they were in contact with these people often (not every day, but at least once per month).

To acquire information or advice about a future job, 15 people (52 percent) reported they would use all methods listed: walk-in, wants ads, ask a relative (4), friend (5), or acquaintance (6), 10 people (34 percent) said they would scour wants ads (electronic or print), five people would walk in to a place of business and five people would use other job acquisition methods. Nineteen respondents (66 percent) said they
would prefer a job on the Reservation, and 10 respondents (34 percent) had no preference.

When identifying their social networks, of the 218 alters named by 29 respondents, 90 of them (41 percent) were relatives, 85 (39 percent) were friends, and 42 (19 percent) were acquaintances. Respondents reported that they would seek information or advice about a job from their alters because they had more information than ego (33 percent of the time), their alters had influence or knew more people (43 percent of the time), they were interested in an alter’s job (5 percent of the time), or for all of those reasons (25 percent of the time). Two-hundred and sixteen alters (99 percent) were employed and 193 of them (89 percent) had jobs on the Reservation. Their average age was 44 (range=18-76; standard deviation=13.6), 133 (61 percent) were female, 82 (38 percent) are male, 182 (83 percent) were Native American, and 28 (13 percent) were white. Of the 83 percent who were Native American, 168 people (92 percent) were enrolled members of CSKT.

Most respondents reported being somewhat close to the alters they named and reported having contact with them often. Nineteen respondents (66 percent) would prefer their ideal job to be on their Reservation while nine people (31 percent) had no preference. Nineteen respondents (66 percent) said they would use all methods to acquire their ideal jobs – search and reply to wants ads, walk-in to a place of business, ask a relative, friend, or acquaintance. Of the 66 percent, four people (14 percent) said they would walk-in, four people (14 percent) said they would use wants ads, four people (14 percent) would use other methods, and 7 people (24 percent) said they would contact
someone they knew. Twenty-one people (72 percent) said they would need more education to get their ideal jobs.

The aggregate demographic data shows that respondents from both tribes have not moved far from their childhood homes. Both sets of respondents have jobs related to safety and security, administrative, health and education, retail, transportation, food, and manual labor. While these sectors are not specific to Indian Country, many of them are jobs that the tribes can and do provide. In their actual job networks (AJN), respondents from the Crow Tribe named jobs related to safety and security most frequently, followed by education and administrative jobs. Respondents from CSKT named administrative jobs most frequently (secretary, administrative assistant, clerk, office aide, receptionist) followed by retail/service (barista, sales, cashier, fast food, maintenance, janitorial) and professional (manager, director, communications, researcher) sector jobs.

Table 10

Demographics for both Tribes by Number and Average Age

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>M</th>
<th>F</th>
<th>ND</th>
<th>HS</th>
<th>AD</th>
<th>BD</th>
<th>+BD</th>
<th>Live On</th>
<th>Raised On</th>
<th>Empl</th>
<th>Stud</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crow</strong></td>
<td>40</td>
<td>13</td>
<td>18</td>
<td>1</td>
<td>20</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>28</td>
<td>28</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td><strong>CSKT</strong></td>
<td>37</td>
<td>10</td>
<td>19</td>
<td>6</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>28</td>
<td>27</td>
<td>22</td>
<td>7</td>
</tr>
</tbody>
</table>

The highest degree earned by either tribe was a bachelor’s degree. Five people (17 percent) from CSKT had their bachelor’s degree, and two people from the Crow Tribe.

41 N=32
42 N=29
had theirs. Nine people (28 percent) from the Crow Tribe had their associate degree in comparison to seven people (24 percent) from CSKT. This may reflect the degrees offered by the respective tribal colleges whose facilities on both reservations are located near tribal headquarters. The CSKT’s college offers both associate and bachelor’s degrees while the highest degree offered by the Crow Tribe’s college is an associate degree. The number of CSKT respondents without a high school degree (six people) was much higher than for the Crow Tribe (one person) and the number of people with an associate or bachelor’s degree (12 people) was about the same for both tribes (11 people). Almost two times as many respondents from the Crow Tribe have a high school diploma (20 people) as have tertiary degrees (11 people) while from CSKT the number of respondents with a high school degree (11 people) is almost equal to the number of people who have an associate or bachelor’s degree (12 people). In number of years (439 compared to 393), the respondents from the Crow Tribe have more education than those from CSKT43.

The demographic data for the respondents from the Crow Tribe is similar to the U.S. Census44 general data for the Tribe. For example, 13 of this study’s respondents (42 percent) were male, and 1845 (58 percent) were female. The U.S. Census data indicates

43 This is calculated by multiplying the number of years per degree by number of respondents and summing them. No degree is equal to ten years of education (grades K-9); high school degree is equal to 13 years of education (grades 10-12); associate degree is equal to 15 years of education; bachelor’s degree is equal to 17 years of education. Even if no degree is calculated as 11 years of education (grades K-10) to correspond to the age of 16 when someone can legally drop out of school, the Crow Tribe’s number of educational years is higher than CSKT. Ten years of education to represent no degree was used for simplicity.
44Data from American FactFinder Profile of General Demographic Characteristics, Profile of Selected Social Characteristics, Profile of Selected Economic Characteristics: 2000. Census 2000 American Indian and Alaska Native Summary File (AIANSF) – Sample Data
45 Data represents 31 egos with one non-response.
that 49 percent of the Crow Tribe’s population is male, and 59 percent is female. In addition, tribal members between the ages of 35-44 represent the highest percentage of tribal members according to the U.S. Census data; the average age of respondents in this study was 40. The data on educational attainment for the Crow Tribe is different for respondents than in the U.S. Census\textsuperscript{46}; however, the statistics for educational attainment from the U.S. Census are for people 25 years and over while the statistics for educational attainment for study respondents is for people 18 years and older. Whereas 86 percent of people in the U.S. who are 25 years or older and have at least a high school degree, 20 people (63 percent) of the study’s respondents have at least a high school degree. And, whereas none of the study’s respondents have a bachelor’s degree, 11 percent of the general Tribal population 25 years and older who participated in the U.S. Census\textsuperscript{47} have a bachelor’s degree. The above suggests that the respondent data represents the Crow Tribe’s general population in terms of gender and age, but not in educational attainment or employment numbers\textsuperscript{48}.

The demographic data for respondents from CSKT is less closely aligned with U.S. Census\textsuperscript{49} data. For example, according to the U.S. Census, the general population of males enrolled in the CSKT is 49 percent and of females is 51 percent; whereas, 10 CSKT respondents (34 percent) are male and 19 (66 percent) are female. The median age

\textsuperscript{46} Ibid.
\textsuperscript{47} Ibid.
\textsuperscript{48} Fifty-one percent of people 16 years and over who responded to the 2012-2016 American Community Survey are employed; whereas, 79 percent of the study respondents are employed (18+ years). The discrepancy could be related to the number of people who are between the ages of 16 and 18 who are not considered in this study.
\textsuperscript{49} Data from American FactFinder Profile of General Demographic Characteristics, Profile of Selected Social Characteristics, Profile of Selected Economic Characteristics: 2000. Census 2000 American Indian and Alaska Native Summary File (AIANSF) – Sample Data
for respondents is 37 and the highest percentage of CSKT members of the general population are between the ages of 35 to 44. In terms of employment the study’s data indicates that 22 respondents (76 percent) are employed while the U.S. Census\textsuperscript{50} indicates 60 percent employment\textsuperscript{51}. Educational attainment is closer to the U.S. Census data. While 23 respondents (79 percent) have a high school diploma or higher, 81 percent are indicated in the census data.

While the responses from both tribes are not statistically representative of the larger population, it is useful to know how well the respondent data matches the general population data. Hanneman and Riddle (2005) argue that “social network analysts rarely draw samples in their work…because network methods focus on relations among actors, [so] actors cannot be sampled independently to be included as observations. If one actor happens to be selected, then we must also include all other actors to whom our ego has (or could have) ties” (n.p.). Ego network data, such as the data collected for this study are “micro-network data sets -- samplings of local areas of larger networks” (Ibid); thus, it is useful to know how the respondent demographics compare to the general population and how their networks compare, but ultimately the data are generalizable only to the respondents and their networks.

\textit{Alter Data}

\textit{Crow Tribe}

\textsuperscript{50} Ibid.

\textsuperscript{51} The Census data shows the percentage of employment from the age of 16.
The average age of the 262 alters named in 30 ego networks was 46 (range 21-75). Ego’s alters are 40 percent (104) female and 60 percent (157) male\textsuperscript{52}. Ninety-three percent (244) of ego’s alters are employed and 74 percent (195) are employed on the Reservation compared to 72 percent of egos (23) who are employed and 91 percent of them (21) employed on the Reservation. Eight-nine percent (233) of ego’s alters are Native American, 213 of them are affiliated with ego’s tribe, and about 10 percent (25) are non-Native (White).

\textit{Figure 7. Demographics of Ego’s Alters, both Tribes}\textsuperscript{53}

\textsuperscript{52} Total does not equal 262 as one person did not respond.

\textsuperscript{53} Tribe Y=Crow Tribe; Tribe Z=CSKT; Created by Elizabeth Mery, M.S., lead statistician, Montana State University with contributions from Laurie Rugemer, M.S., Montana State University. Research reported in this publication was supported by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Awards P20GM103474, 5U54GM104944, U54GM115371, and 5P20GM104417.
CSKT data indicates that the average age of the 218 alters named by 29 egos was 44 (range 18-82), a few years older than the average age of all egos (37). Sixty-two percent (133) are female, and 38 percent (82) are males. Ninety percent (196) of ego’s alters are employed and 98 percent (193) of those are employed on the Reservation. Eighty-three percent (182) of ego’s alters are Native American, 98 percent of them are affiliated with ego’s tribe, and 11 percent (24) are White.

Table 11

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>M</th>
<th>F</th>
<th>Work on Res</th>
<th>Empl</th>
<th>AIAN</th>
<th>White</th>
<th>Affiliation with Ego’s tribe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crow</td>
<td>46</td>
<td>157</td>
<td>104</td>
<td>195</td>
<td>244</td>
<td>233</td>
<td>25</td>
<td>213</td>
</tr>
<tr>
<td>CSKT</td>
<td>44</td>
<td>82</td>
<td>133</td>
<td>193</td>
<td>196</td>
<td>182</td>
<td>24</td>
<td>168</td>
</tr>
</tbody>
</table>

Respondents were asked to generate two job networks: Actual and hypothetical. The purpose of asking for both networks was to mitigate potential recall issues that occur when people are asked to generate a list of names based on hypothetical questions and to examine the differences between an individual’s actual job network (current and past two jobs) and how those were acquired compared with an individual’s hypothetical job network. This was important because an actual job network (AJN) reflects available jobs, whereas a hypothetical job network (HJN) asks respondents to name people they believe

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54 One person did not indicate the gender for three of their alters.
55 There were 170 total responses to this question and 168 of them were affiliated with ego’s tribe.
would or could help them with a future or ideal job. While the actual and the hypothetical networks could be similar (and they were), they also could have been quite different. For example, the way a respondent acquired his or her current job may have been by talking to a relative or friend, but the same person may have thought that scouring the want ads would be more useful for a future or ideal job. Asking respondents to name their current and past two jobs and the method of acquisition allowed respondents to generate a network based on what they know. The following section describes the actual job networks for respondents from both tribes.

Table 12

Combined Ego and Alter Demographics compared to General Population

<table>
<thead>
<tr>
<th></th>
<th>Avg. Age</th>
<th>M</th>
<th>F</th>
<th>Empl</th>
<th>ND</th>
<th>HS</th>
<th>AD</th>
<th>BD</th>
<th>+BD</th>
<th>Live/Work On Res</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego/Alter</td>
<td>43</td>
<td>51</td>
<td>50</td>
<td>86</td>
<td>3</td>
<td>63</td>
<td>28</td>
<td>3</td>
<td>3</td>
<td>85</td>
</tr>
<tr>
<td>Gen Pop</td>
<td>24</td>
<td>49</td>
<td>51</td>
<td>51</td>
<td>21</td>
<td>59</td>
<td>10</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(0-85+)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CSKT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego/Alter</td>
<td>44</td>
<td>38</td>
<td>62</td>
<td>90</td>
<td>21</td>
<td>38</td>
<td>24</td>
<td>17</td>
<td>0</td>
<td>90</td>
</tr>
<tr>
<td>Gen Pop</td>
<td>25</td>
<td>49</td>
<td>51</td>
<td>60</td>
<td>19</td>
<td>67</td>
<td>8</td>
<td>11</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(0-85+)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Actual Job Network (AJN)

56 Data from American FactFinder Profile of General Demographic Characteristics, Profile of Selected Social Characteristics, Profile of Selected Economic Characteristics: 2000. Census 2000 American Indian and Alaska Native Summary File (AIANSF) – Sample Data
57 Ibid.
The AJN is not a true social network in that alters were named but none of their demographic information was collected and the relationship among alters was not collected so it is impossible to know who knows whom. The data is descriptive and gives a picture of a respondent’s employment history and indicates how bonded ego is to the people he named. In a review of literature related to his strength-of-weak-ties theory (SWT), Granovetter (1983) refers to studies that find a relationship between strong ties and economic insecurity, noting that “those in urgent need of a job turned to strong ties because they were more easily called on and willing to help, however limited the information they could provide.” The information gathered from the AJN shows the types of relationships egos had with the people who helped them acquire their current or past two jobs, providing a picture of what job acquisition looks like for the respondents. In addition to asking about ego’s relationship to the alter they named, respondents were asked how well they knew the person they named (Yakubovich 2005) because “strong ties describe…close friends and/or kin…[and] weak ties describe…acquaintances” (Wilson 1998, 397), how frequently they interacted with that person (Easley and Kleinberg 2010), and how close they felt to that person (Marsden and Campbell 1984). These questions follow Granovetter (1983, 1973) and lead to conclusions about the strength of a person’s ties to others.

Crow Tribe AJN

Respondents were asked if they acquired information about their current or past two jobs from someone they knew, from responding to a want ad, by walking in to a place of business, or by some other method; respondents could check any that applied.
Twenty-two people, representing 51 jobs, acquired information about their current or past two jobs through someone they knew, 27 people (39 percent) from a relative, 22 people (31 percent) from a friend, and 17 people (24 percent) from an acquaintance. Eleven people representing 20 jobs (29 percent) walked in to a place of business to get information about their current or past two jobs, seven people representing nine jobs (13 percent) responded to a want ad, and three people representing five jobs (seven percent) acquired information through other means.

If a respondent acquired their job through a personal contact, data was collected about the type of relationship ego had to that person - relative, friend, or acquaintance – as well as how close they were to the person they named (degree of closeness), how well they knew the person they named (degree of knowing), and how frequently they were in contact with the person they named (frequency of contact). These three items were measured using likert-type scales and describe the strength of the relational tie. For degree of closeness (DoC), the respondent was asked how emotionally close they felt to the person named, with three possible responses: Very close (2), somewhat close (1), not at all close (0). For degree of knowing (DoK), ego was asked to rank how well they knew their named alter: Very well (2), somewhat well (1), hardly at all (0). Frequency of contact (FoC) was measured using a 4-point scale: Every day contact (3), often (not every day, but at least one time per month) (2), sometimes (not every month, but at least every six months) (1), hardly ever (less than one time per year) (0). The medians were calculated but since the measures were categorical, the median was used.
calculated to summarize the results from all 30 respondents. The median scores were:

\[ \text{DoC} = 1; \, \text{DoK} = 1; \, \text{FoC} = 2. \]

<table>
<thead>
<tr>
<th>DoK</th>
<th>Not at all well</th>
<th>Somewhat well</th>
<th>Very well</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

*Figure 8. Median Degree of Closeness (DoC).*

<table>
<thead>
<tr>
<th>DoC</th>
<th>Not at all close</th>
<th>Somewhat close</th>
<th>Very close</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

*Figure 9. Median Degree of Knowing (DoK).*

<table>
<thead>
<tr>
<th>FoC</th>
<th>Hardly Ever</th>
<th>Sometimes</th>
<th>Often</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 10. Median Frequency of Contact (FoC).*

The results of the DoC, DoK, FoC scales represented 66 percent of the total responses with 61 percent of these noting that the person from whom they acquired information about their current or past two jobs was either a relative or a friend. The DoC and DoK scales are somewhat subjective in terms of how a respondent interpreted “closeness” and “knowing.”

CSKT AJN

Twenty-five people representing 80 jobs (86 percent) used a personal contact to acquire the job they had when the research was conducted or to acquire one or more of their past two jobs, 17 people representing 28 jobs (59 percent) from a relative, five people representing seven jobs (17 percent) through a friend, and 10 people representing
16 jobs (31 percent) through an acquaintance. Twenty people (69 percent) acquired information about their current or past two jobs by responding to a want ad, 17 people (59 percent) by walking in to a place of business, and five people (17 percent) using other mechanisms. Of the 13 respondents (45 percent) who said they had used more than one method to acquire information about their current or past two jobs, approximately two-thirds said they walked in to a place of business to get one or more of their jobs and that they knew someone, implying that they knew the person at the place of business. About half said the person they knew was an acquaintance, just under half said the person was a relative, and one respondent said the person was a friend. When the relationship among the respondents who used a personal contact to acquire information about a job was measured, the medians were DoC = 1, DoK = 1, FoC = 2, the same as for the Crow Tribe.

