

SOCIO SPATIAL NETWORK ANALYSIS FOR RURAL ECONOMIC DEVELOPMENT

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ABSTRACT

Individuals possess unique knowledge about their community and surrounding environment. To incorporate this information into our research on rural entrepreneurship, we employed public participation GIS. Public participation GIS (PPGIS) involves a union of academic practice with local knowledge production. PPGIS gives voice to marginalized groups by allowing them to share their knowledge (e.g. thoughts, expertise and observations) and visualize data in a sociospatial context. It is an effective way for community members to collaborate to identify what they know to be important about the local community and/or environment. We employed a mixed methods approach to better understand rural entrepreneurship and to examine experiences and social network structures associated with ethnic entrepreneurs. Our work identified factors leading to successful ethnic-owned businesses and contributes to an understanding of the social networks and local resources using a sociospatial, community-focused approach. Sociospatial involves active consideration of space, place and social indicators in a holistic fashion. We developed a model for effective engagement in community and economic development with groups whose voices need to be heard. Ultimately, we seek to identify and examine the influence of rural social networks from a spatial perspective.

INTRODUCTION

In this project, we used public participation GIS (PPGIS) to gather a study sample for researching rural ethnic entrepreneurship in Mendocino County, California. Because a list of local ethnic owned businesses did not exist, local knowledge was determined to be the best method for their identification. Entrepreneurship is an important economic development tool in difficult economic times, and ethnic entrepreneurs are a largely untapped and undervalued resource that may help to boost economic success. Research that explains ethnic business owners' experiences and illustrates their vital contributions to local economies through entrepreneurship can encourage policy that further supports and promotes ethnic entrepreneurship. Promoting the well-being of any disadvantaged group of people ultimately improves local communities and economies. Entrepreneurship is a route for integration and empowerment of minority and marginalized groups, and provides an avenue for upward mobility and for curtailing labor market discrimination providing options when other economic opportunities are unavailable. Without PPGIS, our research would not have been possible.

Economic Development and Rural California Entrepreneurship

Entrepreneurship has been widely identified in the literature as a useful and effective strategy for rural economic development (Collaborative Economics 2005). Rural California economies experience many of the same issues that rural economies across the country experience. In rural California areas, the environment can be used as a valuable market niche. For example, rural entrepreneurs, unlike urban entrepreneurs, can capitalize on green business, organic agriculture, sustainable forest products, eco-tourism, and renewable energy (California Center for Regional Leadership 2005). Rural communities can take advantage of their natural, historic, cultural, and

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recreational assets in order to build a high quality of life and access entrepreneurial opportunities. While many rural areas face similar issues in trying to build sustainable economies, they are diverse in terms of social, physical, and environmental characteristics. In order for California to be a good place for entrepreneurs, efforts need to be made to reduce housing and energy costs, regulations, taxes and fees, and budget and fiscal reform need to be made, while increasing education and workforce training, housing availability, health care, infrastructure, and quality of life (California Center for Regional Leadership 2005). Urban and rural partnerships must be forged to increase collaboration and success and reduce isolation. By accessing information technologies and drawing upon existing social capital in the form of networks and human capital in the form of skills, rural entrepreneurs can effectively compete with urban city centers. Policies promoting entrepreneurship and its retention and recruitment at a regional and local level will ultimately help in improving rural economies. This focus allows rural communities to build upon their existing skills, capacities, and assets to create change for themselves (California Center for Regional Leadership 2005).

Entrepreneurship can be an especially useful upward mobility tool for ethnic populations; however, they are often disconnected from the efforts of economic development agencies and service providers (Fairlie 2004; Grey & Collins-Williams 2006; Rochin et al. 1998; Quadrini 1999; Verdaguer & Vallas 2008; Zhou 2004). Much research has shown that ethnic populations tend to not trust non-ethnic service providers, indicating the necessity of culturally sensitive economic development practices. A supportive community, available assistance, training, and capital, as well as access to networks are important issues to consider in the development and implementation of culturally sensitive economic development practices.

