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Effects of the Digital Divide: Evidence from African-American and Native-American Owned Micro-Enterprises

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Abstract

Information and Communication Technologies (ICTs) have often been touted as a means of enabling people to make their way out of poverty. While there are success stories of people in Africa who have been able to access and use mobile and Internet-based Technologies to build businesses that give them better livelihoods, it is unclear how these technologies are being used by African American and Native American entrepreneurs in the United States. Pockets of low connectivity and lack of awareness or technical skills mean that some entrepreneurs are unable to take advantage of the opportunities provided by ICTs in the United States. This paper investigates the digital divide in micro-enterprises owned by African-Americans and Native Americans in a midwestern metropolitan area in the United States. Data collected through three case studies are analyzed using a model previously developed to arrive at the level of ICTs needed to support and sustain the micro-enterprises.

Keywords

Micro-Enterprises, IT for Development, Digital Divide, Native American, African American.

Introduction

According to recent data from United States Census Bureau (2011), there were more than 10 million small businesses operating in the United States. Of these, micro-enterprises are most prevalent. While the general Information Systems (IS) research can be well observed from the diffusion and the socially embedded discourses (Avgerou, 2008), both developed and emerging countries are attempting to benefit from the usage and adoption of ICTs. In the last three decades, economic and ICTs development in Native American communities and reservations has focused on tribally owned businesses and to a lesser extent, industrial parks. In part, the tribal-based focus over individual development is culturally based. Most Native societies tend to be collectivistic rather than individualistic, and entrepreneurialism is associated with the latter. The lack of African-American owned small businesses was also observed in the United States (Fairlie, 1999).

Even though the micro–enterprise movement in third world countries has garnered media attention, tribal government perceptions of entrepreneurial development in Native American communities remained stagnant. The federal government's Bureau of Indian Affairs had effectively set a standard of economic development that eschewed individuals in favor of tribal economies that remained dependent upon the United States. As small businesses represent the majority of all firms in the United States, this research will analyze and discover the key concepts relating to how IT adoption in these businesses leads to development outcomes among Native American and African American Communities. These businesses are the driving force and the central ingredient behind the economic growth and development of

communities in the United States (Qureshi & Lamsam, 2008, Chen et al., 2006, Garsombke & Garsombke 2000, Varma, 2005).

In the meantime, micro–enterprise as a means of economic recovery made its way to the United States from the global stage to urban centers and to the state governments. It is well known that small businesses comprise the majority of businesses in regions of the world that are developing (Schreiner & Woller, 2003; Roztocki & Weistroffer, 2009). They also comprise the majority of employment in Nebraska[1]. The micro-enterprise movement received increasing media coverage that trickled down from U.S. national media, such as the New York Times, to regional and finally local media. Public perception and awareness of microenterprise development was broad-based and generally positive. Native American communities and African American communities – increasingly connected via mobile technology – were also becoming more aware of micro–enterprises.

On the other hand, ICTs have fundamentally shaped a dramatic transformation in the United States. ICTs are used by many private enterprises to improve their performance, productivity, and competitiveness in the marketplace. Qureshi et al (2009) found that targeted IT interventions in micro-enterprises increase their chances of survival and stimulates their growth. Other studies in the adoption of IT in micro-enterprises have shown that effective IT interventions may have considerable potential for facilitating IT adoption among micro-enterprises across the United States and the world (Song & Qureshi, 2010; Kamal et al., 2010). The long period of rapid development of the United States economy over the past ten years coincides with significant investment in and diffusion of ICTs and their applications (Schreyer, 2000). Yet, Native American and African American owned businesses continue to remain at the fringes of this prosperity.