<table>
<thead>
<tr>
<th></th>
<th>Not at all close</th>
<th>Somewhat close</th>
<th>Very close</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoC</td>
<td>0</td>
<td>0.5</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Not at all well</th>
<th>Somewhat well</th>
<th>Very well</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoK</td>
<td>0</td>
<td>0.5</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Hardly Ever</th>
<th>Sometimes</th>
<th>Often</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>FoC</td>
<td>0</td>
<td>0.5</td>
<td>1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Figure 11. Median Degree of Closeness (DoC).
Figure 12. Median Degree of Knowing (DoK).
Figure 13. Median Frequency of Contact (FoC).

Comparison of AJNs for both tribes

---

59 There were some duplicates. For example, a person who acquired their first past job using an acquaintance may have been the same person who acquired their second past job using a relative; therefore, the sum of the people who used relatives, friends, and acquaintances does not equal the total number of people.

60 Averages (means) indicate that CSKT’s personal contacts are slightly more bonded: DoC=1.05/Crow; 1.11/CSKT; FoC=1.69/Crow; 1.92/CSKT; DoK=1.37/Crow; 1.55/CSKT
A similar number of jobs for respondents from both tribes were acquired using personal contacts, but Crow Tribe respondents asked friends three times as often as CSKT respondents. When Ericksen and Yancey’s scale (Granovetter 1983) is used with connections to relatives and friends indicating strong ties and connections to acquaintances indicating weak ties, the number of strong ties for the Crow Tribe is higher than for CSKT (Crow= 49; CSKT=22).

Table 13

*Comparison of AJN Data for both Tribes, by Percent*

<table>
<thead>
<tr>
<th>Method of Acquiring job or information about a job</th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td>By personal contact</td>
<td>51 jobs from 22 people</td>
<td>48 jobs from 25 people</td>
</tr>
<tr>
<td>Want Ad</td>
<td>6 jobs from 6 people</td>
<td>20 jobs from 12 people</td>
</tr>
<tr>
<td>Walk In</td>
<td>15 jobs from 8 people</td>
<td>17 jobs from 10 people</td>
</tr>
<tr>
<td>Other</td>
<td>1 job from 1 person</td>
<td>5 jobs from 3 people</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relationship to personal contact - type</th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative</td>
<td>16 people/27 percent</td>
<td>17 people/28 percent</td>
</tr>
<tr>
<td>Friend</td>
<td>14 people/22 percent</td>
<td>5 people/7 percent</td>
</tr>
<tr>
<td>Acquaintance</td>
<td>10 people/17 percent</td>
<td>10 people/16 percent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relationship to personal contact</th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median/Mean DoK</td>
<td>1/1.37</td>
<td>1/1.55</td>
</tr>
<tr>
<td>Median/Mean DoC</td>
<td>1/1.05</td>
<td>1/1.11</td>
</tr>
<tr>
<td>Median/Mean FoC</td>
<td>2/1.69</td>
<td>2/1.92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Location</th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job On Res (current job)</td>
<td>21 people/88 percent</td>
<td>26 people/88 percent</td>
</tr>
<tr>
<td>Job Off Res, Adj</td>
<td>1 person/4 percent</td>
<td>2 people/3 percent</td>
</tr>
<tr>
<td>Job Off Res, Not Adj</td>
<td>2 people/8 percent</td>
<td>5 people/6 percent</td>
</tr>
</tbody>
</table>
Because there is no data on how or if the respondents’ personal job contacts knew each other (or how), it is difficult at this stage to categorize an individual’s job network as strong or weak. As Granovetter (1973) makes clear, non-bridging weak ties are the same as strong ties because the weak ties do not provide ego with a bridge to another network. Granovetter (1973) states,

I would argue that by dividing ego's network into that part made up of strong and nonbridging weak ties on the one hand, and that of bridging weak ties on the other, both orientations [encapsulation and manipulation – see original text] can be dealt with. Ties in the former part should tend to be to people who not only know one another, but who also have few contacts not tied to ego as well. In the "weak" sector, however, not only will ego's contacts not be tied to one another, but they will be tied to individuals not tied to ego. Indirect contacts are thus typically reached through ties in this sector; such ties are then of importance not only in ego's manipulation of networks, but also in that they are the channels through which ideas, influences, or information socially distant from ego may reach him. The fewer indirect contacts one has the more encapsulated he will be in terms of knowledge of the world beyond his own friendship circle; thus, bridging weak ties (and the consequent indirect contacts) are important in both ways (1370-1371).

An ego’s indirect ties were examined by analyzing the hypothetical job networks (HJN) in which egos not only named people to whom they would go for information or advice about a job, but also indicated if those people knew each other. This is addressed in a subsequent section of this chapter.

Future Job

Included in the survey was a section about how respondents would approach getting a job in the future. While this information is similar to the section on one’s ideal job (yet to be discussed), it differs in three ways: 1) In the ideal job section, respondents were asked if they would need more education to get their ideal jobs, a question that was
not asked in the section about a future job; 2) in the future job section, respondents were asked if they felt as though there were enough jobs on their reservations, and 3) a future job refers to an actual, potential job and respondents answered this directly after the AJN so their reference point was to jobs they knew existed rather than to hypothetical jobs.

**Crow Tribe**

The future job section asked respondents to name the ways in which they would approach acquiring information about a job in the future. Response choices were 1) respond to a want ad; 2) walk in to a place of business; 3) ask a friend; 4) ask a relative; 5) ask an acquaintance; 6) use all methods; 7) use other methods. Thirteen respondents from the Crow Tribe (41 percent) said that in the future they would walk in to a place of business to inquire about a job; five people (17 percent) would respond to a want ad; eight people (24 percent) said they would ask a friend, five people (13 percent) would ask a relative, five people (13 percent) would ask an acquaintance, and 12 people (41 percent) would use all methods. When the individual responses were analyzed, approximately seven of the respondents (one-quarter) would either respond to a want ad or walk in to a place of business, but would not ask a friend, relative, or acquaintance, and eight people used more than one method. This suggests that those respondents would use weaker ties to acquire information about a future job because responding to a want ad is inherently weak as the respondent does not necessarily know the person(s) who is hiring. Walking in to a place of business also suggests a weaker tie, perhaps to an acquaintance, or at least

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61 More than one response per person was allowed. One-third of the respondents selected more than one response making the total greater than 100 percent.
not to someone whom one feels comfortable contacting outside of his place of business. Half of the respondents indicated that they would use all methods to acquire information about a future job, although about one-quarter (seven people) said they would use primarily strong ties (relative or friend).

The textual data was analyzed by creating categories based on the responses to the following question: “Do you think there are enough job opportunities for you on your tribe’s Reservation or in communities adjacent to your tribe’s Reservation? Why or why not?” The categories that emerged from the data were: Enough jobs; Not Enough jobs; Underemployment; More Education Needed; Resignation (take what you can); Persistence (keep looking); Poor Economic Development (not enough existing businesses or would have to leave the Reservation); Politics (influence, corruption); Initiative (lack of). Some people responded to the question with merely a “yes” or “no,” while others discussed the fact that there are not enough jobs. For example, “no, not enough jobs on Reservation” and “no, unemployment rate is about 70-80%” and “No because there aren’t any businesses really except the tribe and people need to leave the res [sic] which is hard for some people because they don’t want to leave their family.” Others noted the influence of the Tribe when it comes to jobs: “Politics is bliss, favors family, don’t look at experience” and “…the tribe doesn’t have money right now, but if it did, it would be easier to get a job” and “Tribe is a major employer but sometimes the budget doesn’t allow full employment.” Still others believe that there are enough jobs and that people are

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62 In 2015, the unemployment rate was 24 percent (MSU Extension, Crow Reservation Montana Poverty Report Card 2017). This quote reflects this person’s perception of the unemployment rate even though 79 percent of the respondents are employed, and 10 percent are students.
un- or underemployed because they need more education or “…people like to get hired, but never do their jobs” and “…gotta abide by the business procedures to get and keep the job!” Finally, a group of people noted that jobs are available if one is willing to “keep looking taking what you find until the job you want comes along” and “I don’t have much trouble looking for jobs but getting an ideal job is difficult.” These last responses are more pronounced since 21 people (70 percent of respondents) said that they prefer to live and work on or adjacent to the Reservation, perhaps meaning they are resigned to the fact that jobs are and will be scarce or that they will take any job to stay close to home and perhaps remain unemployed for a period if the Tribe’s economic standing is poor. These responses help to clarify the previous results indicating that respondents would use any method to acquire information about a future job; this is hardly surprising if jobs are scarce.

**CSKT**

More than half of the respondents (15 people) from CSKT would use all methods—want ad (10 people or 33 percent), walk in (five people or 16 percent), or ask someone they know (15 people or 52 percent) - to acquire information about a future job. Of those who would ask someone they know, four people (14 percent) would ask a relative, five people (17 percent) a friend, and six people (21 percent) an acquaintance. Of the respondents who selected more than one answer, most would respond to a want ad and ask a friend or acquaintance more often than they would respond to a want ad and ask a relative. Of the respondents who would walk in to a place of business or respond to a want ad to get information about a job, they also would ask a relative (four people) or a
friend (three people). Two-thirds (19 people) of the respondents preferred that their future jobs are located on the Reservation and the rest did not have a preference.

Responses to the question asking if there were enough jobs on the Reservation were categorized in the following way: Motivation, Education, Tribal jobs, Scarcity, Inconsistency, More Development, Many Opportunities, Not Enough. Twenty-two people (76 percent) believed there were enough jobs on their Reservation and seven people (24 percent) did not. Nine people (28 percent) noted that there are plenty of jobs, but that Tribal members need to be motivated to look and/or apply for them, for example, “I believe there are plenty of jobs, it just takes motivation to become employed,” and “You just have to look and be motivated to get one,” and “if you look around you will find a job. No one wants to work anymore.” While a lack of motivation may be a significant factor in an individual’s inability to get a job, others note that jobs are more readily available if one has an education or if one works for the Tribe, “I believe there are enough jobs because I have an education\textsuperscript{63}, which gives me a little bit of an advantage.” Seven people (24 percent) referenced Tribal jobs, for example, “different departments offer jobs to those who want employment under different budgets” and “I believe the Tribe does have jobs open and available” and “Our Tribe offers so much.” This suggests that while jobs may be available, if there are only so many Tribal jobs, perhaps there is a lot of competition; for those (more than half or 14 people) without an education, it may be difficult to compete and motivation to compete may be low. Of the respondents who

\textsuperscript{63} Here, education means bachelor’s degree, the level of education attained by the respondent.
felt there were enough jobs on the Reservation (22 people or 80 percent), 15 people (68 percent) preferred to live and work on the Reservation and seven people (32 percent) had no preference. Of those who felt there were not enough jobs on the Reservation (seven people or 24 percent), either because “jobs are scarce” or “not all potential business opportunities have been developed yet” or “rural area offers very few job choices” four people (57 percent) preferred to live and work on the Reservation and three people (43 percent) had no preference.

As with the Crow respondents, this suggests that a willingness to leave the area might provide more opportunity for some, but for those with an associate degree or higher (12 people or 41 percent), two times as many people (eight) preferred to live and work on the Reservation as those who had no preference (four people). For those with a high school degree or less (17 people or 59 percent), almost two times more people (11) preferred to live and work on the Reservation than those without a preference (six).

Sixteen respondents (94 percent) with a high school diploma or less believed there were enough jobs on the Reservation, while six people (50 percent) of those with an associate degree or higher (12 people) believed there were enough jobs on the Reservation, but six people (50 percent) thought there were not.

Comparison of Both Tribes

On a continuum from bridging to bonding (Figure 13), responding to a want ad falls on the far left of the continuum because the person to whom one responds in a want ad is (in theory) anonymous to the applicant. Walking in to a place of business falls to the left of center because even if someone who works at a business is known to the job
seeker, the assumption is that the job seeker did not know him or her well enough to contact him or her by phone, or text, or email. Close to the center of the continuum is an acquaintance whom the job seeker knows indirectly or peripherally. To the right of center is a friend, and to the far right of the continuum is a relative or family member (this could be reversed depending on how close one feels to, and/or how much contact one has with a relative versus a friend).

**Figure 14.** Bridging/Bonding Continuum.

With this continuum in mind, the data from the AJN and future job for both tribes indicates that the Crow Tribe respondents fall more toward the bonding end of the spectrum in terms of personal contacts than the CSKT respondents. Crow Tribe respondents (13 people, 28 percent$^{64}$) noted they would contact a friend or relative for information or advice about a job more often than CSKT respondents (nine people, 18 percent); however, a similar number of CSKT members (15 people) would respond to a want ad or walk-in to a place of business as compared to 18 respondents from the Crow Tribe.

In terms of method of job acquisition, Crow Tribe respondents tend toward bonding and most prefer to live and work on their Reservation, especially those with a high school diploma or less. In addition, most people (17) from the Crow Tribe believe

$^{64}$ 28 percent represents more than one response per person. Respondents could select one or more of the following: want ad, walk-in, friend, relative, acquaintance, all methods.
that there are not enough jobs on their Reservation, despite the numbers indicating that those with a high school diploma or less believed that there are enough jobs.

In terms of job acquisition, CSKT respondents tend toward bridging and the number of people who preferred to live and work on their Reservation is similar to that of Crow Tribe respondents, where Crow Tribe respondents with a high school diploma or less are slightly more likely to prefer living and working on their Reservation than CSKT respondents. While Crow Tribe respondents with less education prefer to live on their Reservation, they also believed that there are not enough jobs on the Reservation. Of the seven people (35 percent) from the Crow Tribe who believe there are enough jobs on the Reservation, five people (28 percent) have a high school diploma or less in comparison to 12 people (65 percent) of those with a high school diploma or less who believe there are not enough jobs.

Respondents from CSKT were more satisfied with the number of jobs on their Reservation (22 people) than Crow Tribe respondents, both those with high school diplomas or less and those with associate degrees or higher. The tribe with more bonded networks (Crow) had more people who were dissatisfied with the number of available jobs. It may be that there are fewer available jobs or that members of the Crow Tribe have limited their job opportunities by relying on more bonded networks. CSKT’s respondents were mostly satisfied with the number of jobs available to them.

Table 14

Method of Future Job Acquisition, Living Preference by Degree Type

<table>
<thead>
<tr>
<th># of people</th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
</table>

149
<table>
<thead>
<tr>
<th>Method of job acquisition - Want Ad</th>
<th>5</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of job acquisition – Walk In</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Method job acquisition - Someone known (acquaintance)</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Method job acquisition – Someone known (friend or relative)</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Preference to live/work on Reservation - total</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Preference to live/work on Reservation – HS diploma or less</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Preference to live/work on Reservation – Associate degree or higher</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Yes, enough jobs total responses</td>
<td>7</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 14 (continued).

<table>
<thead>
<tr>
<th>No, enough jobs total responses</th>
<th>17</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, enough jobs – HS diploma or less</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Yes, enough jobs – Associate degree or higher</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

*Ideal Jobs*

The data for this section was analyzed by examining the responses to the question “What is your ideal job?” This was compared to the respondent’s current job to determine if they had their ideal job, and, if not, what their ideal job would be as well as to determine if it was possible for the respondent to acquire their ideal job with their current level of education. The purpose of this comparison is to inform Tribal leaders as they work on economic development plans.

*Crow Tribe*

In the AJN (actual job network) section of the survey, respondents were asked to name their current and past two jobs. The names of their current jobs were grouped into broad representative categories. The past two jobs were not included in the analysis.
unless someone was currently unemployed, then the first past job was included. In some
cases, a category’s name was changed slightly to protect confidentiality. Seven categories
emerged\textsuperscript{65} from the jobs named in the AJN, listed here in descending order starting with
the category named most frequently: Safety, administrative, professional, labor, technical,
education, retail/service\textsuperscript{66}. There were 26 responses and the number of people who had
safety jobs was almost twice as high as those with administrative jobs, followed closely
by professional positions. The number of responses for the remaining categories were
within a few points of each other. Many, if not all, of the people who said their current
job was safety or security-related worked for the tribe.

When asked what their ideal job would be, in addition to the categories identified
in the AJN, three new categories emerged: self-employed, health, agriculture/natural
resources. Again, the results are listed here in descending order beginning with the
category that was named most frequently: Professional, health, technical, safety,
agriculture/natural resources, administrative, labor, retail/service, education, and self-
employment. In this case, the desire for a professional job was twice as high as the desire
for a health-related job. Subsequent categories were within a few points of each other.
Those with associate degrees (there were no responses from people with more than an
associate degree) had current positions as (in descending order) professionals,
administrative support or administrators, an educator, and a laborer. When asked about

\begin{footnotesize}

\textsuperscript{65} These were coded by four people.