STUDY SITE BACKGROUND

Latino history in Mendocino County can be traced back over 300 years. Mendocino County, California (Figure 1) is named after Cape Mendocino, which was formally discovered by Juan Rodriguez Cabrillo in 1542 (Mendocino County Historical Society 1967). The mountainous county spans 135 kilometers from north to south and nearly 100 kilometers from east to west, covering more than one million hectares (Mendocino County Historical Society 1967; Thompson 2009). Three geographical regions comprise the county: the Eel River country, Russian River, and the coast. In the late 1800's, the Eel River area raised livestock and sheep for wool, the Russian River area was dedicated to livestock and agriculture, and the coast had abundant timber reserves (Mendocino County Historical Society 1967; Industrial Survey Associates 1951). The county is home to a national forest, numerous state parks and recreation areas, many beaches and rivers, and the Round Valley Indian Reservation. Mendocino has a high average rainfall and is prone to extreme winter weather and warm summer weather. Intense fog along the coast between May and August spurs grass and crop growth (Mendocino County Historical Society 1967).



Figure 1. Mendocino County, California.

Prior to settlement, numerous Native American tribes known collectively as the Pomo Indians inhabited Mendocino County. Spanish settlers began to occupy Native lands in the mid 16th century. Mainly Spanish and Mexican citizens inhabited the county until the Gold Rush and the timber industry brought the first permanent non-Spanish settlements in April 1852 (Ryder 1966; Thompson 2009). Subsequently, Native people began to be forced into slavery, which led to the 1859 Mendocino War, resulting in the near extermination of the Native population. Those who survived faced intense segregation and assimilation (Mendocino County Historical Society 1967; Industrial Survey Associates 1951).

Before the railroad, Mendocino County was geographically isolated and industry was limited. The railroad extended toward Mendocino County in the late 1800's and reached Willits around the turn of the century, which stimulated the timber industry, introduced tourism to the area, raised land prices, and lessened communication barriers. The construction of Highway 101 between 1915 and 1920 also decreased the county's isolation and spurred growth of the interior region (Herbert et al. 1979). The railroad, however, was shut down November 27, 1998 because it failed to meet minimum safety requirements (Wilner 1998).

County government was established in 1859, making Ukiah the county seat (Mendocino County Historical Society 1967; Hoover et al. 1958). Ukiah is located in what was formerly the Yokayo Mexican land grant. Yokayo

is a Pomo Indian word that means “south valley.” Initially, the town’s population relied mainly on the redwood industry, however, today the town (and county) is known for its wine production and other forms of agriculture. The valley is home to numerous orchards and wineries, two breweries, and several hot springs. The Russian River supports numerous small farms in the area.

The redwood industry began to develop on the coast in the early 1850’s, making extractive industries, including timber and minerals, a large part of Mendocino’s economic history (Mendocino County Historical Society 1967). Because Mendocino’s economy historically relied on the timber industry, fluctuations in timber demands directly affects the health of Mendocino’s economy. The first sawmill, Mendocino Saw Mills, in the county was erected in 1851. The first business building in Mendocino opened in 1853 and was run by the sawmill company. This led to a flurry of business establishments in the county (Ryder 1966). Business licenses began being issued in 1862 to retail dealers, liquor stores, billiard saloons, livery stables, hotels, physicians, lawyers, cattle brokers, a brewer, and an apothecary shop (Mendocino County Historical Society 1967). Built in 1866, Point Arena was home to the first wharf in the county, making the town the center of the timber industry at that time. Towns began to grow along the coast as timber shipping points (Ryder 1966). Inland, livestock and agriculture were the leading industries. Tobacco became a top industry in 1863, with more than seven hundred acres of the crop planted that year (Mendocino County Historical Society 1967). Hops, oats, corn, as well as other grains and vegetables abound in Mendocino County. Mendocino is also home to a booming wine industry, with more than 15,000 acres of vineyards (Thompson 2009).

California is home to many diverse populations, especially Latinos, and has the largest number of Latino owned businesses in the country, with 27 percent of the total. As of 2002, Latino people owned 6.8 percent of all nonfarm businesses in the country and accounted for \$222 billion in revenues. Nearly half of the Latino owned businesses in the country (43 percent) fall into the service industry, while 36 percent can be classified as retail or wholesale trade. As of 2007, 42% of Mendocino’s businesses were in the service industry, 19% were in retail, and 9% were in construction. The service industry also employs the most people in the county, while government and public administration employs the second highest number of people. Small business prevails in Mendocino County with 71% of the total businesses having four or fewer employees and 12% of businesses having five to nine employees [as of 2007] (Center for Economic Development 2008).