While it has been recognized that small businesses are important for industrialization, it is not clear how their growth can be supported. The use of ICTs is a challenge, especially among Native Americans owned small businesses. As a 'missing pierce' of the research and teaching (Tipton, 2004; "Nebraska Sioux Lean Beef", 2008), the use of ICTs is a challenge among Native Americans owned small businesses, especially from women in rural areas of the US (Aspaas, 2004; Jahrig, 1996). Their unique ways of viewing ICTs means that their frames of reference need to be addressed when considering use of the technologies (Qureshi & Lamsam 2008). Small businesses face several challenges when adopting ICTs. SMEs are significantly limited regarding financial and human capital (Thong, 1999). They generally have limited access to market information (Madrid-Guijarro et al., 2009) and rarely use strategic techniques such as financial analysis, forecasting, and project management (Blili & Raymond, 1993; Ghobakhloo et al., 2011). The readiness, availability, and uptake issues of ICTs will remain relevant for at least a generation (Heeks, 2008). While very few Native American small businesses owners were not aware of public and private resources (Swinney & Runyan, 2007), the technopreneurship in Native American businesses faced training and financial issues (Chen et al., 2006).

This research is an important first step toward examining how Native American and African American individuals understand and engage in micro-enterprise with particular emphasis on how ICTs are leveraged in this process. The research seeks to understand the relationships between IT adoption and contextual factors, and examine how these relationships vary across Native American and African American small businesses and micro-enterprises in the United States. The overall research question being investigated is**:**

What aspects of the digital divide are preventing micro-enterprises from sustaining themselves?

Literature Review

Norris (2001) suggests that the digital divide is a multidimensional phenomenon that encompasses three distinct aspects: global, social, and democratic divides. Van Dijk (2012) proposes that differential access to ICTs is related to individual characteristics: level of income and education, employment, age, sex, and ethnicity. According to the National Telecommunications and Information Administration (NTIA), Native

[1] http://www.census.gov/econ/susb/ See Appendix for detailed information

Americans, African Americans, low-income persons, and the less educated are more likely to lack access to information resources, especially when they reside in rural areas or central cities (McConnaughey et al., 1999).

Chakraborty & Bosman (2005) measure the inequalities in home PC ownership in the United States by applying the Lorenz Curve and the Gini coefficient. Based on the data gathered in 2011, authors find out that the inequalities in PC ownership are substantially smaller among white households than among African American households in the United States. According to by Mossberger and Tolbert (2003), the most important factors affecting access to information technology are race and economic resource. From 1837 valid responses, African Americans and Latinos will generally have lower access to the Information Technology. In a study conducted by NTIA in 2010, Household Broadband Internet Use Rate for Native Americans was only 48.3%, and 49.4% for African American, while the average overall average was 63.5% (NTIA, 2010). The second-level digital divide was introduced in 2002 in order to eliminate the binary classification of technology use by only taking whether somebody does or does not take the Internet into consideration (Hargittai, 2002).

In a study conducted by Blanchflower et al (2003), they found that Native American owned and African American Owned small businesses faced challenges when obtaining credit that go beyond observable differences in their creditworthiness. Chen et al (2006) conducted a case study on a Native American owned manufacturing enterprise's efforts to implement new strategies for expansion and diversification. Garsombke and Garsombke (2000) conducted comparative analysis on Native American entrepreneurs and Non-Native American entrepreneurs. Findings suggested that parents being an entrepreneur, objective versus subjective thinking, orientation and perceived barriers to startup are the potential differences between the two types of businesses.

The majority of revenue-generating enterprises in Native American communities are tribally owned (National Rural Funders Collaborative, 2014). However, it appears that within recent years, small individually owned enterprises have also become an increasingly important economic base for these communities. The Effective State Policy and Practice (National Rural Funders Collaborative, 2014) identifies several challenges Native American small businesses are facing. First, there is a lack of business development training and technical assistance resources. Second, there are low levels of general financial literacy. Third, there is inadequate and inappropriate financing for Native American enterprises. There is a lack of Native American participation in the CS/CE program (Varna, 2005). Lack of education in computers and computer-related courses in high school, personal motivation, small number of Native Americans in higher education, and lack of encouragement from family and friends could be the cause.