\textsuperscript{66} Safety includes compliance and security. Administrative includes office work, secretarial, and high-level
administration such as project director. Professional jobs include those that require advanced degrees such as counselor
or case manager. Health jobs are jobs such as nursing. Technical jobs are those that require specialized training like
operating heavy equipment.
\end{footnotesize}
their ideal jobs, the professionals category increased by one point and additional categories – health, and self-employment – also emerged. Twenty-four people (88 percent) of all respondents said they would need more education to get their ideal jobs and all except one of those with an associate degree said they would need more education to acquire their ideal job.

CSKT

Using the same 10 categories as used for the Crow Tribe, the analysis for CSKT showed that the category with the highest number of responses (in descending order) was administrative, followed by finance (a new category that emerged), professional, labor, education, technical, security, retail/service, and agriculture/natural resources. None of the CSKT respondents had jobs in the health field and no one was self-employed. Ideally, the CSKT respondents would like jobs as professionals, or jobs related to health, agriculture/natural resources, education, administration, finance, self-employment, technical, labor, and security. Professional and health-related jobs were named almost twice as frequently as other job types, although the lowest number mentioned were technical, labor, and security jobs, with one response per category. Those with an associate degree or higher had jobs as professionals or in the fields of finance (accounting), administration (assistants), agriculture/natural resources, security, and education and, ideally, would like to continue in these fields. In addition, one person, ideally, wanted to be self-employed, and security and administrative jobs were not mentioned. A total of 21 people (72 percent) of all respondents thought they would need more education to get their ideal jobs and almost all of those with an associate degree or
higher said they would need more education; some were still in school pursuing the education they would need to achieve their goals.

Table 15

*Job Categories, Actual and Ideal Jobs by Tribe*

<table>
<thead>
<tr>
<th>Code</th>
<th>Crow Actual</th>
<th>Crow Ideal</th>
<th>CSKT Actual</th>
<th>CSKT Ideal</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = admin</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Ag = agri</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

| E = education | 0 | 1 | 2 | 3 |
| F = finance   | 0 | 1 | 7 | 3 |
| H = health    | 0 | 2 | 0 | 4 |
| L = labor     | 4 | 3 | 2 | 1 |
| P = professional | 4 | 8 | 1 | 4 |
| R/S = retail/service | 0 | 0 | 1 | 0 |
| S = safety/security | 9 | 3 | 1 | 1 |
| Self = self-employed | 0 | 1 | 0 | 2 |
| T = technical | 1 | 3 | 1 | 0 |
| UN = unemployed | 3 | 0 | 0 | 0 |

**Total Number of Respondents**

<table>
<thead>
<tr>
<th></th>
<th>Crow</th>
<th></th>
<th>CSKT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27</td>
<td>27</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

**Respondents with Associate Degree Plus**

<table>
<thead>
<tr>
<th>Code</th>
<th>Crow Actual</th>
<th>Crow Ideal</th>
<th>CSKT Actual</th>
<th>CSKT Ideal</th>
</tr>
</thead>
<tbody>
<tr>
<td>P = professional*</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>E = education</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>L = labor</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A = administrative*</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Self = self-employed</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>F = finance*</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>S = safety/security*67</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ag = agriculture/natural resources</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total number of respondents**

<table>
<thead>
<tr>
<th></th>
<th>Crow</th>
<th>CSKT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

The slight difference between the number of people from both tribes who said they would

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67 Categories with asterisks tend to be Tribal jobs.
need more education to get their ideal jobs may reflect the fact that CSKT respondents have the advantage of a Tribal college that offers four-year degrees while Crow Tribe respondents do not. Crow Tribe respondents who want education beyond an associate degree must leave home. The data also suggests that, ideally, respondents would prefer professional or technical jobs rather than administrative positions and that they would prefer different jobs than the jobs that their respective tribes offer, for example, fewer administrative and safety/security jobs.

Network Data – Hypothetical

This data was analyzed based on a respondent’s adjacency matrix in which the relationship among alters was identified (1=presence of a tie; 0=absence of a tie). Data from the matrices was transferred into UCINET software (Borgatti, Everett, and Johnson 2002) and network structure was examined by looking at density, redundancy, and transitivity.

Density

Ego network density was calculated by dividing the number of actual ties among alters by the number of possible network ties. In most cases the number of possible network ties was 90 because the respondents were asked to name up to 10 alters whom they would ask for information or advice about a job and most respondents named ten. Since ego is not tied to himself, the number of possible ties equals the number of alters (10) multiplied by the number of alters minus one (9) which equals 90 (Cook 2016; Prell 2012). The overall densities for both tribes are shown below.
Table 16

**Total and Average Densities by Respondent and Tribe**

<table>
<thead>
<tr>
<th>ID</th>
<th><em>Crow</em> Total Density</th>
<th>Average Density&lt;sup&gt;68&lt;/sup&gt;</th>
<th>ID</th>
<th><em>CSKT</em> Total Density</th>
<th>Average Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>626.08</td>
<td>62.6</td>
<td>2</td>
<td>902.01</td>
<td>90.2</td>
</tr>
<tr>
<td>3</td>
<td>833.47</td>
<td>83.4</td>
<td>3</td>
<td>725.03</td>
<td>90.6*</td>
</tr>
</tbody>
</table>

Table 16 (continued).

| 4  | 811 | 81.1 | 4  | 843.1 | 84.3 |
| 5  | 593.34 | 65.9* | 5  | 100. | 100 |
| 6  | 832.10 | 83.2 | 6  | 698.28 | 69.8 |
| 7  | 880.00 | 88.0 | 7  | 100. | 100 |
| 8  | 100. | 100 | 8  | 266.67 | 88.8* |
| 9  | 748.02 | 74.8 | 9  | 923.33 | 92.3 |
| 10 | 641.66 | 64.1 | 10 | 406.66 | 81.3* |
| 11 | 794.44 | 79.4 | 11 | 618.61 | 61.8 |
| 14 | 802.37 | 80.2 | 12 | 765.47 | 85.0* |
| 16 | 677.48 | 67.7 | 13 | 847.22 | 94.1 |
| 17 | 100. | 100 | 14 | 100. | 100 |
| 18 | 713.00 | 71.3 | 15 | 266.6 | 88.8* |
| 19 | 926.79 | 92.6 | 16 | 421.67 | 84.3* |
| 20 | 844.73 | 84.4 | 17 | 100. | 100 |
| 21 | 824.56 | 82.4 | 18 | 897.81 | 89.7 |
| 22 | 705.01 | 70.5 | 19 | 100. | 100 |
| 23 | 811.00 | 81.1 | 20 | 100. | 100 |
| 24 | 878.02 | 87.8 | 21 | 916.01 | 91.6 |
| 25 | 633.34 | 63.3 | 22 | 100. | 100 |
| 26 | 778.57 | 77.8 | 23 | 720.25 | 90.0* |
| 27 | 100. | 100 | 24 | 100. | 100 |
| 28 | 827.35 | 82.7 | 25 | 100. | 100 |
| 29 | 580.44 | 64.4* | 26 | 909.36 | 90.9 |
| 30 | 909.93 | 90.7 | 27 | 665. | 65.5 |
| 28 | 300. | 60.0* | 29 | 845.79 | 84.5 |

<sup>68</sup> Average density was calculated by adding together the density scores for every alter and dividing the total by the number of scores. In some cases, the average density is higher than the total density because the number of alters was fewer than 10.
The average density for Crow Tribe respondents is approximately 80 and for CSKT respondents is approximately 86. The number of respondents from CSKT with 100 percent density (nine) (everyone in the network knows everyone else) is three times the number as for Crow Tribe respondents (three). This result differs from the future job acquisition method which indicated that CSKT skewed toward the bridging end of the continuum and Crow toward the bonding end; however, the high-density scores are based on the relationship between an ego’s alters and not on an individual method of job acquisition. This may indicate that although CSKT egos would use bridging methods of job acquisition (want ads, walk-in) more frequently than Crow Tribe respondents, walking in to a place of business may be the same as contacting someone you know, i.e., friend or relative. Or, it could mean that CSKT egos use weak network ties within their denser networks to acquire jobs.

The lowest density score across both tribes is 0 (CSKT) and the highest is 100 (both tribes). The average of these two numbers is 50, a logical cut-off point, however none of the network density scores is near 50. If the outlier, 0, is removed from CSKT the median is 80 (60 lowest, 100 highest). Thus, any density score that is below 80 is considered bridging and a score greater than 80 is considered bonding. Almost three times as many Crow Tribe networks (11) as CSKT networks (4) qualify as bridging.

*Network is fewer than 10 people; highlighted average densities = bridging networks

---

69 Even when the high-density scores (100) are not included and the next highest density score of 94.1 is used, the median is 77 and all bridging networks remain the same.
networks (bridging networks are shaded – Table 17). After determining which networks were bridging, the demographics of those egos were examined to see if those with bridging networks had jobs on, adjacent to, or off Reservation. Based on density alone, there was no relationship between a Crow Tribe respondent’s network type and his or her current or ideal job location. The same was true for CSKT with two people (50 percent) having no preference for job location and two people (50 percent) preferring to work on Reservation. The Crow Tribe respondents who noted that their current job was off Reservation had an associate degree or higher while all high school graduates had a job on Reservation. Degree type did not matter for CSKT respondents. Because it was expected that the networks would be dense\textsuperscript{70} using density alone as an indicator of a network’s type did not necessarily give a full picture.

Table 17

*Demographics of Respondents with Bridging Networks*

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Sex</th>
<th>Deg</th>
<th>Live</th>
<th>Raised</th>
<th>Employ</th>
<th>On/Off</th>
<th>% Alt. Emp.</th>
<th>% Alt. Emp On</th>
<th>% Non-AIAN</th>
<th>Ideal Job Loc</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>30</td>
<td>F</td>
<td>HS</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>8</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>5</td>
<td>55</td>
<td>M</td>
<td>HS</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>100</td>
<td>60</td>
<td>30</td>
<td>NP</td>
</tr>
<tr>
<td>9</td>
<td>52</td>
<td>F</td>
<td>AD</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Off</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>10</td>
<td>54</td>
<td>M</td>
<td>AD</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>80</td>
<td>80</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>11</td>
<td>40</td>
<td>F</td>
<td>AD</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Off</td>
<td>80</td>
<td>50</td>
<td>20</td>
<td>Off</td>
</tr>
<tr>
<td>16</td>
<td>36</td>
<td>M</td>
<td>AD</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Off</td>
<td>80</td>
<td>80</td>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>18</td>
<td>40</td>
<td>M</td>
<td>HS</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
</tbody>
</table>

\textsuperscript{70} The communities in which the research took place are small, rural, isolated, and ethnically homogenous so high density scores were expected.

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Effective Size and Efficiency

In addition to calculating the density for every respondent, the effective size and efficiency were calculated to determine how much redundancy existed in an ego’s network. Effective size is calculated by subtracting the average number of an ego’s network ties from the total number of ties. The higher the number, the less redundancy suggesting weaker ties and bridging networks (Hanneman and Riddle 2005).

Crow Tribe

Of the 11 Crow Tribe networks identified as bridging based on their density scores, when effective size was considered, nine networks were categorized as bridging based on the median effective size score of 2.09 (low=1; high=3.18). Of these nine, only five (2, 29, 16, 9, 26) also were considered bridging based on their density scores. Since the effective size is a measure of an ego’s alter connections, and since density is naturally high in this population, the effective size may be a better measure of a network in terms

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Sex</th>
<th>Deg</th>
<th>Live</th>
<th>Raised</th>
<th>Employ</th>
<th>On/Off</th>
<th>% Alt.</th>
<th>% Alt.</th>
<th>% Non-AIAN</th>
<th>Ideal</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>52</td>
<td>M</td>
<td>ND</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>NP</td>
</tr>
<tr>
<td>11</td>
<td>53</td>
<td>M</td>
<td>BD</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>On</td>
<td>100</td>
<td>10</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>27</td>
<td>29</td>
<td>F</td>
<td>ND</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>28</td>
<td>20</td>
<td>F</td>
<td>HS</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>40</td>
<td>NP</td>
</tr>
</tbody>
</table>

Key: Alt = alter; AIAN = American Indian/Alaska Native; Deg = degree; ND = no degree; HS = high school; AD = associate degree; BD = bachelor’s degree
of how information flows through it. The efficiency measure is the proportion of alter ties in relation to the actual size of an ego’s network (Hanneman and Riddle 2005) and, again, looks at a network’s redundancy. In combination with a network’s effective size, the efficiency measure indicates how efficiently resources pass through a network while effective size indicates the effectiveness of a network in terms of its reach. Using the median efficiency score of .307 (low=.01; high=.513) to determine the cut-off for bridging versus bonding in terms of efficiency, a total of 15 ego networks qualified.

When the lowest efficiency score (.1) was removed from the calculation, the median was .339 and qualified 10 networks, all except one (ego7) which were part of the original bridging networks based on density. Despite a relatively high-density score (88), ego7 was included as a bridging network because the efficiency score was relatively high, and the transitivity score was relatively low, suggesting less redundancy.

Table 18

*Effective Size, Efficiency, Triad Census – Crow Tribe*

<table>
<thead>
<tr>
<th>ID</th>
<th>Effec Size</th>
<th>ID</th>
<th>Efficiency</th>
<th>ID</th>
<th>Transitivity</th>
<th>ID</th>
<th>#Forbid Trian</th>
<th>#Closed Trian</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3.18</td>
<td>5</td>
<td>0.513</td>
<td>22</td>
<td>0.108</td>
<td>3</td>
<td>6</td>
<td>63</td>
</tr>
<tr>
<td>29</td>
<td>2.89</td>
<td>22</td>
<td>0.466</td>
<td>25</td>
<td>0.143</td>
<td>7</td>
<td>41</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>2.73</td>
<td>10</td>
<td>0.461</td>
<td>10</td>
<td>0.224</td>
<td>11</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>2.72</td>
<td>29</td>
<td>0.443</td>
<td>16</td>
<td>0.226</td>
<td>14</td>
<td>23</td>
<td>31</td>
</tr>
<tr>
<td>23</td>
<td>2.32</td>
<td>2</td>
<td>0.436</td>
<td>5</td>
<td>0.234</td>
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<td>36</td>
<td>65</td>
</tr>
<tr>
<td>14</td>
<td>2.30</td>
<td>18</td>
<td>0.429</td>
<td>11</td>
<td>0.250</td>
<td>23</td>
<td>27</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>2.27</td>
<td>16</td>
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<td>0.254</td>
<td>26</td>
<td>37</td>
<td>34</td>
</tr>
<tr>
<td>26</td>
<td>2.25</td>
<td>7</td>
<td>0.413</td>
<td>18</td>
<td>0.288</td>
<td>2</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>21</td>
<td>2.23</td>
<td>11</td>
<td>0.374</td>
<td>26</td>
<td>0.307</td>
<td>5</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>2.07</td>
<td>25</td>
<td>0.372</td>
<td>29</td>
<td>0.329</td>
<td>9</td>
<td>41</td>
<td>26</td>
</tr>
<tr>
<td>6</td>
<td>2.04</td>
<td>26</td>
<td>0.336</td>
<td>2</td>
<td>0.358</td>
<td>10</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>1.93</td>
<td>9</td>
<td>0.327</td>
<td>9</td>
<td>0.360</td>
<td>16</td>
<td>20</td>
<td>5</td>
</tr>
</tbody>
</table>
The effective size for ego11, the ego with the highest effective size (3.28) was almost four times greater than for ego8, the ego with the lowest effective size (0.88) (Table 20). The mean scores for 27 egos were 1.48 (effective size), .268 (efficiency). Removing the egos with 100 percent density changed the means to 1.82 (effective size) and .343 (efficiency). It made sense to remove these scores because the egos are fully connected and clearly lie on the bonding end of a bridging/bonding continuum. Using the middle score, the cut-off point for effective size is 2.08 (.88=low; 3.28=high). Three ego scores fell above the middle score: 11, 6, and 4. Two of these (6 and 11) also had low density scores. The middle efficiency score without the fully connected networks included was .387 (.174=low; .599=high). Seven ego scores fell above the middle score: 28, 8, 27, 18, 11, 10, 15, three of which were among the egos with the lowest density scores (ego6 is missing).
The density and structural holes measures describe the structure of an ego’s network, to include redundancy of ties which helps determine the effectiveness of the network’s resource flow, in cases, for example, where the resources are circulating among the same people or are acquired from an external network. Based on the literature (Burt, 2001; Coleman, 1988; Granovetter 1973), for the egos that qualified as bridging, it seems that the information they receive is less redundant than those whose networks are denser, less effective and less efficient. While it is impossible to know what resources flow, (for example, information, help, support) it is assumed that less redundant job information flows through each ego’s network because the network was created based on a person’s job network.