RURAL ENTREPRENEURSHIP

Entrepreneurship is an increasingly relevant component of economic development in rural communities and is encouraged as an economic development and revitalization strategy (Beaulieu 2002; Dabson 2001; Emery et al. 2003; Gladwin et al. 1989; Grey & Collins-Williams 2006; Korsching & Allen 2004; Levitte 2004; Lichtenstein et al. 2004). Entrepreneurs add value to the local economy, lead to job creation and increased local incomes, and connect local economies to global economies (Beaulieu 2002; California Center for Regional Leadership 2005; Dabson 2001; Gladwin et al. 1989; Henderson 2002; Levitte 2004; Lichtenstein et al. 2004). Rural communities must overcome small size, low education levels and population density, a limited skilled labor pool, limited infrastructure and broadband access, and large distance from metro markets to support entrepreneurial success (Acs & Malecki 2003; Beaulieu 2002; Dabson 2001; Gladwin et al. 1989; Henderson 2002; Shields 2005). These barriers, however, are place specific and vary from one rural area to another (Lyons 2002).

Rural location is not necessarily a barrier for entrepreneurship. Rural communities actually have an advantage in certain entrepreneurial areas. They can produce products that convey nature and culture connections, telecommunication access is growing, and people often move to rural areas to pursue entrepreneurship and a higher quality of life (Dabson 2001). Gladwin et al. (1989) found that rural entrepreneurs are more personal and customer service oriented because of the smaller population (all customers are needed, none are dispensable) and rural areas can be more peaceful (less traffic, less stress). Because urban areas tend to have lower prices, rural entrepreneurs must be service oriented in order to avoid having their customers travel to urban areas for their purchases. Retail and service businesses thrive in rural communities because they usually address a niche that is based on location and/or convenience (Beaulieu 2002; Gladwin et al. 1989; Henderson 2002; Razin 1989). Gladwin et al. (1989) concluded that rural businesses that market their goods/services out of the area are the most beneficial place to start trying to generate economic growth. Low et al. (2005) found that rural areas tend to have higher levels of entrepreneurial depth (size and variety of entrepreneurs), but have low levels of entrepreneurial breadth (generated value). Business services have been found to be the one type of entrepreneurship that is lacking in rural communities (Acs & Malecki 2003).

Entrepreneurship can help create sustainable local economies (Beaulieu 2002; Lichtenstein et al. 2004). Local people can utilize their skills, talents, and resources for entrepreneurial success and locally oriented small businesses encourage civic mindedness among residents (Beaulieu 2002). When entrepreneurs are locals, they are more likely to act in ways that are considerate of their surrounding community than a distantly located corporation might (Korsching & Allen 2004; McKibben 2007). Typically, rural communities are home to a few major employers, offering little economic diversity and the potential for economic devastation if one of the major employers closes (Grey & Collins-Williams 2006). The presence of smaller, diverse businesses can protect a rural economy against economic changes. Trade and service industries predominate in rural areas (Beaulieu 2002; Gladwin et al. 1989; Grey & Collins-Williams 2006; Henderson 2002).

ETHNIC ENTREPRENEURSHIP

Chaganti & Greene (2002) posit, "Ethnic entrepreneurship can be defined as a set of connections and regular patterns of interaction among people sharing common national background or migration experiences" (127). Heberer (2004) says, "Ethnic entrepreneurship refers to those entrepreneurs who a) belong to an ethnic minority; b) have to rely on support from their ethnic community to do business, whereby this support can be informal (friends, relations) or formal (a network of ethnic institutions and organizations), and c) use ethnic resources in their businesses" (1). Ethnic entrepreneurs often have to deal with significant barriers in getting started and maintaining their businesses. These barriers are compounded when an ethnic entrepreneur is rurally located. Economic development tends to be implemented by outsiders in service of a community need (Beaulieu 2002; Emery et al. 2004; Korsching & Allen 2004; Lichtenstein et al. 2004; Razin 1989; Sirolli 1999; Weinberg 2000). This can be especially problematic for minority populations that are disenfranchised by structural inequities. Entrepreneurship is a self-development tool that minority populations may access (Boyd 2008; Fairlie & Woodruff 2008; Verdaguer & Vallas 2008). Much research has been carried out on general characteristics of ethnic entrepreneurs, associated barriers, and network theory.