The concept of Development has its roots in the economics of the firm. Development is defined as "the interruption of the business cycle," according to Schumpeter (1934), and is often used to describe growth in organizations and the regions in which they reside. Development has been seen as an economic phenomenon that leads to better livelihoods. Also, the main purpose of development is to spread freedom and its "thousand charms" to the citizens (Sen, 1999). Development is a concept that is considered both theoretically and politically, and is inherently both complex and ambiguous (Summer and Tribe, 2008). The liberalization of economies replaced the animated development practice in 1950s and 1960s. Willis (2005) refers the 'Modernity' to a 'condition' if being modern or being like the industrialized counties of Western Europe and North America in particular. The Modernity encompasses industrialization, urbanization, increased use of technology and application of rational thinking (Willis, 2005). Some scholars define development as the diffusion of modernity (Habermas & Ben-Habib, 1981). Some scholars define development as economic growth (Sachs, 1999). The United Nations Development Program defines development as human progress. The Millennium Development Report (2011) breaks development into eight goals: 1. Eradicate extreme poverty and hunger. 2. Achieve universal primary education 3. Promote gender equality and empower women 4. Reduce child mortality 5. Improve maternal health 6. Combat HIV/AIDS, malaria and other diseases 7. Ensure environmental sustainability and 8. Develop a global partnership for development. For the purpose of this paper we use the following definition; the concept of development has its roots in the economics of the firm. Development is defined as "the interruption of the business cycle" according to Schumpeter (1932) and is often used to describe growth in organizations and the regions in which they reside. The outcomes from the adoption of ICTs on development can be assessed in a number of ways. The measures of economic development most often

used are in terms of: increase in income, job creation and clientele. (Qureshi et al., 2009) These measures will be used to assess development in small businesses in this research.

Technology is a central ingredient in economic development (Malecki, 1997). Information Technology is a driving force behind economic growth and has fundamentally changed the way people live, not only in developed countries but also in developing countries. Information and communications technology (ICT) are used by many private enterprises to improve the performance, productivity and competitiveness in the marketplace (UNCTAD, 2011). However, the use of ICT is a challenge in both developed and developing countries (Wolcott, et al,. 2008; Schreiner & Woller, 2003;). The development may be inhibited by a lack of understanding of ICT (Sadowski et al., 2002). The world is increasingly interconnected through high-speed mobile communications. Growing demand for information and communications services, combined with technological advances, growing infrastructure and falling prices, are allowing more and more people across the globe to join the information society.

The outcomes from the adoption of Information and Communications Technology on development can be assessed in a number of ways. The measures of economic development most often used are: Increase in income, job creation and clientele (Qureshi et al., 2009). These metrics used to assess development in small businesses. In this model the arrows are bidirectional because the growth of and development of the businesses can bring about greater IT adoption and lead to more technology being purchased and an improvement in the organization and its environment.

The concept of empowerment has been used to describe power and control in organizations (Qureshi & Lamsam, 2008). In a study conducted by Kimaro and Nhampossa (2005), IT initiatives were found to be top-down, and controlled by the power of top managers who usually do not have adequate skills to do so. Historically, empowerment was viewed as a motivational construct (Conger & Kanungo, 1988). Also, Hughes (2003) identifies that there is a debate about whether women are 'forced' or 'voluntarily' self-employed when there is a broader definition of 'push' factors is used.

Methodology

In order to build a model of effects of ICTs on the digital divide from Native American and African American micro-enterprise, a research strategy is presented to build the concepts in a model and a qualitative strategy to operate the model. This research follows the socio-economic definition to illustrate the development, i.e., development is considered as the improvement of the social system and economic growth. This is a qualitative inductive research that investigates three cases of micro-enterprises in underserved communities of a Midwestern city. This research uses concepts from the literature as a lens to collect data and analyze the effects of the digital divide in the three minority-owned businesses.