Transitivity and Triad Census

A measure of structural balance is transitivity. A triad census gives a picture of the type of triads that exist in a network (transitive or intransitive), as well as their relationships to each other. In social networks, triads are defined using Holland and Leinhardt’s (Prell 2005) MAN coding process, where all dyadic ties in a triad are coded as a mutual tie (M), an asymmetric tie (A), or a null tie (N). The tie between every dyad that is part of every possible triad (16) is coded as one of the above tie types and every triad is assigned a number. For example, triad 102 means that there is one mutual dyadic tie, zero asymmetric dyadic ties, and two null ties. The 16 triads are coded this way and then categorized as transitive or intransitive depending on the tie configurations (102 is transitive because there is a single mutual, dyadic tie) (Stoltz 2017; Prell 2005). In the case of information transfer, knowing the transitive versus intransitive triads is useful.
because it indicates how much reciprocity exists. For some resources a highly transitive 
network is useful. But for others, for example, a job network in which new information is 
better information, a highly transitive network with many closed triads means 
recirculated or redundant information, which could increase competition for a job. A 
network with a high number of transitive triads in relation to intransitive ones is more 
closed or bonded. A network with a higher number of intransitive triads in relation to 
transitive ones is weaker. Of course, a network that has a mostly equal number of 
transitive and intransitive ties is balanced (Prell 2005). In addition, if a network is 
weighted toward transitivity, there may be little variation in the information that flows 
through it. On the other hand, if the balance skews toward intransitivity, depending on 
where the triads are situated in any given network, information flow could be impeded if 
there are no bridges between clusters (Ibid). A g-transitivity calculation in UCINET 
(Borgatti et al., 2002) indicates the number and percent of absent (null), weak, and strong 
ties. Dense networks with a higher percentage of absent than weak ties may mean that 
information does not flow through the network because ties between dyads are lacking 
altogether.

Table 19

*Effective Size, Efficiency, Triad Census - CSKT*

<table>
<thead>
<tr>
<th>ID</th>
<th>Effec Size</th>
<th>ID</th>
<th>Efficiency</th>
<th>ID</th>
<th>Transitivity</th>
<th>ID</th>
<th>#Forbid Trian</th>
<th>#Close Trian</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>3.28</td>
<td>28</td>
<td>0.599</td>
<td>1</td>
<td>0</td>
<td>11</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>2.99</td>
<td>8</td>
<td>0.518</td>
<td>27</td>
<td>0.167</td>
<td>6</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>2.21</td>
<td>27</td>
<td>0.503</td>
<td>11</td>
<td>0.254</td>
<td>4</td>
<td>36</td>
<td>47</td>
</tr>
<tr>
<td>18</td>
<td>1.85</td>
<td>18</td>
<td>0.457</td>
<td>10</td>
<td>0.353</td>
<td>18</td>
<td>43</td>
<td>99</td>
</tr>
<tr>
<td>27</td>
<td>1.84</td>
<td>11</td>
<td>0.453</td>
<td>28</td>
<td>0.364</td>
<td>27</td>
<td>30</td>
<td>4</td>
</tr>
</tbody>
</table>
A triad census was run for egos from both tribes, resulting in a list of all possible MAN-coded triads and the number of times each triad was present in a network. The census output also resulted in a transitivity score with lower numbers reflecting a network with weaker ties (Prell 2005). The middle transitivity score for respondents from the Crow Tribe (.418) (.108=least dense; .728=most dense) was used as a cut-off point, resulting in 15 networks that could qualify as bridging. The middle transitivity score for

Table 19 (continued).

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1</td>
<td>22</td>
<td>0.1</td>
<td>24</td>
<td>1</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>24</td>
<td>0.1</td>
<td>25</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0.88</td>
<td>25</td>
<td>0.1</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

| 29 | 1.84 | 10 | 0.424 | 4 | 0.42 | 29 | 52 | 51 |
| 12 | 1.77 | 15 | 0.407 | 6 | 0.468 | 12 | 25 | 36 |
| 26 | 1.73 | 6  | 0.374 | 9 | 0.469 | 26 | 41 | 113 |
| 2  | 1.71 | 12 | 0.367 | 16 | 0.474 | 2  | 39 | 77 |
| 21 | 1.65 | 16 | 0.364 | 29 | 0.495 | 21 | 33 | 86 |
| 23 | 1.58 | 29 | 0.335 | 8  | 0.5  | 23 | 13 | 42 |
| 10 | 1.55 | 4  | 0.317 | 12 | 0.535 | 10 | 3  | 3  |
| 16 | 1.52 | 9  | 0.278 | 23 | 0.575 | 16 | 4  | 8  |
| 3  | 1.52 | 2  | 0.253 | 2  | 0.616 | 3  | 0  | 56 |
| 13 | 1.42 | 23 | 0.247 | 21 | 0.637 | 13 | 12 | 87 |
| 9  | 1.26 | 21 | 0.209 | 18 | 0.656 | 9  | 29 | 27 |
| 15 | 1.22 | 7  | 0.2  | 26 | 0.734 | 15 | 0  | 4  |
| 1  | 1    | 26 | 0.199 | 13 | 0.772 | 1  | 5  | 0  |
| 5  | 1    | 3  | 0.19  | 3  | 0.917 | 5  | 0  | 165|
| 14 | 1    | 13 | 0.174 | 15 | 1    | 14 | 0  | 165|
| 17 | 1    | 1  | 0.1   | 5  | 1    | 17 | 0  | 20 |
| 19 | 1    | 5  | 0.1   | 14 | 1    | 19 | 0  | 1  |
| 20 | 1    | 14 | 0.1   | 17 | 1    | 20 | 0  | 10 |
| 22 | 1    | 17 | 0.1   | 19 | 1    | 22 | 0  | 10 |
| 24 | 1    | 19 | 0.1   | 20 | 1    | 24 | 0  | 165|
| 25 | 1    | 20 | 0.1   | 22 | 1    | 25 | 0  | 165|

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respondents from CSKT was .542 (.167=least dense; .917=most dense). The ego networks that were fully connected (11) were removed and 10 egos fell above the median: 27, 11, 10, 28, 4, 6, 9, 16, 29, 8, 12. Of these, all the egos with the lowest density scores were included. Since a triad census “gives information equivalent to: density, degree variance, and transitivity index...[it] can be regarded as a basic set of descriptive statistics for a non-directed network” (Snijders 2008, 13) and it provided the most information in terms of categorizing a network as bridging or bonding.

To break this down further, because “strong ties have a tendency to form transitive triads” (Prell 2005, 144), the number of forbidden triads\(^{71}\) or weak ties was examined in relation to the number of fully transitive triads (300 or three mutual ties, zero asymmetric ties and zero null ties). All the Crow Tribe’s original bridging networks had more intransitive triads than they had fully transitive triads, suggesting that, indeed, these networks were correctly categorized as bridging networks because each had more weak than strong ties. In addition, ego7 was added to the final number of bridging networks because, although its density score was higher than the median (88), its network efficiency was high, and its transitivity was low. Thus, a total of 12 networks for the Crow Tribe were classified as bridging networks: 2, 5, 9, 10, 11, 16, 18, 22, 25, 26, 29, 7.

All CSKT’s original bridging networks (defined by their density scores – 6, 11, 27, 28) had more intransitive than fully transitive triads. Ego10, with a relatively low transitivity and high efficiency score, was also included in the networks classified as

\(^{71}\) A forbidden triad is a MAN-coded 201 triad where there are two mutual ties, zero asymmetric ties, and one null tie. Granovetter (1973) hypothesized that if two people in a network are closely connected then the third person should also be connected even if indirectly.
bridging despite a high-density score because the high-density score reflects ego10’s small network size. The networks that were categorized as bridging were 6, 11, 27, 28, 10.

*Weak Ties*

The final step was to examine degree of closeness and frequency of contact for egos in relation to their alters. Yakubovich (2005) argues that “a measure of closeness or intensity of a relationship is the best indicator of tie strength” (415) and Granovetter (1973) argues that “those with whom one has strong ties are more motivated to help with job information…[however] those to whom we are weakly tied are more likely to move in circles different from our own and will thus have access to information different from that we receive” (1371). The results above examined ego networks in terms of the presence or absence of ties without regard for ego’s stated relationship to their network’s alters. The presence or absence of a tie in an ego’s network provides a good picture of the network’s structure in terms of who is tied to whom (or not) and of the holes and/or clusters that exist (or not), but it does not provide information about relationships. Examining an ego’s degree of closeness to and frequency of contact with their alters (strength) provides a broader picture of their network. The same degree of closeness (DoC) scale that was used for an ego’s AJN was used to analyze an ego’s ties to his alters in the hypothetical job network (HJN): 0=Not at all close; 1=somewhat close; 2=very close. However, the frequency of contact scale (FoC) was re-scaled to follow Granovetter (1973) where rarely was on the low end of the scale, followed by occasionally, and often. The original FoC scale for this study was four points (3=everyday contact; 2=often;
1=sometimes; 0=hardly ever). It made sense to combine “every day” and “often” because even if often does not necessarily mean every day, if one sees someone often and that represents the strongest tie, then seeing someone every day also represents the strongest tie.

Crow Tribe

The median DoC for respondents from the Crow Tribe and their alters was 1, the same as for their AJNs. The median FoC was 2, the same as their AJNs. The median DoC skewed to the middle of the bridging/bonding continuum because 0 (not at all close) represents bridging and 2 (very close) represents bonding. The FoC skewed toward the bonding end of the continuum. When the median was used as a cut-off point for both scales, 12 networks fell on or below the median: 1, 3, 5, 6, 7, 16, 19, 20, 21, 26, 27, 29 for DoC and 13 networks fell on or below the median for FoC: 5, 6, 7, 16, 19, 20, 21, 24, 25, 26, 27, 29, 30. Ten of the egos fell on or below the median in both scales: 5, 6, 7, 16, 19, 20, 21, 26, 27, 29. Of these 10, four networks were among those identified as bridging networks based on their density scores: 5, 16, 26, 29. The egos from these networks prefer to work adjacent to the Reservation or have no preference which indicates that there may be a relationship between network type and job location preference. When the individual network results for egos 5, 16, 26, and 29 were compared to their AJNs (representing 12 jobs), over half of the jobs (7 of 12 jobs) were acquired through an acquaintance or by responding to a want ad. On the other hand, of
the networks with the highest DoC and FoC (1, 2, 4, 8, 11, 17, 18, 28)$^{72}$, representing 21 jobs, all were acquired using relatives or friends. Ego5 and ego29 had three and four, respectively, non-American Indian/Alaska Native (AIAN) alters named in their networks. Ego16 and ego26 had zero non-AIAN alters in their networks. All four egos named at least one alter who works adjacent to or off-Reservation (ego5=4 adjacent; ego16=4 adjacent, 1 off; ego26=1 adjacent; ego29=2 adjacent), suggesting that homophily related to job location may be a factor.

**CSKT**

The median DoC for CSKT was 1 the same as for the Crow Tribe. The median FoC was 2 the same as for the Crow Tribe. Using these median scores as cut-off points, 19 networks fell on or below median DoC (1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 15, 16, 20, 21, 23, 25, 26, 27) and 23 networks fell on or below the median FoC (1, 2, 4, 5, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 23, 24, 25, 26, 27, 28, 29). All networks that were identified as bridging by density were included (6, 11, 27, 28) and all egos from these four networks prefer to work on Reservation. When examining the AJNs for these four networks (representing 12 jobs), half the jobs (six) were acquired using an acquaintance or by walking in to a place of business, three were acquired from a relative and three from other means. Of the networks with the highest DoC and FoC scores (nine egos representing 27 jobs), fewer than half of the jobs (11) were acquired from a relative or friend and 13 jobs were acquired from an acquaintance or from responding to a want ad.

$^{72}$ Although ego9 scored high DoC and FoC it was discarded because it was one of the egos with data discrepancies (see appendix).
Two of the egos representing the four bridging networks identified at least one alter as non-AIAN and all the alters named work on Reservation.

**Network Type and Ego Attributes**

Other variables that may affect a person’s preferences and that are related to homophily are demographics such as level of education, age, gender, and ethnicity (McPherson, Smith-Lovin, and Cook 2001). The following results are numbers and

*Figure 15. Alter Relationship to Ego both Tribes, by Ethnicity and Gender*73

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.
percentages for those preferring, ideally, to live off Reservation based on gender, age, degree type, ethnicity, and employment location of their alters.

Figure 16. Network Type by Tribe

Network Type by Tribe

Y=Crow Tribe; Z=CSKT. Tableplot created by Elizabeth Mery, M.S., lead statistician, Montana State University with contributions from Laurie Rugemer, M.S., Montana State University. Research reported in this publication was supported by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Awards P20GM103474, 5U54GM104944, U54GM115371, and 5P20GM104417. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.
Crow Tribe

In total, five egos (42 percent) of the 12 originally-identified bridging networks from the Crow Tribe preferred to work off Reservation or had no preference and seven people (58 percent) preferred to work on, indicating that there is no relationship between network type and job location, at least in terms of the included network structure measures.

Table 20

Crow Tribe Attributes Compared to Ideal Job Location

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Sex</th>
<th>Deg</th>
<th>Emp Loc</th>
<th>% Alt. Emp</th>
<th>% Alt. Emp On</th>
<th>% Non-AIAN</th>
<th>Ideal Job Loc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>49</td>
<td>M</td>
<td>HS</td>
<td>On</td>
<td>90</td>
<td>40</td>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>80</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>M</td>
<td>AD</td>
<td>On</td>
<td>90</td>
<td>100</td>
<td>0</td>
<td>NP</td>
</tr>
<tr>
<td>4</td>
<td>55</td>
<td>M</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>60</td>
<td>30</td>
<td>NP</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>10</td>
<td>On</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
<td>M</td>
<td>HS</td>
<td>Off</td>
<td>100</td>
<td>0</td>
<td>30</td>
<td>Off</td>
</tr>
<tr>
<td>7</td>
<td>52</td>
<td>F</td>
<td>AD</td>
<td>Off</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>8</td>
<td>54</td>
<td>M</td>
<td>AD</td>
<td>On</td>
<td>80</td>
<td>80</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
<td>F</td>
<td>AD</td>
<td>Off</td>
<td>80</td>
<td>50</td>
<td>20</td>
<td>Off</td>
</tr>
<tr>
<td>10</td>
<td>62</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>80</td>
<td>50</td>
<td>10</td>
<td>Off</td>
</tr>
<tr>
<td>11</td>
<td>36</td>
<td>M</td>
<td>AD</td>
<td>On</td>
<td>8</td>
<td>80</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>12</td>
<td>52</td>
<td>M</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>F</td>
<td>AD</td>
<td>On</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>61</td>
<td>F</td>
<td>AD</td>
<td>On</td>
<td>100</td>
<td>90</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>15</td>
<td>39</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>90</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>16</td>
<td>29</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>90</td>
<td>0</td>
<td>Off</td>
</tr>
</tbody>
</table>

Table 20 (continued).
After calculating the total percent of egos with bridging networks in relation to their job location choice, all Crow Tribe networks (bridging and bonding) were examined in terms of age, gender, degree type, percent of non-Native alters, and percent of alters who work off Reservation to determine if any of these attributes were related to an ego’s ideal job location. Of the 12 male Crow Tribe respondents, half preferred to work off Reservation or had no preference for location and seven of the 16 female egos preferred to work off Reservation or had no preference. When the results were examined in terms of age, four people (everyone within this age group) between the ages of 18 and 24 preferred to work off Reservation or had no preference; three of seven egos between the ages of 25 and 39 preferred to work off Reservation or had no preference; two of 11 egos between the ages of 40 and 54 preferred to work off Reservation or had no preference; two of four egos 55 and over preferred to work off Reservation.

When the results were examined in terms of degree type, of those with an associate degree, three of eight people preferred to work off Reservation or had no preference while 10 of the 19 people with a high school degree preferred to work off Reservation.
Reservation or had no preference and nine preferred a job on the Reservation. Of the 11 egos with networks that included non-AIAN, eight people preferred to work off Reservation or had no preference and three people preferred to work on Reservation. Finally, of the 18 egos who had alters employed off Reservation, 11 preferred to work off Reservation or had no preference (61 percent), and seven preferred to work on Reservation, even though most of them (16) work on Reservation. However, most people wanted to work on Reservation with a slight preference for working off Reservation (or no preference) for those who were younger and for those whose networks were comprised of a percentage of non-AIAN alters. If bridging networks are determined by alter ethnicity, then 73 percent of the Crow Tribe’s total number of egos who had non-AIAN alters (12 people) preferred to work off Reservation or had no preference. Network structure (density, structural holes, and transitivity) proved to be not as important for working location preference as alter ethnicity. In addition, an ego’s alter’s employment location seemed to make a difference for ego’s preference of job location. If a bridging network was determined by alter employment location, then 61 percent of those whose alters work off Reservation (12 people) preferred to work off Reservation or had no preference. Both ethnicity and alter employment location indicate homophily. Another indication of homophily is that three of the Crow Tribe’s ego networks with 100 percent density (8, 17, 27) as well as an ego whose density score was only seven points away

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75 In every case except one, the non-AIAN alters were white.
from total density (ego19) had networks composed of alters who were 100 percent Native ethnicity.