Benefits of Ethnic Entrepreneurship

Entrepreneurship is beneficial for ethnic populations for varying reasons. Ethnic entrepreneurship works to build and strengthen local communities. It is a route for integration and empowerment of minority and marginalized groups, a method for upward mobility and for curtailing labor market discrimination, and is an option when other economic opportunities are unavailable (Fairlie 2004; Rochin et al. 1998; Quadrini 1999; Verdaguer & Vallas 2008). Self-employment offers higher wages, flexible schedules, higher savings rates, and wealth accumulation that wage and salary jobs do not (Fairlie & Woodruff 2008). Ideas for many ethnic business arise from issues within their community, meaning ethnic businesses tend to serve the needs of the ethnic population, which they are a part of (Aldrich & Waldinger 1990). Ethnic entrepreneurs can capitalize on cultural product markets and offer services that address language barriers and cultural issues (Zarrugh 2007). In Zhou's (2004) Koreatown study, local Korean businesses targeted at youth helped build a favorable educational environment for youth. Ethnic entrepreneurs often serve as role models for youth or aspiring entrepreneurs (Zhou 2004). The absence of positive role models for ethnic and minority youths can impede them from believing that they are capable of being successful. Seeing an ethnic person in a position of power or success can motivate youth to aspire to these things. Effectively, entrepreneurship can be empowering for ethnic communities.

SOCIO SPATIAL ENTREPRENEURSHIP

The term “socio spatial entrepreneurship” is not widely used throughout existing literature. Those that use the term in reference to entrepreneurship do not offer a clear definition. For Munoz (2009), socio spatial seems to refer to the spatial distribution of social enterprises. She refers to “geographies of social enterprise” (3), the “place based nature of social enterprise activity” (4), and “the spatiality of social enterprise impact” (5). Ndoen et al. (2002) discuss socio spatial as contextual conditions that influence entrepreneurial activity in a particular place. Williams (2007) use of the term seems to be referring to the geographic differences in rates of social entrepreneurship among different types of people (women, ethnic, disabled).

Some authors, however, discuss socio spatial entrepreneurship using the term “embeddedness” (Jack & Anderson 2002; Kalantaridis & Bika 2006; Kloosterman & Rath 2001; McEachern & Hanson 2008; Pallares-Barbera et al. 2004; Scott 2006; Shaw & Carter 2007). For most authors, this term refers to the geographically specific social context in which an entrepreneur operates. According to Jack and Anderson (2002), “Embedding is the mechanism whereby an entrepreneur becomes part of the local structure” (467). It is “identified as the nature, depth, and extent of an individual’s ties into the environment” (Jack & Anderson 2002, 468; Kalantaridis & Bika 2006, 1564). Entrepreneurs become embedded by identifying contextual opportunities and by knowing the structure and the context in which they are operating (Jack & Anderson 2002). Being embedded in the local structure/social context creates opportunities for entrepreneurs, such as the identification of social resources, increased access to sources of support, and increased entrepreneurial activity (Jack & Anderson 2002). Embeddedness is heavily tied to social networks. Shaw & Carter (2007) found that network embeddedness is a key aspect of social entrepreneurship, as social entrepreneurs use their local networks to build credibility and support for their business. Kalantaridis & Bika (2006) outline a spectrum of entrepreneurial embeddedness, ranging from strong to weak. Kloosterman and Rath (2001) and Munoz (2009) argue that entrepreneurial embeddedness be investigated at the national, regional, and local level in order to develop a thorough understanding of the topic.

Authors who address geographic topics related to entrepreneurship and do not use the term “embeddedness” refer to place specific issues associated with entrepreneurship. Munoz (2009) argues that social entrepreneurship is a place based phenomenon. Environmental factors influence goals and access to resources, among other things. She posits that social entrepreneurship can be better understood by looking at the variation of social entrepreneurs across geographical locations. Williams (2007) does exactly this in his comparison of different populations of entrepreneurs across different geographic areas of the UK. He found that there are different rates of commercial and social entrepreneurship among different population groups and areas. Marginalized groups (women, disabled, retired, ethnic groups) and residents of rural areas are more likely to engage in social entrepreneurship than commercial entrepreneurship. According to Boyd (2008), place specific racial segregation and “insider’s knowledge” can push ethnic groups into entrepreneurship. Opportunity structures are place specific; being embedded in a local structure increases an entrepreneur’s awareness of and ability to identify opportunities (Boyd 2008; Jack & Anderson 2002; Kloosterman & Rath 2001). Ethnic enclaves are discussed in the literature as an opportunity structure available to ethnic entrepreneurs (Boyd 2008; Chaganti & Greene, 2002; Fadahunsi et al., 2000; Janjuha-Jivraj, 2003; Menzies et al., 2007; Pessar, 1995; Zhou 2004).