This research question will be investigated through frames developed by Qureshi and Lamsam (2008) used by Native Americans Small Businesses and Microenterprises. This research uses a qualitative Case study strategy to collect data from several American Indian small businesses. As in the preliminary stages of research, case study method will provide potential hypotheses, which may be tested systematically with lager number of cases in the future (Flyvbjerg, 2011).

The reason these businesses have been selected is because they: 1) income levels for the cases we select is lower than the average income of small businesses, 2 they are micro-enterprises, 3, they stand to benefit from ICTs. They are unable to access and use ICTs because due the lack of knowledge and skills.

Data was collected through interviews and observations to find out how the ICTs could impact the digital divide, and to examine how the direct effect of digital divide could impact the development of the micro-enterprise, as well as the empowerment.

Data Gathering

Data was collected through interviews carried out in person from three metropolitan-based micro-enterprises. The first micro-enterprise is owned by a Native American and the other two are operated by African Americans.

Native American Business-PIS

PIS is a family-owned store. Both the owner and founder are Native Americans. Currently, only 0.7% of the population are Native Americans in this midwestern metropolitcan area. The store offers an assortment of turquoise and silver jewelry, bead and quillwork, pottery, Pendleton and saddle blankets, buckskins, arrows, dream catchers, kachina dolls, wood carvings, t-shirts, books, Native American music, teas, herbs, flutes, craft supplies.

Currently the owner is the daughter of the founders. Due to the insufficient funding for the business, the owner could not afford to hire employees. However, from 2007 to 2008, the owner did hire several part-time employees to support the micro-enterprise. It appears that the owner is trying different ways to promote her business, not only including commercials from TV, magazine, and yellow book, but also from the Internet. The owner purchased a domain and a website was outsourced to a third party with monthly subscription. The owner's son helped establish a Facebook account for the store. Occasionally, promotions are conducted via Facebook and the website. The owner of the store has a fax machine, fixed line telephone, and POS machine onsite. There is no Internet covered in the store. There is a paper-based guest book in the store for potential customers. Customers can write in information and owner will contact them by the phone number they leave.

Most of the time, the owner conducts business by phone. The owner is very afraid of using the Internet technology since she thought it was hard for her to learn, and she did not think the Internet could help communicate with customers. There is very limited information she provides through the website. According to the interview, the owner of the store witnesses that customers are shifting their information-seeking from the Yellow Pages to Google and Facebook.

The store suffers has always suffered from shoplifting due to the lack of funding and employees. The owner could not fully control the space of the store. Interestingly, the owner installed a faked camera in the middle of the store, hoping it would deter the thefts. The owner does not know how to seek the support from the government or other organizations.

African American Business North Omaha-CJK

North Omaha is a predominantly African American neighborhood with some of the highest child poverty rates in the country. The African American po0pultaion comprises 13.6% of the city's population, which is predominantly of European decent (Omaha Chamber of Commerce, 2012).

CJK is a family owned restaurant located in the heart of North Omaha City. The restaurant is famous for the food around the neighborhood. The facility of the small business is not maintained in a good condition. The owner does not pay much for the rent. The restaurant does not have clear signage for the customer parking, which is hard to find. There are three employees in the restaurant. Two of them are middle-aged African Americans. The other employee was an African American young male.

The restaurant does not have a clear marketing strategy. The store is in the middle of north Omaha, which is hard to find. Also, it was difficult to find the parking area for customers. Inside, the facility was not maintained in a good condition. The owner was defensive during the interview. The owner uses the credit card machine for business as well as a fixed line phone to reach customers, however overall they do not use other advanced technology. Besides that, they have a fixed line telephone to reach customers. The majority of the customers come from the local neighbor. Potential customers from other parts of the city are not willing to go to this area to buy food. The computer is only used for personal purposes. From the observation and interview, this small business is highly embedded into the local culture, community, and environment.