CSKT

The results for CSKT were similar as those for the Crow Tribe. There was no relationship between network type and job location preference as evidenced by the fact that two of the egos whose networks were identified as bridging preferred to work on Reservation and two preferred to work off. When the results were sorted by attribute, eight of 19 females had no preference or preferred to work off Reservation compared to two of 10 males. In terms of age, five of six egos between the ages of 18 and 24 preferred to work on Reservation. This result was quite different than for the Crow Tribe respondents, in which all egos within this age group preferred to work off Reservation. Five of 13 egos between the ages of 25 and 39 preferred to work off Reservation which was about the same for both tribes. Three of seven egos between the ages of 40 and 54 preferred to work off Reservation. For those over age 55, only one person of three preferred to work off Reservation, compared to two for the Crow Tribe. The number of CSKT respondents without any degree (including high school)\textsuperscript{76} was higher than for Crow Tribe respondents and two of the six preferred to work off Reservation or had no preference. Five of CSKT respondents had a bachelor’s degree. Of these, three people preferred to work off Reservation or had no preference. One respondent of seven with an associate degree preferred to work off Reservation which is about the same as for the

\textsuperscript{76} The survey question asked respondents to select from no degree, high school, associate, bachelor’s or more than bachelor’s degree. Some of those who marked “no degree” may have their GED but that was not a response option.
Crow Tribe. When associate and bachelor’s degrees were combined for CSKT respondents, of the 12 people who met these criteria twice as many (eight) preferred to work on Reservation as those who preferred to work off or had no preference. Seven of 11 egos from CSKT with a high school degree preferred to work on Reservation as compared to nine egos from the Crow Tribe. Six of 11 people with networks comprised of non-Native alters preferred to work off Reservation or had no preference compared to six for the Crow Tribe. Of nine respondents whose networks were comprised of alters who worked off Reservation, four preferred to work off Reservation or had no preference (44 percent) and five preferred to work on Reservation.

Table 21

CSKT Attributes Compared to Ideal Job Location

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Sex</th>
<th>Deg</th>
<th>Emp Loc On/Off</th>
<th>% Alt. Emp.</th>
<th>% Alt. Emp On</th>
<th>% Non-AIAN</th>
<th>Ideal Job Loc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>32</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>90</td>
<td>90</td>
<td>50</td>
<td>Off</td>
</tr>
<tr>
<td>2</td>
<td>22</td>
<td>M</td>
<td>ND</td>
<td>On</td>
<td>50</td>
<td>80</td>
<td>70</td>
<td>On</td>
</tr>
<tr>
<td>3</td>
<td>29</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>10</td>
<td>On</td>
</tr>
<tr>
<td>4</td>
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</tr>
<tr>
<td>5</td>
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<td>On</td>
</tr>
<tr>
<td>6</td>
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<td>ND</td>
<td>On</td>
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<td>100</td>
<td>10</td>
<td>NP</td>
</tr>
<tr>
<td>7</td>
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<td>M</td>
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<td>On</td>
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<td>100</td>
<td>0</td>
<td>On</td>
</tr>
<tr>
<td>8</td>
<td>30</td>
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<td>AD</td>
<td>On</td>
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<td>90</td>
<td>0</td>
<td>NP</td>
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<tr>
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<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>50</td>
<td>50</td>
<td>Off</td>
</tr>
<tr>
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<td>100</td>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>11</td>
<td>53</td>
<td>M</td>
<td>BD</td>
<td>On</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>On</td>
</tr>
</tbody>
</table>

77 The comparison is difficult because when the HJN was analyzed, no one from the Crow Tribe had a degree higher than an associate degree. Previous general results include two egos from the Crow Tribe who have bachelor’s degrees, but they were not included in the HJN.
Table 21 (continued).

<p>| | | | | | | |</p>
<table>
<thead>
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<td>M</td>
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<td>On</td>
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<td>90</td>
</tr>
<tr>
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<td>F</td>
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<td>AD</td>
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<td>90</td>
<td>100</td>
</tr>
<tr>
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<td>On</td>
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<td>90</td>
</tr>
<tr>
<td>19</td>
<td>36</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>20</td>
<td>45</td>
<td>F</td>
<td>HS</td>
<td>On</td>
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<tr>
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<td>F</td>
<td>AD</td>
<td>On</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>40</td>
<td>F</td>
<td>HS</td>
<td>On</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>24</td>
<td>63</td>
<td>F</td>
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</tr>
<tr>
<td>25</td>
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<td>On</td>
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<td>100</td>
</tr>
<tr>
<td>26</td>
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<td>On</td>
<td>100</td>
<td>100</td>
</tr>
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<td>F</td>
<td>HS</td>
<td>On</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>29</td>
<td>36</td>
<td>F</td>
<td>BD</td>
<td>On</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 22

Comparison of Respondents by Tribe and Attribute Who Preferred to Live Off Reservation

<table>
<thead>
<tr>
<th>If ego is…..then N/N% prefer to live off Reservation or have no preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSKT (N=29)</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>
Summary of Results

The social networks of the people who participated in this study, in general, tended to be bonded as not only are the communities in which the participants live small and somewhat isolated, they are also ethnically homogenous. However, the two tribes differed, at least in terms of the study’s respondents, in the degree to which they are bonded. Following are some of the significant findings.

Finding 1: Overall, Crow Tribe respondents have less bonded job acquisition networks (AJNs) than CSKT in terms of frequency of contact, and degree of closeness to one’s alters.

Finding 2: The level of educational achievement, and method of job acquisition differ. The Crow Tribe’s educational achievement in terms of number of years is higher
than for CSKT, but CSKT’s range of educational achievement is broader (no degree to bachelor’s degree).

Finding 3: While people from both tribes acquired a current or past job most frequently through someone they knew, CSKT respondents used a relative or friend less frequently than did Crow Tribe respondents indicating that the job acquisition methods for the Crow Tribe are more bonded than CSKT because the method by which most individuals acquired a job was through strong ties to friends or relatives rather than weak(er) ties to acquaintances (Granovetter 1973). And, CSKT respondents replied to want ads more frequently than did Crow Tribe members. This result may be a function of the way in which jobs are advertised and the process that is in place for acquiring them, rather than of bridging or bonding.

Finding 4: Overall, a network’s structure seemed to be less important for job location than were its attributes. For example, the demographics of an ego’s alters such as their ethnicity, employment status, and age, were associated with job location preference more often than was the density of their networks. This finding may be related to the concept of homophily (McPherson et al., 2001) where like people tend to associate with others. When homophily is a driving factor in a given social network, the information one receives may be limited if, for example, a person who is new to the job market associates primarily with others who also are new to the job market or if one associates primarily with unemployed versus employed others.

Finding 5: The primary factor that influenced a respondent’s job location preference as off Reservation was the number or percent of alters who were not Native
American; this was true for both tribes and may be a matter of having access to diverse off Reservation information sources and/or support systems.

*Finding 6:* All the youngest respondents from the Crow Tribe prefer to work off Reservation which may reflect their age and ability to be more mobile due to fewer obligations such as home ownership or children.

*Finding 7:* CSKT respondents who, overall, had more bonded job acquisition networks tended to be more satisfied than Crow Tribe respondents with the number of jobs on (or near) their respective Reservations; however, members of both tribes, when thinking about their ideal jobs, wanted fewer administrative and labor-type jobs and more agriculture and natural resources or outdoor jobs as well as professional jobs.

*Finding 8:* Crow Tribe respondents acknowledge that they need more education to acquire their ideal jobs. The fact that the Crow’s Tribal college does not offer baccalaureate degrees may contribute to this perception which did not exist as frequently for CSKT respondents whose Tribal college offers several baccalaureate degrees, catering to non-Natives and Indians from other tribes.

*Finding 9:* A respondent’s level of educational attainment was related to their job location preference. Those with bachelor’s degrees (CSKT) prefer to work off Reservation more frequently (just slightly). As well, those whose highest level of education was a high school diploma prefer slightly more frequently to live on Reservation, perhaps, reflecting the kinds of jobs that are available on or near the respective Reservations.
In summary, while the social networks of respondents from both tribes, at least job acquisition networks, tend to be tightly connected, there are differences between the tribes related to the characteristics of the network members, the way that respondents acquired their jobs, and their preferences for job location. The next chapter will examine these findings in more detail as they relate to the extant social capital and social network literature.
CHAPTER V

SUMMARY AND CONCLUSIONS

This dissertation attempted to discover if an individual’s social network affected job acquisition and location of their current or ideal job. The research was conducted on two Montana Indian reservations by collecting information from volunteer participants about their social networks using a survey instrument that asked for information about individual characteristics, characteristics of the people named in hypothetical job networks and the relationships among those people. The results were analyzed using descriptive statistics and social network analysis software (UCINET) (Borgatti, Everett, and Johnson 2002) to determine if an individual’s network was primarily bridging or bonding. Network types were defined by examining a network’s density, its structural holes, the degree to which transitivity existed, the type of relationship egos had to their alters, the frequency of contact between ego and alters, and the degree of closeness. Network types, by tribe, were compared to current and or ideal job location and results for both tribes were compared.

Overall, the findings illustrate that acquiring a job in Indian Country depends on the jobs that are available, the level of education a job-seeker has, and on networks of acquaintances, friends, and relatives who provide information jobs to job-seekers. The remainder of this section will discuss these findings in more detail.

It seems that ethnic homophily better explains job location preference, as respondents with network members whose ethnicity matched their own tended to prefer jobs on reservation while respondents with network members whose ethnicity was
different than their own tended to prefer jobs off reservation. In addition to this finding, it seems that denser networks may be advantageous for tribes trying to improve economic circumstances in Indian Country to the degree that jobs exist. The original research question, how does the type of social capital affect job acquisition in Indian Country, led to two sub-questions: 1) How does bridging social capital affect job acquisition in Indian Country? 2) How does bonding social capital affect job acquisition in Indian Country?

The researcher hypothesized that those with strong bridging networks as identified through a social network analysis would have access to information about jobs that was new. Since the communities are small and comprised of a single ethnic group, the assumption is that social networks would be highly connected and dense (Maru and Davis 2011) and that access to new information (Granovetter 2005) would lead respondents to work off or adjacent to their reservation communities. Furthermore, the researcher hypothesized that those with primarily bonded networks would have access to redundant information or the same information as their network members and would work on their respective reservations.

The research questions and hypotheses were conceptualized based on the strength-of-weak-ties (SWT) theory (Granovetter 1973, 1974, 1983). Granovetter’s theory states that weak ties, defined as infrequent contact with others within one’s social network, and contacts with acquaintances leads to information about jobs that is non-redundant. This research study hypothesized that respondents from the Crow and Confederated Salish and Kootenai tribes with primarily bridging networks would have access to non-redundant (or new) information about jobs. Bridging networks are
represented by an abundance of weak ties or networks made up of mostly acquaintances and infrequent contacts. Moreover, the same people with primarily bonding networks would have access to redundant information. Bonding networks are represented by an abundance of strong ties or networks made up of mostly relatives and friends and frequent contacts. Because the criterion for participating in the study was that respondents lived on their Reservation, their social networks were probably comprised of people living in the same communities as the respondents, especially if the alters named were relatives or friends.

The remainder of this chapter will outline and explain the specific research findings. In addition, the limitations and delimitations of the research are discussed, followed by recommendations for future research and a concluding section which summarizes the findings in the context of the research question and the literature.

**Findings**

*There was a difference between tribes in overall network structure.*

Overall, the networks for respondents affiliated with the Crow Tribe were less dense, more effective, more efficient, and less transitive than for respondents affiliated with the Confederated Salish and Kootenai Tribes (CSKT). Dense networks indicate that people are very connected to each other either because of the type of relationship they have (for example, a relative or a friend), the frequency with which they are in contact with each other, or the degree to which people are connected to each other. If most people

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78 Effectiveness and efficiency are social network analyses that examine, structurally, how effective or efficient a network is based on the number of alters in any given ego network and their connections to each other.
in any network are connected rather than disconnected, the network is dense. However, the way a network is structured also affects its reach. For example, if someone’s network is made up of primarily acquaintances rather than friends or relatives, most of whom know each other (suggesting high density), the information that passes through the network may be new because the acquaintance relationship suggests that there is a certain amount of emotional distance between two people and that acquaintances are part of networks of which ego is not part; thus, the information that passes from one person to another is not necessarily redundant. The proportion of very dense to less dense networks for the Crow Tribe was still high (79.9 percent), but very dense networks were expected in Indian County where Tribal norms and values prevail.

Table 23

*Implications and Recommendations related to Findings, both Tribes*

<table>
<thead>
<tr>
<th>Finding</th>
<th>Crow</th>
<th>CSKT</th>
<th>Implications and Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>Less dense</td>
<td>Denser</td>
<td>CSKT networks are more bonded than Crow</td>
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<td></td>
<td></td>
<td></td>
<td>Examine a larger sample of networks to determine if this finding holds.</td>
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<tr>
<td>Effectiveness</td>
<td>More effective</td>
<td>Less effective</td>
<td>CSKT networks provide egos with more redundant job information than Crow.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Examine a larger sample of networks to determine if this is true.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Conduct follow-up qualitative interviews to determine the kind of information that people pass through their networks</td>
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Table 23 (continued).

| Transitivity | More intransitive ties in relation to transitive ties. | Fewer intransitive ties in relation to transitive ties. | Crow networks are weaker because they have more intransitive triads. Intransitive triads may provide non-redundant information. Determine the validity of this finding by conducting similar research with a larger sample of the population. Examine the existing networks in more depth to determine who are the specific people embedded in the networks and the dyads/triads they form. |
| Level of Education and Degree Type | More education in number of years, less range of degree types. | Less education in number of years, more range of degree types. | Crow respondents have more education in number of years than CSKT. There may be fewer degree types available for Crow respondents and/or the kinds of jobs that CSKT members have do not require advanced degrees. This finding is especially true for those who have no degree (10 years of school\(^79\)) and those who have high school diplomas. The difference in number of years falls when advanced degrees (associate or bachelor) are considered individually. Regardless, CSKT has a wider range of degree types. It may be advantageous for Little Bighorn Tribal College on the Crow Reservation to add bachelor’s degrees so that leaving the Reservation for more advanced degrees is not required. |

\(^79\) Sixteen is the age at which one can legally drop out of school which usually is about tenth grade; therefore 10 years of school.
Table 23 (continued).

| Job Acquisition Method (personal contact) | Strong ties used more often to acquire jobs | Weak ties used more often to acquire jobs | Accessing strong ties (Crow respondents) even when networks, overall, are more bridging, may be related to influence. Weak network ties may not have as much hiring influence. Accessing weak ties (CSKT respondents) even when networks overall are more bonding may increase non-redundant information about jobs acquired from within bonded networks. Follow-up with qualitative research to determine who are the people relative to the Tribe that respondents named in their HJNs and why.  

80, 81 This study’s survey instrument asked respondents to note why they would contact the people they named in their HJNs. Response options relative to every person they named were: 1) has more information than you do; 2) has a job that you are interested in; 3) has influence; 4) knows more people than you do; 4) all the above; 5) other reasons.  

While the results could be (and were) analyzed quantitatively, it would be useful to know more about what sort of influence or information a named alter has, and who are the people the named alter knows that ego does not know relative to the tribe. |
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<tbody>
<tr>
<td>Definition of network alters</td>
<td>Kinship and clan-based system, single tribe</td>
<td>Confederation of tribes</td>
<td>Degree of closeness to and nature of relationship with alters may be different than traditional social networks. Follow-up with qualitative research to determine how members of the Crow and CSK Tribes define their relationships in terms of degree of closeness.</td>
</tr>
</tbody>
</table>
Table 23 (continued).

<table>
<thead>
<tr>
<th>Preference related to job location</th>
<th>Those with more alters who work off prefer to work off reservation.</th>
<th>Those with more alters who work off prefer to work off reservation.</th>
<th>Homophily related to job location is present. People with network members who work off reservation may be inclined to want what their friends want. Examine a larger sample of networks to determine if this finding holds, and if so, examine, qualitatively, what it means to have network members who work off reservation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic homophily and job location</td>
<td>Those with primarily Native American alters prefer to work on reservation; those with more non-Native alters prefer to work off reservation.</td>
<td>Those with primarily Native American alters prefer to work on reservation; those with more non-Native alters prefer to work off reservation.</td>
<td>Homophily related to ethnicity is present. People with network members who are non-Native are exposed to different possibilities about job location. Examine a larger sample of networks to determine if this finding holds, and if so, examine, qualitatively, what it means to have network members who are non-Native.</td>
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Table 23 (continued).