NETWORKS

Networks play a key role in entrepreneurial success everywhere, but especially in rural areas, as they facilitate and motivate entrepreneurship (Dimara et al. 2003). Identifying and building upon existing rural business and social networks is an excellent way to achieve economic vitality in rural areas (Dabson 2001; Dimara et al. 2003; Rosenfeld 2001). Individuals in rural communities rely on one another and their networks to meet specific needs at various times. Such alliances benefit not only the participants, but the larger community as well. Some of these benefits are monetary (increase in cost efficiency), shared liability, opportunity to develop differentiated products (through shared liability), legitimacy establishment (aligning with a well-established firm can give legitimacy to a new firm), increased innovation, competitive advantage, foreign market development, and technology and knowledge sharing (Dimara et al. 2003; Levitte 2004; Martin & Stiefelmeyer 2001). Networking in rural areas can be difficult due to sparse population concentrations. Rural people can be quite independent and are often used to acting from necessity based on their own personal experience, which can hinder their ability to tap outside resources that could spur growth (Acs 2003; Dabson 2001). Because small rural businesses can be heavily affected by the

presence of bigger corporations, support networks become crucial for success (Dabson 2001; Donckels & Lambrecht 1995; Henderson 2002). Support networks allow rural businesses to pool their resources and share ideas and problems, which can reduce costs and increase productivity (Dabson 2001; Henderson 2002). Henderson (2002) addresses the usefulness of online peer support networks for rural entrepreneurs in overcoming isolation issues. In a study of mid-Atlantic region entrepreneurs, strong social networks were reported as crucial for business success (Shields 2005).

Networks often involve a mix of strong and weak ties. Strong ties are “intimate and continuing relations among family members and friends,” while weak ties are “formal and transitory contacts among relative strangers” (Wilkinson 1999: 8). Strength of a tie is based on the time invested, the emotional intensity, intimacy, and reciprocation. Granovetter’s network theory conjectures that both strong and weak ties are needed in order to promote social stability and social well-being in a community. Weak ties connect strong ties into the community. When weak and strong ties are unbalanced, chances for upward mobility are limited and community disruption increases. Both weak and strong ties are needed for individual and social well-being. Entrepreneurs should participate in multiple networks, as local networks can be restrictive in that they can reduce access to outside resources, ideas, and information and limit innovation (Donckels & Lambrecht 1995; Levitte 2004; Phillipson et al. 2006). Levitte (2004) discusses family and friend networks as important for daily business operations, while outside resources are important for training and education. Residents of rural areas tend to have an abundance of strong ties and lack necessary weak ties. Granovetter says that weak ties provide upward mobility for disadvantaged people, therefore, if the number of weak ties decreases in a rural setting then upward mobility and reduction of inequality are negatively affected, which in turn, affects network development. Strong and weak ties contribute to the cohesiveness of a community because they complement each other (Granovetter 1973).

Ethnic Entrepreneur Networks

Ethnic entrepreneur networks can be especially important for success. Rural location and ethnic status have commonalities in discussions of entrepreneurship. Ethnic and rural entrepreneurs experience similar barriers to entrepreneurship and benefit from networks in similar ways. For ethnic entrepreneurs, family tends to be a rich resource for labor, capital, and other forms of assistance (Chaganti & Greene 2002; Dimara et al. 2003; Fadahunsi et al. 2000; Janjuha-Jivraj 2003; Zarrugh 2007). Minority groups tend to look to fellow minorities for support because higher levels of trust and social capital tend to be present among minorities than between minorities and white people (Chaganti & Greene 2002). Whether or not they receive the support they are looking for seems to depend on location and the nature of community relations.

Existing social networks among ethnic groups can offer aspiring entrepreneurs financial assistance, a labor pool, customers, suppliers, opportunities for international networking, and business advice and support (Fadahunsi et al. 2000; Janjuha-Jivraj 2003; Zhou 2004). Ethnic enclaves, or an area with a substantial number of immigrants with business experience, available capital, and available labor, are a supportive environment in which ethnic entrepreneurship can grow (Janjuha-Jivraj 2003; Pessar 1995). These enclaves can create unity and cohesion through shared culture and relationships due to common exclusion from the wider community (Janjuha-Jivraj 2003). Enclaves provide unique economic opportunities and an environment that is conducive to social mobility for ethnic entrepreneurs (Zhou 2004). Enclaves often involve norms of trust and reciprocity, which can strengthen entrepreneurial efforts (Chaganti & Greene 2002; Fadahunsi et al. 2000; Zhou 2004). Ethnic culture can influence knowledge sharing in business networks, as individualistic cultures involve people who are loosely linked, independent, and possess explicit knowledge and rationality. Collective cultures involve people who are closely linked, belong to a collective, and have tacit and embedded knowledge. This dimension of culture influences the type of information people prefer and can process (Moller & Svahn 2004).