African American Business in South Omaha-LAP

The third micro-enterprise, LAP, is a used car dealer from the south part of the city. Currently there are two employees in the store. The owner is an African American in his middle age. The other one is the owner's son. Both have college degrees. According to the interview, the car dealership requires a lot of technology that supports information retrieval. First, they need to upload the profile of the pre-owned car database. Second, in order to connect to the administration of the car dealership, they need to have the fax

machine and print machine in the office. Third, in order to persuade the customers, they need an Internet connection to the popular car price database (KBB) to get the first hand information about the price. Also, they need to connect to the third party provider to get the repair history report about the car. However, both of the employees are not familiar with the information technology. There is only one computer in the office. They computer is 6 years old and is running Windows XP, the RAM is 1GB, which makes the computer slow. Also, both of the employees do not know how to adjust the resolution of the computer screen. The business owner is willing to invest money in technology. However, one problem they have is that they do not trust the information technology. They are fearful to replace the old computer with a new computer because they think they will lose all the data in the computer. Also, they think they have to invest additional time to get accustomed to the new computer.

Data Analysis

Based on the data gathered from three cases, data was analyzed using the model by Qureshi and Lamsam to arrive at instances of the categories in their model. These results are depicted in the table below:

Table 1: Digital divide Aspects Effecting Micro-enterprise Sustainability

	Native American Business	**African American in North Omaha**	**African American in South Omaha**
Characteristics of ICTs	Basic ICTs	Very Basic and Simple ICTs	High ICTs
Access to ICTs	Limited	Very Limited	Easy
Personal inequalities	Education, Knowledge, Insufficient Funding	Education, Knowledge, Funding	High Education, Knowledge, Funding
Direct Effects	Low Information Provision	Low Information Provision	High Information Provision
Economic Development	Median wealth creation, limited access to new customers, low business development	Median wealth creation, very limited access to new customers, low business development	Median wealth creation, high access to new customers, high development
Empowerment	High Honoring, High Community engagement	High Honoring, High Community engagement	Media Honoring, High Community engagement