<table>
<thead>
<tr>
<th>Job satisfaction in terms of number of available jobs</th>
<th>Less satisfied, weaker network ties</th>
<th>More satisfied, stronger network ties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crow respondents do not use weak network ties to access information about jobs, but rely on strong, perhaps influential network ties.</td>
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<tr>
<td>There are not as many jobs available for Crow Tribe members; thus, respondents are less satisfied.</td>
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<tr>
<td>CSKT respondents are us their weak network ties to access diverse information from their bonded networks and if jobs are plentiful,</td>
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<tr>
<td>Follow-up with qualitative research to determine why Crow Tribe respondents do not use their weak network ties as frequently to access information about jobs.</td>
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<tr>
<td>Consider diversifying the economy (Crow Tribe) so more jobs in different sectors are available and urgent job acquisition is not a factor in how one uses their existing contacts.</td>
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<tr>
<td>Consider adding degree types at their Colleges to accommodate ideal jobs, and/or provide ideal jobs by diversifying their economies or within existing economies.</td>
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</tbody>
</table>
Table 23 (continued).

| Age and job location preference | Young adults prefer to work off or near the reservation and middle-aged people prefer to work on Reservation. | Teens prefer to work on reservation. | Age matters to the degree that young people are more mobile and if jobs on reservation are scarce, then young people may be more likely to look for a job off reservation. Middle-aged people are less mobile. Teens from CSKT have not lived away from home and prefer to live on Reservation.

Since young people are more mobile and may want to leave their reservations for a time, especially to seek education, create an incentive program that helps Tribal members attain degrees from college or universities off reservation and/or out-of-state, with an agreement that Tribal members will return to their respective tribes for at least two years after they complete their degrees. |

| Ideal Job Location Preference | On Res | On Res | Respondents want to stay close to home for their ideal jobs. Create these jobs. |

| Education and Ideal Job | Need more education | Need more education | If the education necessary for people to acquire their ideal jobs was available, they would take advantage of it. Ideal job types must exist for respondents to be motivated to acquire more education. Examine the degree types that are offered in relation to ideal job types to determine if there is a mismatch. |
Not only were the average overall network densities different for both tribes, but also the number of fully dense (100 percent) networks was much lower for Crow Tribe respondents than for CSKT. This could be due to historical factors or to job availability. Respondents noted whom they would go to for information or advice about a job so for those whose networks were one hundred percent connected (every pair in the network was tied to every other pair), the implication is they do not want or, perhaps, need to approach people outside of their immediate location or community. If one tribe has more available than another, it makes sense that job networks would be more connected because individuals can get jobs using their connections and from those who may already work in places the ego would like to work. However, if jobs are scarcer, an ego perhaps would identify a broader network to have more access to different job opportunities. In their explanation of linking social capital types, O’Brien, Phillips, and Patsiorkovsky’s (2005) argue that “in interpreting the decisions of individuals to resist going outside of their strong bonding ties to incorporate new members and/or become members of other social networks…, the most useful assumption is that they are acting rationally” (1044). If respondents from both tribes in this study were acting rationally when they identified their job networks, it is probable that there are institutional and/or social differences that explain why CSKT has three times as many networks that are wholly connected as the Crow Tribe. Historically, both tribes were subjected to the same treaties and federal policies that significantly reduced the acreage owned by each tribe and created checkerboard land ownership by Natives and non-Natives (MT Legislative Services, and Brown, M. 2016). However, the Confederated Salish and Kootenai tribes were the first
tribe in the nation to take advantage of the 1934 Indian Reorganization Act that allowed tribes to incorporate and adopt constitutions (Ibid) with sovereignty in mind. Cahoon (2005) notes that the newly formed Tribal Council believed “‘self-governance [was] an inherent right…’” (124). Indeed, part of the tribe’s current mission statement is to “invest in our people in a manner that ensures our ability to become a completely self-sufficient society and economy…[with a] historic and contemporary commitment to Tribal sovereignty…” (Montana Office of Public Instruction 2009, 28). If sovereignty and self-sufficiency is a priority for CSKT, the more bonded networks of CSKT’s members make sense because members may be inclined to rely on each other rather than on people outside. In addition, O’Brien et al. (2005) point out that social capital is more than the strength of ties; it is also the degree to which a network (dense or diffuse) is inclusive and extensive. This means that groups that may appear to be densely connected, especially like CSKT, may also intentionally extend their reach by looking for financing or developing programs that include “outsiders” (non-Tribal members). CSKT’s confederated status may explain why Tribal members’ networks are very dense, but also why CSKT has been successful in using its sovereign status to benefit the tribe and its members. The people in CSKT lived in the same areas and cooperated with each other before their Reservation was established and inter-marriage was common (Cahoon 2005). And while there were some “full-bloods” (Ibid) who opposed the Tribal council that was established when the tribe incorporated as part of the Indian Reorganization Act (IRA) (Ibid), the way the Tribal council was formed seems to indicate an intention to be inclusive and extensive: “In addition to [CSKT] Tribal members, the Tribal Council also
included some non-Indians and Indians from other tribes. It consisted of a president, two vice presidents, a secretary and treasurer, three trustees, sixteen delegates, and nine chiefs” (Ibid 119). Despite the evidence of dense networks for CSKT respondents, it may be that a history of bringing people together from other tribes, along with the inclusion of non-Natives has grown up a tribe in which individual networks, although dense, are made up of historical bridging ties.

Further, Wilson (1998), in a discussion of network diffuseness, describes a series of concentric circles along a continuum moving from dense to diffuse. The densest network (first concentric circle) is comprised of close family members or kin, the second circle of distant relatives, the third of close friends, the fourth of distant friends, the fifth of acquaintances one has known for an extended period, and the sixth of acquaintances one has known only briefly. Using this framework, CSKT’s densest networks could be comprised of distant relatives or distant friends (all connected); however, distant relatives, although “tied to ego through feelings of mutual obligation” (Ibid 398) also are connected to other networks and the members of those distant networks may have new job information.

The level of educational achievement differs between respondents from both tribes.

The educational achievement of respondents from the Crow Tribe, in terms of number of years, is higher than for CSKT, but CSKT’s level of educational achievement is more advanced. The number of people without any degrees is higher for CSKT respondents than for the Crow Tribe, but CSKT respondents also report more bachelor’s degrees than the Crow Tribe’s respondents. While the overall number of educational
years attained by the Crow Tribe respondents is higher than for CSKT respondents, the greater number of bachelor’s degrees may reflect the education available at the Tribal colleges on each Reservation. CSKT’s Tribal college offers 4-year degrees and the college is centrally-located to most of the tribe’s communities. The Crow Tribal college offers associate degrees and certificates and is in a more remote location in terms of access. In addition, while both colleges accept non-Native students, there is a higher number of non-Native students attending CSKT’s Tribal college than the Crow Tribal college, again, most likely because of the type of degrees that each college offers. In terms of the research question reflecting on how social capital type affects job acquisition, educational attainment is important because there is an association between degree type and where people live and work (Chang 2017). Chang (2017) notes that people with low-skill jobs often work close to home because higher-skilled jobs may not be available, especially in rural communities. And one of the reasons that people who move away return to their hometowns is “to fill professional jobs that are hard to fill…[returning] with life experiences to spur economic growth” (19). Crow Tribe respondents with bachelor’s degrees or higher live off Reservation while those with high school diplomas, with one exception, live and work on Reservation. In addition, those with bachelor’s degrees or higher have bridging networks. The opposite is true for CSKT, whose respondents with bachelor’s degrees (with one exception) have bonded networks and currently live and work on Reservation. While it was expected that people with primarily bonding networks would work on or adjacent to their respective Reservations, the “brain drain” (Chang 2017) concept explains why people with more education often
leave home to use their degrees in higher skilled jobs that may not be available locally. This seems not to be the case for CSKT respondents which could be due to the kinds of jobs that the tribe has available that make leaving home unnecessary.

There is a greater spread across degree types for the respondents from CSKT and the higher percentage of people with bachelor’s degrees who prefer to work off Reservation (or who have no preference) makes sense if jobs that require a bachelor’s degree are not available on Reservation. In addition, the lower percentage of people with associate degrees preferring to live off Reservation makes sense if there are more jobs for people with associate degrees on Reservation, and this might be the case based on the types of jobs that were described in the CSKT AJN data. For example, administrative/secretarial jobs often do not require an advanced degree\textsuperscript{82} and if these types of jobs are readily available on Reservation, it makes sense that people would want to stay close to home.

Respondents’ level of educational attainment was somewhat related to their future and ideal job and living location preference. Those with bachelor’s degrees (CSKT respondents only) preferred to live off Reservation more frequently. This makes sense in terms of the finding that respondents, ideally, would prefer more professional jobs available to them and may reflect a choice to move off Reservation to use their education. As well, those who highest level of education was a high school diploma preferred, more

\textsuperscript{82} This claim is based on what I know about the Montana State University hiring system. Bachelor’s degrees are not necessarily required for certain classified employees, i.e., administrative support positions.
frequently, to live on Reservation, perhaps, also reflecting the kinds of jobs that are available on or near the respective Reservations.

*There were differences in how respondents from each tribe acquired their current or past two jobs, also reflected in the methods they would use in the future or to acquire their ideal jobs.*

CSKT respondents used want ads more frequently than simply walking in to a place of business when they looked for their current or past jobs, while Crow Tribe respondents walked into a place of business more frequently. Part of this may be due to way that the tribes advertise and hire for their positions. CSKT has a well-developed mechanism in place for potential jobs to be advertised or for Tribal members to go for assistance in finding a job, and although there is Indian preference for jobs, in 1978, the tribe implemented a “merit-based system [with a] focus…to hire qualified individuals…” (www.csktribes.org). Since this is the case, it may not be necessary to reach out to people outside of the tribe for information or advice about a job because information is readily available. The fact that CSKT respondents would approach a relative or friend for information or advice about a job more frequently than Crow Tribe respondents may be for some of the reasons mentioned previously, that CSKT respondents are well-connected, and the tribe has enough jobs to keep the people who want to work employed.

In terms of Crow Tribe respondents, the assumption is that walking in to places of business to inquire about jobs (rather than responding to want ads) is rational and useful, implying that person-to-person contact with an acquaintance or friend is perceived as the best way for respondents to get information or advice about their current or past two jobs.
If Crow Tribe’s ties to each other are weaker (more bridging) than CSKT’s, it may be that approaching acquaintances or friends by walking in to a place of business makes more sense. Weaker ties could mean access to novel information sources, but it could also mean, in a rural geographic setting, that the weaker ties that Crow Tribe respondents had are to people who live off Reservation and that respondents do not want to leave their Reservation communities to take advantage of jobs that may exist elsewhere so approaching someone in his place of work is the best way to make contact. CSKT’s intentional focus on growing their communities by investing in properties and businesses that not only provide revenue to the tribe, but also provide jobs may be a good strategy for a more bonded community with denser network ties.

The data also indicates that about half as many people from the Crow Tribe as CSKT responded to want ads to acquire a job, about the same number as walked into places of business, and not quite three times the number of people from CSKT used multiple methods such as knowing someone and walking in to a place of business. The high number of people whose jobs are on reservation is the same for both tribes. These comparisons suggest that respondents from both tribes have stayed close to home either because they wanted to or because, as the relatively high number of people who used personal contacts indicates, they did not feel they could get a job off reservation without knowing someone.

*Network members may be defined differently in Indian Country*

Although most respondents identified a relative or friend as someone to whom they would go for information or advice about a job, it may be that the respondent did not
feel very close to that person. While some studies classify weak ties as acquaintances and strong ties as friends or relatives (Granovetter 1973), in Indian Country this classification system may not accurately represent the strength of ties. Kinship systems are based on extended kin and relatives often are distant and related by clan; however even if one is a relative, ego may not know that person well, other than by clan or last name affiliation. This means that even when egos asked their relatives for information or advice about a job, they may not have known them very well or felt close to them. Similarly, just because a respondent knew someone somewhat well and saw them often did not mean that they felt close to the person named. Unlike the data from the Crow Tribe that may reflect a clan system where relatives do not necessarily know each other well or see each other often, but who are bound to each other through a matrilineal system of eight clans, the data for CSKT is consistent with how one might expect someone to talk about a relative or friend; that is, one knows that person well and sees him or her often. CSKT is composed of people from different tribes and language systems and this may be reflected in the above data.

Homophily seems to be more important than network density for job location

An ego’s alter’s attributes such as their ethnicity, employment status, and age, were associated with job location preference more often than was the density of their networks. This finding may be related to the concept of homophily (McPherson, Smith-Lovin, and Cook 2001), where people tend to associate with like others. When homophily

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83 Personal conversation with a member of the Crow Tribe, 2017. When administrations change, the new leaders feel obligated to provide for and help their relatives no matter how distant, especially when they are part of the same clan.

84 http://lib.lbhc.edu/about-the-crow-people/Tribal-histories-project/chapter-1-introduction/
is a driving factor in a given social network, the information one receives can be limiting if, for example, a person who is new to the job market associates primarily with others who also are new to the job market or if one associates primarily with unemployed versus employed others. In addition, Lobel and Sadler (2016) note that “to understand the effects of network structure on information transmission….varying preference distributions and the extent of homophily…” must be considered (564). Lobel and Sadler (2016) find that if a person’s network is sparse that diverse preferences among network members may impede information transfer because there is not enough that binds them; however, if the same network is homophilous, diverse preferences among network members is no longer an impediment. In dense networks, diverse preferences among network members is better for non-redundant information transfer if the network is not too homophilous (Ibid). The networks for respondents from both tribes were ethnically homophilous and the respondents from the Crow Tribe who preferred, ideally, to work on, off, or adjacent to the Reservation aligned with their alter’s job location implying homophily related to job location preference. Thus, rather than a person’s network type (bridging or bonding) affecting their job location preference, network homophily, in terms of preference of job location, seems to have been a stronger indicator. In other words, even when someone had weak network ties as indicated by a low(er) density, effectiveness, transitivity score, common preferences between ego and his alters better explained ego’s job location preference. In addition to common job location preference, the ethnicity of egos’ alters seemed to affect ego’s job location preference with those who had fewer Native Americans in their networks preferring to live on, adjacent to, or off reservation as
opposed to on. This was true for both tribes and may be a matter of location (Yuan and Gay 2017) or that including non-Natives in one’s job acquisition network is indicative of a more diverse, but homophilous network that promotes information transfer (Lobel and Sadler 2016).

The high and almost equal number of people who prefer, when they have alters who are not Native American, to work off reservation is interesting, but perhaps not surprising. While the result indicates homophily, it also may be that someone who knows and associates with people who are not Natives has access to different resources. This would be the case with any ethnic group whose members chose to affiliate only with each other versus with people “outside” the group. More pointedly, the birds of a feather adage, applies not only to age, socioeconomic, or gender groups, for example, but also to ethnic groups. In the same way that a 50-year-old who affiliates with a 20-year-old has access to resources that are different from a friend who does not associate with a 20-year-old, affiliating with people from different ethnic groups provides access to resources that are different from the resources that are available if one affiliates solely within one’s own group. Thus, it seems that homophily is a better determinant of job location preference in Indian Country than is network type. The consequences of this may be that people who already are densely connected remain so, perhaps limiting their opportunities or in the case of the youngest people in these networks who associate with more ethnically diverse people, perhaps their networks will expand.
CSKT respondents who, overall, had more bonded job acquisition networks tended to be more satisfied than Crow Tribe respondents with the number of jobs on (or near) their respective Reservations.

This qualitative finding could be due, in part, to the study’s data collection method. Respondents were surveyed at their Tribal headquarters which also serves as the administrative center for many of Tribal departments and many of the respondents were employed and some of them at departments housed in Tribal headquarters. However, even the unemployed respondents, with one exception, believed there were enough jobs on Reservation. In contrast, many of the Crow Tribe respondents, whose networks were, overall, more bridging, believed there were not enough jobs on their Reservation. This could reflect a difference in the way the tribes have developed their economies. CSKT has diverse revenue streams and business development strategies and owns businesses in multiple sectors, perhaps offering more employment opportunities than the Crow Tribe.

If an individual primarily relies on a bonded network to help with job acquisition and the people in the network have access to information about more jobs, it makes sense that the individual might be satisfied with the number of available jobs. However, respondents from both tribes, when thinking about their ideal jobs, wanted fewer administrative and labor-type jobs and more agriculture and natural resources or outdoor jobs as well as professional jobs. Both Reservations have Native preference rules in place, meaning

85 The Crow Tribe has a Tribal Employment Rights Ordinance (TERO) office which “require[s] that all employers who are engaged in operating a business on Reservations give preference to qualified Indians in all aspects of employment, contracting, and other business activities” (http://www.nativeptac.org/tero-basics/). CSKT notes Native preference on its website.
that if two people applying for a job are otherwise equal in terms of their qualifications, a Native person has preference over a non-Native. Because of CSKT’s consolidated history and the merging of several tribes onto a single Reservation, the Native population is more diverse. In addition, the four-year degrees offered at CSKT’s Tribal college means that there are more people with bachelor’s degrees which may be part of the reason that CSKT respondents, although satisfied with the number of jobs on their Reservation, ideally, would like more professional jobs. And the Crow Tribe respondents may be less satisfied with the number of jobs on their Reservation because the Crow Tribe relies more heavily on revenue from natural resource extraction and has not diversified its economy in the same way as CSKT, instead offering Tribal employment that often changes when new administrations are elected86.