While ethnic entrepreneur networks are important for success, they typically are not linked into the mainstream, non-ethnic networks. This exclusion can hinder an ethnic entrepreneur’s success by stifling innovation and creativity that networking facilitates. Ethnic owned businesses are often operating informally, or without collecting or paying taxes or going through formal permitting processes, which can preclude them from participating in formal business networks (Grey & Collins-Williams 2006).

Ethnic enclaves are discussed as both a catalyst for entrepreneurship and as restrictive for entrepreneurship. Ethnic enclaves often produce ethnic entrepreneurs and ethnic group cohesion due to common exclusion from the wider community. Ethnic enclaves often create unity through shared culture and relationships (Janjuha-Jivraj 2003). They offer low barriers to entry, niche markets, and specialized skills and knowledge that positively influence successful ethnic economic activity (Razin 1989; Zhou 2004). Zhou (2004) distinguishes between enclave entrepreneurs and middleman entrepreneurs. Enclave entrepreneurs are described as community builders because

they are invested in social relationships and structures within their communities. Enclaves introduce a place-based element into the concept of ethnic entrepreneurship. Middleman theory, which says that self-employment, tends to become a viable option for ethnic or immigrant people when they can either not find a job or cannot find a well-paying job, are offered as an explanation for ethnic entrepreneurship in a few articles (Aldrich & Waldinger 1991; Butler & Herring 1991; Chaganti & Greene 2002). Zhou (2004) describes middleman minority entrepreneurs as "those who trade in between a society's elite and the masses" (1041).

Networks can be restrictive for both rural and ethnic entrepreneurs as well. Chaganti and Greene (2002) found that entrepreneurs more closely tied to their ethnic communities were not as successful as those that connected outside the ethnic community. According to the study, those who are more involved in the ethnic community will experience fewer personal resources (and thus, disadvantage), possess more traditional values, hold family and community success as more important than financial business success, are less likely to develop a competitive advantage, and will perform lower in terms of financial measures of success. On a similar note, Donckels & Lambrecht (1995) say, and Zhou (2004) seems to agree, that family networks are restrictive for entrepreneurs in that they foster opinion and idea homogenization and hinder innovation. An increased number of business connections would likely lead to increased success. In Pessar's (1995) study of Washington D.C. Latino entrepreneurs and in Zarrugh's (2007) study on Harrisonburg, Virginia Latino entrepreneurs, respondents reported being predominantly involved in networks with non-Latinos. Latino contacts were mainly used for services requiring a certain level of trust, such as lawyers and accountants (Pessar 1995). Latino entrepreneurs in the D.C. area generally do not rely on ethnic solidarity or an ethnic enclave to be successful and capitalize on the labor of newer immigrants, rather than embrace them and offer support. Hansen and Cardenas (2008) found that immigrant ethnic employers are more likely to rely on Mexican immigrants as employees and as consumers than native ethnic groups are. On a similar note, Zarrugh (2007) reports that relying on strictly Latino networks and contacts can be a hindrance for Latino entrepreneurs. At the same time, the well-being of the local Latino population directly affects the success of Latino entrepreneurs that cater to this market. In Janjuha-Jivraj's (2003) study, ethnic networks were found to diminish over time as ethnic entrepreneurs became more established and integrated into the larger community. Like rural entrepreneurs, ethnic entrepreneurs need to access outside resources for success.

Networks allow ethnic populations to draw upon existing community strengths for economic and community development and growth. By utilizing existing social networks, ethnic groups are often able to gain a certain level of control over their lives that can provide them with social mobility and economic success. Sustainable rural and ethnic economic development requires guidance by local people in the interest of the local community (not by outsiders). Locally oriented small businesses are described as encouraging civic mindedness in rural areas (Beaulieu 2002). Local enterprise development is beneficial for local people because it does not target growth for growth's sake. It focuses on the development of local businesses that are invested in creating local wealth, and it is sustainable because local businesses tend to use local inputs, invest money locally, and are loyal to the local community.