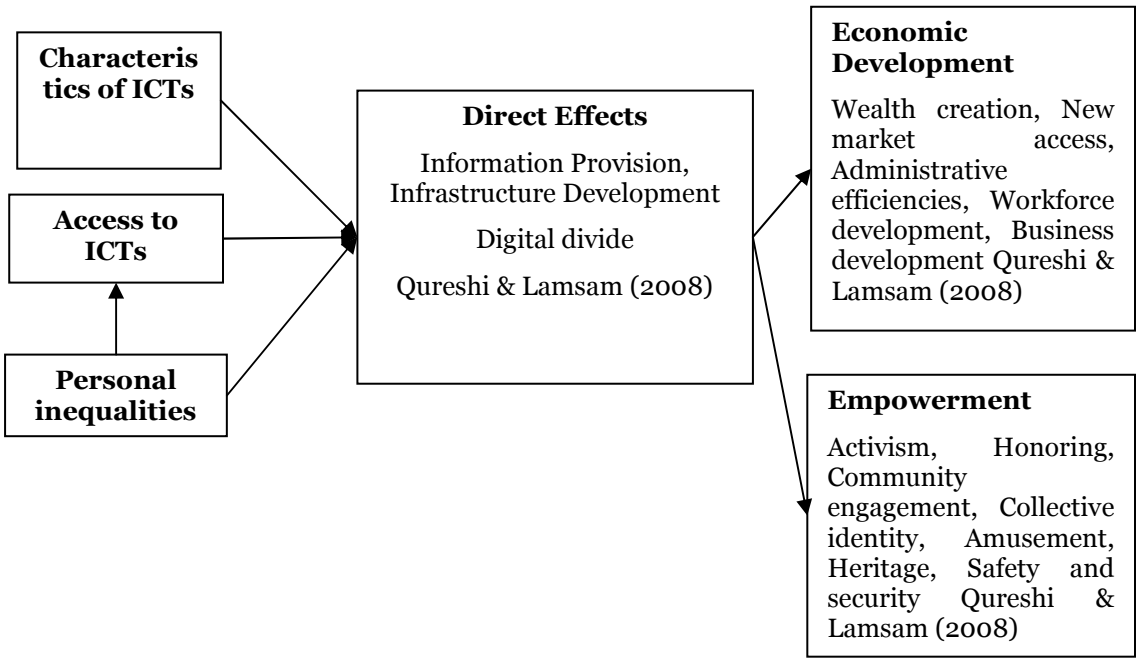
Table 1. Result of Data Analysis

According to the model, we can see the characteristics of ICTs could directly lead to the direct effects of information provision and infrastructure development. According to the results, people are more likely to adopt easy ICTs, such as TV, credit card machine compared to a personal computer, CRM software, and other advanced tools. This is also suggested in the study by Xiong & Qureshi (2012).

Personal inequalities could lead to different performance on the access to ICTs. According to the interviews, African Americans and Native Americans are be less likely to have access to ICTs. While access to ICTs could lead to the direct effects of information provision and infrastructure development, personal inequalities could also lead to different performance of direct effects.

The use of ICTs and new media has implications for the economic development and empowerment. It appears that those micro-enterprises we interviewed are highly connected to the nearby community and neighborhood. A majority of the customers come from friends in the communities as well as by word of mouth. If they could adopt appropriate ICTs, they could potentially expand the local markets. This has implications for the way in which micro-enterprise owners are able to survive through the digital divide. Below, we add the three concepts uncovered through the analysis of our data.

Figure 1. Research model of the effects of ICTs on the Digital Divide of Micro-Enterprise



The above model contributes to the trends towards the intersection of two trends in information technology for development: the growing role of micro- and small enterprises (MSEs) and the use of information and communication technologies (ICT) (Duncombe & Heeks, 2002).

Conclusion, Limitations, and Future Research

In this paper, based on the interviews from three Native American and African American owned micro-enterprises, we identify that the characteristics of ICTs, the access to ICTs, as well as personal inequalities could impact the direct effects of information provision and infrastructure development. Based on the research model developed by Qureshi & Lamsam (2008), we further conclude that the direct effects could lead to the economic development and empowerment.

The results suggest that the characteristics of ICTs, the access to ICTs, and personal inequalities could potentially hinder the process of economic development and empowerment. Our study yielded meaningful results as to the ways in which micro-enterprise owners will need to use ICTs to sustain themselves. As this study is based upon three cases, more cases will be analyzed in the future to triangulate this data.

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Appendix

	ENTERPRISE EMPLOYMENT SIZE in the United States				
	0-4	***5-9***	***10-19***	***20-99***	***>100***
NUMBER OF FIRMS	3,532,058	978,993	592,963	481,496	5,585,510
NUMBER OF ESTABLISHMENTS	3,540,155	993,101	626,981	651,624	1,542,182
EMPLOYMENT	5,857,662	6,431,931	7,961,281	18,880,001	74,295,090
ANNUAL PAYROLL ($1,000)	230,422,086	218,085,669	284,251,614	746,085,051	3,686,053,485

Source: United States Census Bureau, Statistics of U.S. Businesses via http://www.census.gov/econ/susb/

	ENTERPRISE EMPLOYMENT SIZE in Nebraska				
	0-4	***5-9***	***10-19***	***20-99***	***>100***
NUMBER OF FIRMS	24,320	6,890	4,254	3,716	2,389
NUMBER OF ESTABLISHMENTS	24,366	6,991	4,505	5,122	10,569
EMPLOYMENT	40,723	45,032	56,398	137,072	518,456
ANNUAL PAYROLL ($1,000)	1,230,209	1,301,134	1,666,605	4,634,044	21,137,161

Source: United States Census Bureau, Statistics of U.S. Businesses via http://www.census.gov/econ/susb/