*Age may be a factor in job location preference.*

The CSKT respondents between the ages of 18-24 prefers to live and work on Reservation; whereas the Crow Tribe respondents within the same age range prefer to live and work off Reservation. This could be explained by the difference in actual age. For example, the respondents from CSKT who are between the ages of 18 and 24 who prefer to live on Reservation are teenagers (18, 19), whereas the respondents from the Crow Tribe who prefer to live and work off Reservation are in their early twenties, perhaps with more experience away from their homes. The lower number of respondents ages 40-54 from the Crow Tribe who prefer to work off Reservation may be explained by

86 Personal conversation with a member of the Crow Tribe, 2017.
life stage, for example, this age group may be settled, perhaps raising children or grandchildren. These results are not surprising as older people may be more settled with families or jobs, whereas younger people are more mobile and perhaps more interested in new and different experiences. Otherwise there is not much difference for the two tribes for work location preference in terms of age except for those ages 40-54. At least for CSKT, it appears there is no explained relationship between age and work location preference. In a 2008 study by the Pew Research Center, Cohn and Morin found that level of education is associated with movement from one’s home community to another. While the respondents from both tribes in this study did not note if they had moved from one location to another, all Crow Tribe respondents with more than a high school degree preferred to live or work adjacent or off Reservation and the majority of CSKT respondents with bachelor’s degrees preferred to live and work adjacent or off Reservation (Cohn and Morin 2008). This makes sense because, in general, people move for work and those with more education have more incentive to look for jobs that align with their degrees either because of interest or because of loans they may have incurred; whereas people with less education are not motivated by these things and prefer to stay home because of family ties (Ibid).

Most respondents from both tribes believed they would need more education to acquire their ideal jobs.

The fact that the Crow’s Tribal college does not offer baccalaureate degrees may have contributed to this perception, but CSKT respondents whose Tribal college offers several baccalaureate degrees, catering to non-Natives and Indians from other tribes, also
believed they would need more education to acquire their ideal jobs. More respondents from the Crow Tribe would prefer, ideally, to live and work off Reservation or have no preference. If the level of education they have currently gives them access to jobs on, adjacent, or off Reservation, then this preference is not surprising. Level of education becomes more important when ideal jobs are considered as most respondents noted they would need more education to obtain their ideal jobs. For CSKT members where bachelor’s degrees are an option, obtaining additional education does not necessarily require Tribal members to go elsewhere, so the preference that most CSKT respondents had for remaining on Reservation makes sense. In contrast, most Crow Tribe respondents, to obtain their ideal jobs, would have to leave their Reservation. This is true when the qualitative data is reviewed, and the ideal jobs noted by respondents are professional or require technical expertise. However, it could be that other Tribal members, not surveyed, may be able to obtain their ideal jobs with associates degrees, which are available at both Tribal colleges. In addition, as mentioned previously, those people with higher levels of education preferred, more often, to live and work adjacent or off Reservation.

Limitations

There were several limitations to this study from survey design, to the sample population, and sample selection method. In addition, there were some data discrepancies. The rest of this section will explain these limitations in more detail.

Survey Design
Survey fatigue was evident during data collection at the Crow Tribe. The original survey was 26 pages long because, in addition to collecting demographic information and information related to their current job network, respondents were asked to name 10 alters and their attributes from whom they would seek information or advice about a job. For each alter named, there were 13 sub-questions related to that person and every person named was on a new page, making the instrument very long. To mitigate survey fatigue, the researcher re-designed the survey for subsequent data collection at the CSKT. The re-design moved the 13 sub-questions for each alter into a matrix, so respondents could name their ten alters and their attributes on two pages, thus reducing the page number to seven. While survey fatigue did not appear to be an issue during data collection at CSKT Tribal headquarters and the items were the same, the instrument change means that the results for both tribes are not directly comparable, although similar results for both tribes in terms of network density and alter attributes suggest that the instrument was reliable (Drost 2011). In addition, because survey fatigue was evident during data collection with the Crow Tribe, the respondents from CSKT were not forced to provide 10 alters in their hypothetical job network, whereas the respondents from the Crow Tribe were encouraged through follow-up by the researcher, to name 10 alters. Again, this means the results from both tribes are not directly comparable.

**Sample Population**

Another limitation is the small sample size and the way the sample was selected, as it may or may not be representative of the general population. The sample consisted of 61 individuals from two Montana Indian tribes who were selected out of convenience at
each tribe’s headquarters on work days, resulting in selection bias by excluding individuals who were not at tribal headquarters on the days the data was gathered and individuals who work off reservation or away from tribal headquarters. In addition, because individuals volunteered to participate, and an incentive was offered, respondents may have been motivated by the incentive and because they self-selected, the sample is not necessarily representative of the whole population; however, this was an ethnically and geographically homogeneous population with 100 percent of the respondents identifying as Native American, and 98 percent identifying as members of one tribe or the other. Furthermore, 88 percent of the alters named are Native Americans and 98 percent of those were affiliated with one tribe or the other. An attempt was made to compare the sample population to the total population demographics in terms of employment status, age range, degree type, and location. While the results are not statistically representative, the degree to which the sample demographics mirror the total population demographics strengthens the claim that the sample is representative. However, the results cannot be generalized to the entire population and represent only the information provided by the respondents.

Another limitation is that the research was conducted with a small population of ethnically similar individuals who live near each other in rural areas, potentially leading to social networks that are comprised of same members. This means that individual networks are already dense because the community is small, and most people know each other making it more difficult to categorize networks as bridging or bonding. It also means, however, that networks may be more diverse because a single community may
have people with different income and education levels living next to each other (Debertin n.d.). The benefit of asking respondents for job networks and for naming ten alters is that they had to think beyond their immediate networks.

**Data Collection Method**

The method by which data was collected may be a limitation because it occurred at Tribal headquarters. While tribal headquarters tend to be the hub of activity, housing departments that Tribal members access on a regular basis (for example, enrollment), collecting data only at tribal headquarters excluded tribal members who were not at Tribal headquarters on the days the data collection took place. In addition, limiting data collection to a total of three days (two for the Crow Tribe and one for CSKT) excluded people who were not around on those days. Had data collection occurred at the tribal colleges or at local shops and over more days, a broader section of the community could have participated; however, the inclusion criteria were that respondents identified as members of their respective tribes and were 18 years or older. Thus, even if more locations had been canvassed, it is not clear that the population would have been less ethnically or geographically homogenous, although there may have been a greater range of employed versus unemployed people and people with different levels of education. The research was limited to several days and locations both by the participating tribes and the parameters they outlined as well as the researcher’s budget.

**Data Discrepancies**

There were some discrepancies in the data. In response to questions in the actual and hypothetical jobs networks about how well an ego knew his alter, several respondents
noted that the person(s) from whom they acquired information about a job were acquaintances, but that those people also were very well known to ego and to whom ego felt very close. It seems unlikely that one would feel very close to an acquaintance. Similarly, a few respondents noted that the person from whom they acquired information was a friend, but that they felt not at all close to that person or did not know that person well; again, it seems unlikely that one would not know a friend well or would feel not at all close to a friend. Several people said they acquired information about a job from an acquaintance they hardly knew, but whom they felt very close to and acquaintances whom they knew very well, but whom they felt not at all close to. While the latter is possible depending on how the respondent defined knowing and closeness, hardly knowing someone, but also feeling very close to them seems unlikely. These results were included in the summary data, but every ego’s actual and hypothetical job networks were examined individually to determine if the networks were primarily bonding or bridging. The egos with discrepancies were not included in this analysis.

The data discrepancies mean that survey fatigue, causing respondents to simply check any box, was present, or that the questions were confusing, or that respondents interpreted the questions and their possible responses differently than would be expected. Because the survey was not validity-tested prior to implementation, it is difficult to know which of the above effects caused the discrepancies. However, the questions were based on existing studies that measured social capital based on frequency of contact (Granovetter 1973), degree of closeness (Yakubovich 2005; Marsden and Campbell 1984), and relationship type (Yakubovich 2005). The survey was pilot-tested by eight
non-Native people, which represents approximately 14 percent of the sample population and the above data discrepancies were not present in the pilot results, suggesting that survey fatigue may have been the primary factor or that there is a cultural factor that is unaccounted for.

There is no causal link between social network type and job acquisition. More pointedly, other factors that were not measured may affect job acquisition, for example, salary or other kinds of networks not asked for in this study. In addition, the kind of information that people pass between each other was not requested. Because respondents were asked to create job acquisition networks, it was assumed that the information that passed from one person in the network to another was related to jobs, but it could be that the alters named by egos also discussed other matters with each other and that those matters led an ego to information about a job. For example, if someone talked to one of his named alters about his car that had broken down, the conversation could have been about how to pay for the car’s repairs. This could have led to a discussion about a job possibility to earn money to pay for the repairs, so the results need to be considered in terms of the alter’s relationship or frequency of contact with ego rather than the content of their conversations.

**Delimitations**

The delimitations of this study included the choice of tribes to include in the study, the data collection method, the types of networks the respondents were asked to identify, and the use of an incentive. The rest of this section will explain these delimitations in more detail.
Tribes Included in the Study

The choice to approach only two tribes in the same geographic region was made because the researcher had established relationships with the two tribes based on previous and ongoing work. Relationship-building requires time and trust and especially in Indian Country where people have been “‘researched to death’” (Burhansstipanov, Christopher, and Schumacher 2005, 71), it was important for the researcher to have an already-established relationship. In addition, to existing relationships with the two tribes included in the study, the researcher’s current and previous work with the tribes led her to the research question in hopes that the research would benefit the tribes, especially with new information related to economic development in their communities. The researcher’s work with youth on both Reservations demonstrated that young Tribal members prefer to stay close to home and it was hoped that this research would help by gathering information about the types of jobs that are available, the jobs that people would like to have, and the location of those jobs, as well as how their social networks may be useful.

Data Collection Method

The choice to collect the data using a survey rather than interviews, for example, was made because the researcher hoped to have a much larger and random sample. The intention was to acquire a roster of enrolled Tribal members and to contact every tenth person with information about the research and an invitation to participate. This would have yielded a sample of approximately 600 and 700 people per tribe and interviews would not have been feasible given the research budget and time constraints. In the initial discussions with Tribal leaders about the project, it seemed likely that the above approach
would work; however, when the time came to ask for the rosters, one tribe did not respond and the other decided that it did not want to give out personal information about Tribal members. In addition, a survey was less intrusive and because the respondents were asked to provide initials, rather than the full names of their alters, there was more anonymity; this is especially important in Indian Country, where last names are easily recognizable. While interviews may have provided greater depth, in terms of time, it would have been burdensome for the respondents.

*Networks*

Respondents were asked to identify 10 people whom they would approach for information or advice about a job (a hypothetical job network or HJN). In addition to naming these people, respondents were asked to provide information about their relationship to the alters they named as well as their attributes. This parameter was set so that respondents would think beyond their immediate social networks of friends and family. It seemed to be relatively easy for most people to name three to four alters, but they needed to think more carefully about others they could include in their job networks. The downside to asking for 10 alters was that people may have rushed through the attribute and relationship questions, perhaps identifying networks that were not well-considered. However, respondents also were asked to provide information about their current or past two jobs along with their relationship to the people that helped them acquire those jobs and attributes (an actual job network or AJN). While the HJN was the only network used to create an adjacency matrix to identify how, or if, named alters knew each other, it was useful to have both networks to mitigate response bias related to survey
fatigue. In other words, the AJN asked respondents to think about something that existed currently or in the recent past while the HJN asked respondents to think about something in the future. Comparing both networks and their responses provided the researcher with more complete data and the ability to notice if there were major data discrepancies.

**Incentive**

The decision to offer respondents an incentive to participate in the research was recommended by Tribal leaders and others who have worked with Native American groups in the past and if an incentive had not been offered, the response rate may have been lower. However, to mitigate bias related to the incentive, it was offered in advance of their participation. The researcher explained to potential participants the nature of the study, its potential benefits, the estimated amount of time it would take to complete, and the offer of an incentive to participate whether the survey was completed or not. Across the two tribes, three people completed the IRB paperwork, accepted the incentive, took the survey with them and did not return it.

**Recommendations for Future Research**

To better understand if there is a relationship between social capital in terms of social network types and economic development indicators, especially in Indian Country where people are very connected and social networks tend to be dense, it would be useful to conduct similar research with members of different Indian tribes, especially those people who live on or near their reservations. Conducting similar research with other tribes could help clarify the effects of social networks and job acquisition for others in Montana or other states with large Native American populations. In addition to using this
study’s framework to study other Native populations, future research on this topic would benefit from expanding the scope of the study to include egos named alters in the sample. These people would be included by asking them to name their own network of alters. Doing this would help researchers gain a better picture of the total network which could be examined in terms of economic development indicators. Essentially, total network studies take a census of a given population rather than a sample (Hanneman and Riddle 2005). However, the downside to this method is that anonymity would be comprised.

It would be useful to compare the social networks of Native and non-Natives living near each other. Austin (2013) notes that there is a discrepancy between non-Native and Native employment rates in areas where unemployment rates are generally low for non-Natives, but not for Natives, arguing that discrimination may be a factor. It would be useful to use the current study’s framework to understand how the social networks of ethnically different groups that live near each other and compete for the same jobs affect job acquisition. In addition, comparing Native and non-Native populations would highlight the way social networks are formed and the instrumental value of those networks.

Cornell and Kalt (2005) in their research in Indian Country determined that institutional change is important for Indian tribes to succeed. The authors recommend that tribes use their unique status as sovereign nations to strengthen their institutions and political systems, noting that tribes that have done this are more economically successful than those that have not. By “asserting Tribal sovereignty and building the foundational, institutional capacity to exercise sovereignty effectively, [tribes] thereby [provide] a
positive environment for sustained economic development” (Ibid, 11). The denser networks for CSKT respondents reflect a system that is tightly-bound and may indicate an ethos of consolidation around the tribe’s sovereignty, from both micro- and macro-perspectives. Future research that examines this perspective as it relates to economic development and sovereignty is warranted, not to define the different cultural and philosophical differences among tribes (which is important in its own right), but to understand how consolidated, dense social networks function, specifically, to benefit tribal development. Researchers studying social capital with indigenous populations have identified indigenous versus non-indigenous social capital (Walter 2015; Patrinos, Skoufias, and Lunde 2007), social exclusion or discrimination (Lahn 2012), the effects of negotiating between minority and majority cultures (Foley and O’Connor 2013), the effects that institutions have on indigenous communities (Flores and Rello, 2002; HPAIED), and the mix of social capital types that empowers them (O’Brien, Phillips, and Patsiorkovsky 2005), but not on the specific functions, and potential benefits of dense social networks. Future research should delve more deeply into the structure of indigenous peoples’ social networks and how the structure (for instance if everyone in a network is connected) supports indigenous or tribal agendas. The networks for the respondents from the two tribes included in this research were very dense, but there were differences in overall density and these differences as they relate to economic, political, and social development need further study.

Conclusions
This social network analysis was conducted with two Montana Indian tribes to determine if social network types affected an indicator of economic development, job acquisition in Indian Country. Specifically, the question about job location (on, adjacent, or off reservation) was examined to see if social networks with looser (weaker) bridging network ties led people to have jobs off reservation versus those with stronger, bonded ties led them to have jobs on reservation. A social network analysis was conducted with respondents naming ten people from whom they would seek information or advice about a job as well as a smaller network of people whom they went to for help attaining their current or past two jobs. In addition to participant demographics, alter demographics were collected as well as every alters relationship to the respondent. The results were analyzed by comparing individual network densities and other measures of network structure to participant and alter demographics and participant job location.

Not surprisingly, because of the nature of the population, the social networks of the respondents were dense and sometimes fully connected. The people in these rural, tribal communities are ethnically similar and many are related or know each other, and their networks reflected this reality. While the results are not generalizable beyond the participants due to a sample population that was not statistically representative, there was a distinction between overall density between the tribes as well as network types for individual respondents leading to the questions of why this is the case and how these networks function to support tribal sovereignty and specific tribal agendas. Perhaps the tribes are not comparable because of different historical narratives and the different effects of colonialism, but this is an important first step in trying to understand the
structure and function of social networks, social capital types and job acquisition in Indian Country.