METHODS

This project utilized a mixed method approach consisting of quantitative and qualitative data. Using both types of data strengthens research findings by offering both descriptions and explanations of the topic being studied. We employed a mixed methods approach to better understand rural entrepreneurship and to examine experiences and social network structures associated with rural ethnic entrepreneurs. This entailed using an inductive approach that began with gathering information about the topic and moved toward creating a theoretical model and methodological approach. A Geographic Information System (GIS) was used in the initial steps to map business locations, clusters of industry, community engagement points, and gender and ethnicity of study participants. Mapping of this data helped to illustrate and identify geographic trends while also providing a spatial reference for the regions of interest.

Our approach involved partnering with a local Mendocino County Latino-focused non-profit working on community engagement. Because a list of local Latino owned businesses didn't exist, we used PPGIS to generate this list. GIS maps of communities were placed on tables for participants in a local civic engagement activity to identify locations where they participate in community, church, professional, neighborhood, fundraising, school, volunteer, and service groups and activities, as well as the locations of Latino owned businesses. The base maps included different landmarks, such as schools and churches to help orient participants. We also interviewed community leaders with knowledge of Latino owned businesses. Through the exercise, we generated a list of 92

Latino owned businesses in Mendocino County, California which were ground-truthed with Latino community members and business owner interviews.

After marking locations on maps, participants could visualize where and to what degree they are integrated into the community (Figure 2). This visual representation of a highly involved Latino community helps to counteract media coverage that negatively portrays Latinos and builds confidence and capacity of the community. This data was then digitized into GIS feature layers and organized into a geodatabase using ArcGIS (ESRI, 2009). This allowed data to be further analyzed in a spatial context. Using PPGIS, it was clear that Latinos in Mendocino are civically engaged and active in multiple arenas.



Figure 2. PPGIS session in Ukiah, California with community members offering local knowledge about Latino owned businesses.

A second series of community mapping exercises engaged participants to identify Latino community needs and locations. After a list of needs was generated by participants, themes were identified. Thematic maps were placed around the room for participants to mark where these community needs existed. For example, a need for bilingual teachers was indicated on the bilingual services thematic map. Participants then marked on this map where bilingual teachers are needed. These points were also digitized and organized in a geodatabase.

At this second mapping exercise, the research team also asked participants to complete a worksheet indicating their personal or community members' skills. People chose from a list of possible skills, such as bookkeeping, construction, house painting, yard work, tutoring, and teaching, among others. Respondents also indicated the closest cross streets to their home as a basis for geocoding. Residents' skills were then geocoded, using batchgeo.com website (Holmstrand 2010) according to their cross streets. Low accuracy points generated from the geocoding tool were then cross-checked for accuracy using Google Earth (Google 2009). Mapping this information

allows for visual comparison of the locations of community needs and community skills in order to match people's skills to community needs while also allowing for more in depth spatial analysis to occur. Through this exercise, community members can better identify entrepreneurial opportunities built upon their own community resources.

Surveys and Field Work

Four research trips were conducted in Mendocino County between May 18, 2009 and July 12, 2009. On these trips, teams of two drove from business to business asking owners to participate in the survey. If owners agreed to participate, a team member conducted the survey at the place of business. If owners were not present at the first visit to the business, team members would inquire about a time to return. In some cases, if the owner was busy or was not going to be on site within the time period of the current research trip, a survey was dropped off for them to complete and return in a self addressed stamped envelope. If a business was located in a residential area and no one was home after two visits, it was sent to a call list. If a residence had a locked gate, no trespassing signs, or a scary dog present, it was also sent to the call list.