The networks for both tribes were very connected and most people live and on their respective Reservations as do the alters they named. This means that the respondents had more bonding or strong ties than bridging or weak ties. While this was somewhat expected because the respondents are part of a single ethnic group and live in on land designated to them as tribes, there was an assumption, that as individuals, respondents would have access to people not in their tribal networks. This was true for both tribes, but more so for the Crow Tribe whose respondents had links more often to weak ties. This meant that these respondents should have access to more non-redundant job information than others and that the non-redundant information should provide them with access to jobs off reservation. The specific information (conversations) that respondents had access to was not asked for in the survey, but since respondents were asked to name people to whom they would go for advice or information about a job, the assumption is that the information that passed between respondents and their network connections (at least the alters named in this context) was related to jobs. However, there was a missing link between someone’s connections and job location and the ethnicity and job location of their connections. Just because someone has connections to another person with a different ethnic background who works in a location away from the place the respondent works, does not mean that the respondent wants to work in the same location as that person. It means that they have access to different information regarding the type and location of work that exists. Most Crow Tribe respondents prefer to live and work on
Reservation so their access to non-redundant information, even to people who are non-AIAN and who work off Reservation is not a factor in their job location preference. Weak and strong ties are not necessarily about job location preference as much as about access to information; thus, the fact that the respondents from the Crow Tribe have more non-AIAN alters in their networks (suggesting weak ties) only means that they have more access to non-redundant information, but not necessarily that they want to act on that access by living and working in the same location as their alters.

The type of network contact or relationship between an ego and the alter they named (relative, friend, acquaintance) is important and the results are similar for both tribes in that most respondents for both tribes identified at least one person in their network as an acquaintance (weak tie). Granovetter’s (1974) discussion of chain length between two people notes that “job information in long chains…reach[es] a much larger number of people than that passed through short chains” (56). However, the shorter the chain between two individuals (the fewer intermediaries), the greater the personal influence (Ibid) while the longer the chains, the more the information attained related to jobs resembles “finding them by formal means” (Ibid 59) (i.e., wants ads) and personal influence is not necessarily relevant (Ibid). In general, longer chain length is related to strong ties and shorter chain length is related to weak ties because shorter chain lengths, that is, between an ego and their acquaintance, provide ego with access to “different information pools” (Ibid, 61) while longer chains (of no more than two – anything longer than this is essentially equivalent to formal job acquisition methods (Ibid)) provide ego with access to “the same information pool” (Ibid, 61). However, even if chain length is
short, i.e., as between someone and a very strong tie like a relative, if the information that is delivered is redundant because it is part of a tightly-connected network of strong ties, then there may not be as much influence or information in terms of job-seeking as when someone is connected by a short chain of weak ties to acquaintances. That is, when someone is connected by one chain length (through a bridge perhaps) to an acquaintance or a weak tie, then that person is “prone to move in different circles…[while] those to whom one is closest are likely to have the greatest overlap in contact with those one already knows, so that the information to which they are privy is likely to be much the same as that which one already has” (Granovetter 1974, 53). This means that respondents in this study with acquaintances in their networks may have access to people who have influence in terms of acquiring jobs. Since most of the acquaintances named in CSKT respondent networks work on Reservation, job influence probably occurs within the Tribal network. If most respondents have access to influential people through single or zero chain lengths (zero occurs when job information comes directly from an employer) (Granovetter 1974) and the influence is within the tribal networks, then most people will have jobs on their Reservation, which they do.

Of eight CSKT egos with networks comprised of non-American Indian/Alaska Native (AIAN) members identified, half of the networks have no preference for job location meaning that they would work on, adjacent to, or off Reservation. In addition, there are 21 ego networks with alters identified as 100% Native and all except five of those people prefer to work on Reservation, and three of those without a preference have alters who work off Reservation so this may be the driving factor. The Crow Tribe has 11
egos who have networks comprised of at least one non-AIAN. Eight of these people prefer, ideally, to work off Reservation or have no preference leading to the conclusion that the non-AIAN individuals in an ego’s network may act as bridges to other networks. Of the 16 people whose networks are comprised of 100 percent AIAN alters, three of them prefer to work off Reservation or have no preference and all three have at least one person in their network who works off Reservation: Three are acquaintances, three are friends, and two are relatives. The ego with two alters who are relatives working off Reservation reports that they are “somewhat” and “very close” to the alters they named and that they have contact “often” or “everyday” with their alters. Ronald Burt’s (2001, 2000) theory of structural holes says that people with bridges from one network to another will provide them with access to resources outside of their immediate networks, in this case to information or advice about jobs. Thus, the people with bridges across networks have access to information about jobs, again, not necessarily meaning that their jobs will be in a specific location, but that there is a higher chance that they will because they are communicating/networking with people who are part of other networks, potentially off Reservation networks. The non-AIAN alters in the respondents’ networks act as bridges to other networks and provide respondents with access to different information even if their job location preference is on Reservation. In addition to ethnicity, if the non-AIAN alters named in an ego’s network work off Reservation every corresponding ego (respondent) has no preference for work location meaning that homophily is evident.
Homophily or the idea that birds of a feather flock together or that like people
tend to prefer similar things and share similar traits is strongest related to ethnicity
(McPherson, Smith-Lovin, and Cook 2001). Because all respondents are Native
American (a criterion to participate in the study), most of their named alters are also
Native American which may be due to another criterion which required respondents to be
enrolled members of their tribe living on their respective Reservations. Since networks
often are formed not only with like individuals, but also with those who live near to each
other (Ibid), the fact that respondents have networks made up of similar others is
expected. Homophily is related to network distance in terms of how far information must
travel between people, non-homophilous relationships necessarily being more distant
(Ibid). The networks for respondents from both tribes are primarily ethnically
homophilous, which is not surprising given the research inclusion criteria; however, one-
third of the ego networks from both tribes are comprised of alters who are non-AIAN and
most of these egos have no job location preference or prefer to work off Reservation
which means that homophily related to job location is also present. The opposite is also
ture. The egos with networks comprised of primarily AIAN alters who work on their
respective Reservations also prefer to work on Reservation which seems to indicate a
preference for homophily related to ethnicity. Furthermore, those with non-AIAN alters
who work off Reservation also prefer to work off Reservation, which further suggests
that homophily is at work.

The Crow Tribe respondent networks are more open (Lin 1999) than CSKT
networks because Crow Tribe networks are comprised of more non-AIAN alters which
gives them access to different information about jobs off Reservation than the CSKT egos whose alters tend to be primarily AIAN. Not only are the Crow Tribe networks more open, there are fewer wholly connected ego networks than CSKT. Nan Lin’s (1999) theory of open and closed networks where closed networks are used “for preserving or maintaining resources (i.e., expressive actions)…” (34) explains that egos with open networks have access to more resources, but that those with closed networks can consolidate their existing resources. Since CSKT networks are closed compared to the Crow Tribe networks, it may be that CSKT has consolidated its existing resources into tighter, closed networks which may be useful in a situation where resources are tight due to geographic isolation. Thus, resource consolidation and tighter networks may be more effective in areas with limited resources, rather than open networks that potentially diffuse limited resources.

In addition to open and closed networks, networks can be distinguished based on internal versus external social capital, often likened to bonding and bridging social capital with external social capital promoting individual or “private” affiliations and internal social capital promoting “solidarity” and working together (Adler and Kwon 2002). When the best mix of social capital types exists (Ibid), such that neither bridging nor bonding network ties are significantly higher than the other, social cohesion is promoted on the one hand and the acquisition of outside resources on the other. Both tribes in this study have a decent mix of internal and external social capital as evidenced by the overall mix of bridging and bonding networks types, although more so for the Crow Tribe. The
inherent bondedness of these Tribal communities provides cohesiveness, but the affiliations with non-AIAN individuals links them to people outside of their communities.

There is a difference between the frequency of contact that respondents from both tribes have with their named alters. Crow Tribe respondents have more frequent contact with their named alters than the respondents from CSKT. Brisson (2009) conceptualizes bonding and bridging social capital as formal (associational or other group contacts that may be intentional) and informal (every day contact that may be accidental) social capital that exists within bonded networks. Seemingly, respondents from the Crow Tribe have an abundance of informal bonding social capital because contact between respondents and their alters occurs often or every day, meaning that people may see each other at grocery stores, Tribal businesses, or cultural gatherings and the interactions provide a way to strengthen informal social capital networks. On the other hand, contact that occurs sometimes or rarely between egos and their alters is a form of formal bonding social capital or of formal bridging social capital. Overall, there are more formal bonding ties compared to formal bridging ties for CSKT and the Crow Tribe respondents have more formal bridging network ties than CSKT. If having ties to people who work off Reservation increases access to non-redundant job information, then Crow Tribe respondents have more access. However, if jobs are readily available in any given community, having more formal and informal bonding network ties may be more advantageous than having more formal bridging ties, despite that fact the information within a bonded network may be redundant.
Most people from both tribes work on their Reservations even when they have alters who work off Reservation and most of the respondents whose jobs are on Reservation acquired information or advice about their current or past two jobs through relatives or friends (strong ties). Yakubovich (2005) argues that strong ties provide better access to specific employers while weak ties provide access to potential jobs. Since many of the people surveyed have jobs with their respective tribes, it seems that their strong ties to relatives or friends may have enabled them to access jobs from their respective tribes, perhaps Tribally-owned businesses. Weak ties and bridging social capital networks in Indian Country may be useful for people who are considering a job change and/or who may have work experience that is not necessarily relevant for existing tribally-owned businesses, but strong ties and bonding social capital networks may be useful to the degree that people have indirect access (through their ties) to tribal jobs. If jobs are plentiful, using one’s strong ties to gain access to specific employers such as tribal employers may be a good strategy, especially if the worker wants to stay close to home; however, if jobs are not available, using weak ties to access any potential job is a better strategy, despite some of those jobs being off Reservation. As Callois and Aubert (2007) argued, strong ties provide people with reliable information while weak ties provide them with diverse information. When the respondents from the two tribes in this study use their strong ties to access job information, according to Callois and Aubert (2007), the information is reliable and when they use their weak ties to access job information, the

87 For both tribes, the research was conducted at Tribal headquarters on work days, during work hours.
information is diverse and may increase access to different types and numbers of job. Depending on the urgency related to job acquisition, the respondents in this study who use weak network ties to access information about jobs, may do better to use their strong ties to access information that is reliable rather than diverse. The tribes already inform their constituents of available Tribal jobs, but it may be useful also to expand on existing institutional bridging or linking ties to access diverse and external resources for “the development of more highly paid activities” (Flores and Rello 2003, 9) which would provide Tribal members with more and perhaps better opportunities.

In general, the job networks for the respondents from the two tribes surveyed were mostly bonded with some differences. The hypotheses that people with primarily bridging job networks will work off reservation and those with primarily bonding job networks will work on reservation are not proven to be true. Rather, people’s affiliations with others who work off reservation and are a different ethnicity than respondents, seems to be a better predictor of where they prefer to work. In addition, the type of relationship and contact that respondents have with the people in their job networks seems to make a difference for their preferred job location confirming Granovetter’s (1974) theory that weak ties to acquaintances rather than friends or family members provide people with access to different information than they may acquire in their closed networks; however, it is not a predictor of where a person prefers to work. Further research should examine the type of communication that occurs between egos and the alters in their job networks and should look at job location preference in terms of the number of jobs that are available in any given community. Furthermore, the acquaintance
relationship that egos have to their alters confirms Burt’s (2001, 2000) theory that structural holes, filled by network bridges, in this case the acquaintance relationships, provide egos with access to other networks at least in terms of their job location preferences being off reservation more frequently when they have acquaintances named in their networks. Further research should examine the specific individuals who act as bridges between networks to determine who those people are relative to their tribes. Finally, the findings suggest that closed, but inclusive job networks may be best in Indian Country because resources are limited so consolidating job networks around existing resources may be the best strategy for tribes. CSKT seems to have done this and respondents are more satisfied with the number and types of existing jobs on Reservation which may be why most of them use their bonded networks to find out about existing jobs. However, this strategy only works if there are available jobs. CSKT has focused on economic development by acquiring businesses and starting new ones using capital provided by the Tribe (Camel 2015) thus expanding the job base and providing more opportunities for people. The Crow Tribe would do well to make the same investments in private industry and small entrepreneurs who are independent of the tribe, but perhaps financed by it to start. The Crow Tribe respondents do not feel that there are adequate job opportunities and, also feel that the jobs that do exist are very competitive and perhaps given to people who may not be qualified, but who are related to Tribal leaders. Future research related to this finding should focus on the hiring processes that tribes use to determine which processes are the most useful for tribal members who may want jobs on or near their reservation communities, but who also want jobs that enable them to use
their education. The Crow Tribe respondents have more years of education than CSKT respondents, yet the Crow Tribe respondents are less satisfied with their ability to get a job on their Reservation which may be due to hiring processes and the number of jobs that are available.

In addition to the recommendations above, more research needs to be done to determine, qualitatively, the type of information that passes through Tribal social networks, especially related to jobs, and the specific people embedded in the networks and where those people sit in relation to each other and their communities. Other information that would be useful to gather is to understand more fully why individuals contact the people they do, if influence related to job acquisition is a factor in their decision to contact those people, and, if so, determining if acquiring jobs using more formal methods (want ads, job banks) is possible and/or desirable. This answer to this question would provide more insight into the overall, most salient finding that those with bridging networks used their bonded network ties more frequently to acquire jobs and those with bonded networks used their bridging network ties more frequently to acquire jobs. This finding, while opposite from the ubiquitous literature related to job acquisition and social network ties for non-Native populations, is consistent with the literature related to indigenous populations. If strong, bonded networks are used more frequently among indigenous populations to acquire their jobs, then resources must be available so that tribal members have choices; otherwise, favoritism in terms of hiring may prevail which leads to distrust and, perhaps, unhealthy competition for scarce resources. Following this study with qualitative research to determine the specifics of individuals’
social networks (rather than structure) would help tribal leaders understand who the job
“brokers” are and how they function. In addition, this would help Tribal leaders as they
consider the kinds of jobs that their constituents want.

Since this research was conducted by a non-Native and because Native Americans
have been “researched to death” (Burhansstipano et al., 2005) and often feel as though
they do not benefit from the research88 in which they participate, it is crucial to listen to
and converse with Crow and CSK Tribal leaders and to engage them and their
constituents in subsequent research related to job acquisition. The results of this research
will be presented to Tribal leaders with the intention of informing them about the nature
of the social networks of the people surveyed and the implications of those results. While
the researcher can make recommendations, ultimately, the leaders from both Tribes are
the most informed about their constituents and their needs.

In sum, as is the case for most people, acquiring a job in Indian Country depends
on the jobs that are available, the level of education a job-seeker has, and on networks of
acquaintances, friends, and relatives as well as their networks who can and do provide
information or advice about jobs to a job-seeker. Social capital and social network ties do
matter for job acquisition, however, whereas weak ties in Indian Country may benefit
those with adequate resources, strong ties may benefit those with fewer resources. More
resources mean more choice and more choice means that people who prefer to work and
live close to home have the option to do so. On the other hand, fewer resources mean

88 Private conversation with CSKT tribal member, 2017.
fewer choices and people who prefer to work and live close to home may have to seek outside resources. Respondents from the two tribes in this study have indicated a preference to live and work close to home and it is hoped that this research has provided insight for tribal leaders in Indian Country in the United States or in other tribal communities how social networks operate to enable those preferences.
APPENDIX A

IRB APPROVAL, LETTERS OF SUPPORT

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months.
- Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: CH17020208
PROJECT TITLE: Social Capital in Indian Country: The Effects of Bonding and Bridging on Development
PROJECT TYPE: Change to a Previously Approved Project
RESEARCHER(S): Stephanie Davison
COLLEGE/DIVISION: College of Arts and Letters
DEPARTMENT: Political Science, International Development, International Affairs
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expected Review Approval
PERIOD OF APPROVAL: 02/08/2017 to 02/07/2018
Lawrence A. Hosman, Ph.D.
Institutional Review Board
January 10, 2017

To whom it may concern,

The Confederated Salish & Kootenai Tribes of the Flathead Reservation support the research proposed by doctoral candidate, Stephanie Davison. Stephanie is the principal investigator and evaluator on a USDA grant that provides funds to the Two Eagle River school on the Reservation, to support STEM programming. She works with the Flathead County Extension office and school staff to manage the project.

We support Stephanie’s proposal to conduct a social network analysis by interviewing a sample of tribal members who agree to participate. The purpose of her research is to examine how individual social networks affect job acquisition and we feel the results of this study could benefit us by providing information that may be useful for future planning related to economic development on the Reservation.

Sincerely,

Vernon S. Finley, Chairman
December 13, 2016

To whom it may concern,

We, the Crow Tribe, supports the research proposed by Stephanie Davison who is pursuing her Doctorate Degree from the University of Southern Mississippi. Stephanie has worked with youth at the Pretty Eagle Catholic Academy for several years. Ms. Davison is the principal investigator and evaluator on a USDA grant that provides funds to the school to support training for the implementation of a STEM programming.

We support Ms. Davison’s current proposal to conduct a social network analysis by interviewing a sample of individual tribal members who agree to participate. The stated purpose is to examine how social networks affect job acquisitions. We feel the results of this study could benefit the Crow Tribe by providing us with information that we may be able to use for future planning as we continue to modify our strategies for economic development on the Reservation.

Should you have any questions, please feel free to contact me directly at 406-839-4719. Thank you!

Sincerely,

Shawn E. Backbone
Vice Secretary of the Crow Tribe

*The Great Apsaalooke Nation: “Teepee Capital of the World”*
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