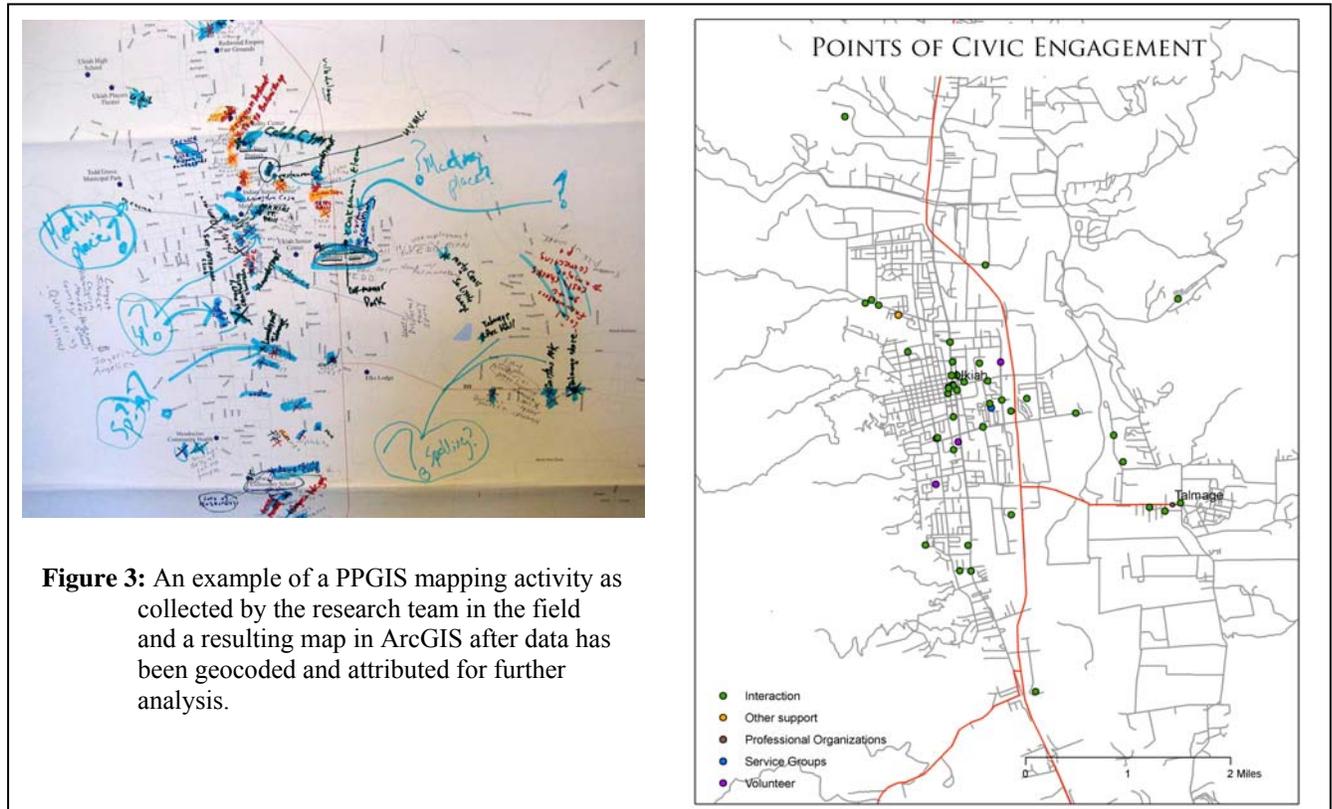
Initially, maps included all businesses in the sample. After the first research trip, it became apparent that many businesses were remotely located and that visiting all of these distantly located businesses was not realistic. A GIS was used to create one mile buffers on each side of the major roads in the Willits/Ukiah area, while a two mile buffer was used on each side of the major roads in the coastal area of the county in order to cover the same amount of square miles being covered on the interior area. Any businesses that fell outside of these buffers were relegated to a call list. Surveys with these remotely located businesses were attempted via phone.

RESULTS

PPGIS generated useful data and maps for further analysis. The first community mapping exercise provided locations of Latino owned businesses and points of civic engagement among the Latino community in Mendocino County, California (Figure 3). The second community mapping exercise complemented this data by probing Latino community needs and skills. Maps used at the second meeting displayed points of civic engagement identified in the previous exercise, which allowed participants to see how involved they are in their community. The PPGIS activities facilitated knowledge generation, such as the identification of community needs and skills. When an economic development professional wants to begin work with a certain community, they often begin by imposing their ideas of what that community needs and how those needs should be met. This can be detrimental for local communities because it eliminates their voice from the development process. Participatory mapping exercises enhanced this research by articulating community perceptions while helping people visualize their involvement in and connection to their community. We share this information back with community leaders to assist in further strengthening of local community capacity and economic development opportunities.

Preliminary data analysis indicates differences in networking between ethnic and non-ethnic entrepreneurs. Ethnic entrepreneurs are found to have a higher number of familial network connections than non-ethnic entrepreneurs. Ethnic entrepreneurs are also found to be more likely to send money outside the United States, indicating higher participation in international networks. Being a member of a business network is found to be associated with more years of profit. However, no statistically significant differences are found between ethnic and non-ethnic entrepreneurs' participation in business networks.

This research will be used to further assist economic developers by providing a set of tools for assessing and assisting with rural ethnic community and economic development. PPGIS will be a part of this tool set as a method for accessing the voice of ethnic and non-majority populations. Ultimately, we will create a step by step manual for economic development professionals to more effectively engage with rural ethnic and non-majority entrepreneurs.



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