

APPLYING A COMMUNITY CAPITALS
FRAMEWORK TO COMPARE RURAL, FARMING-
DEPENDENT COUNTIES IN OKLAHOMA

By

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FRAMEWORK TO COMPARE RURAL, FARMING-
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Abstract: Many rural communities are declining due to compounding factors. The loss of rural communities would result in the loss of American culture and essential agricultural production. This study aims to identify resources present in two rural counties in Southwest Oklahoma, Harmon and Tillman, through a comparison eight other rural, farming-dependent counties in Oklahoma. Resources present in these counties were identified as various capitals using a Community Capitals Framework. Selected indicators were measured across all seven community capitals using established databases and secondary data. This study found Harmon and Tillman Counties to possess all capital types at varying levels. The capitals identified range in presence in the ten farming-dependent counties and were found to impact each another. It was concluded that Harmon and Tillman Counties ranked above all other counties regarding assets revealed through the community capitals framework. Therefore, hope exists for renewal potential in these two counties, and the other farming-dependent counties featured in the study, based on the various availability of assets.

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CHAPTER I

INTRODUCTION

Rural life is often portrayed as picturesque, full of traditional values and happy, thriving communities (Shucksmith, 2018). However, this lifestyle and the communities in rural areas are on the decline in various parts of the U.S due to compounding factors such as a decreasing population, shift in agrarian economic structure, decaying infrastructure, and decreasing income (Filkins et al., 2000; Luloff & Swanson, 1990; Nelson et al., 2021; Tweten, 2008; Walzer, 1991; Wilkinson, 1991). Rural communities are also in decline across much of the globe as urbanization and industrial development increase (Lui & Li, 2017; Li et al., 2019). Rural communities have experienced declines in employment, economic vitality, and overall quality of life in recent years (Carr & Kefalas, 2009; Li et al., 2019; Nelson et al., 2021). Differences in standards of living between rural and urban areas have been suggested as one critical factor impacting the decline of rural communities (Li et al., 2019; Young, 2013). Not every person desires to live in rural places; however, those who do contribute essential aspects of American culture (Theodori & Willits, 2018), and provide essential agricultural products to the world (QutbAldeen, 2020), and thus rural communities need to be preserved. Rural counties face an array of different challenges when compared to urban or urban adjacent counties (Cromartie et al., 2011). Inequalities related to

food, education, and employment access are prevalent in numerous rural communities in the U.S. (Moore, 2016). In addition, a clear divide exists across urban and rural healthcare domains where rural areas are falling noticeably short regarding healthcare services when compared to their urban counterparts (Anderson et al., 2015).

Access to reliable and sufficient broadband internet is a necessity to the social and economic wellbeing of rural citizens (Schmidt & Severson, 2021); yet, less than 70% of rural communities across the U.S. have access to high-speed internet (Tomer et al., 2017). Because of such deficiencies, outmigration is a persistent challenge that impacts rural America. When rural citizens migrate from rural to urban communities, it can leave rural communities vulnerable to severe physical decline and long-lasting economic recessions (Amcoff & Westholm, 2007; Luck et al., 2011; Li et al., 2019).

The trend toward urbanization has depleted the rural workforce, which has expedited the economic degradation of rural communities (Rignall & Atia, 2017). This outmigration has left some rural areas poverty stricken due to a lack of employment opportunities for the citizens who live there (Moore, 2016). What is more, as the population in these areas decreases, many rural communities face blight from decaying, dilapidated infrastructure, such as buildings and homes (Morton et al., 2004). The deterioration of such structures not only serve as an eye-sore to the community but can also lead to environmental problems, which can have a negative effect on a community's social and economic system (QutbAldeen, 2020) and overall assets, or capitals (Li et al., 2019). Such deficits leave rural communities faced with and forced to respond to various environmental, social, and economic problems (Flora et al., 2016), which they are often ill equipped to address.

Fortunately, county organizational structural, such as local county government organizations, enables special services and resources to be provided to residents residing inside

county limits of rural communities (National Association of Counties, 2019). Counties are defined as metropolitan (metro) and non-metropolitan (nonmetro) (Office of Management and Budget, 2010). Metro counties have one or more urbanized area(s) with a core population of 50,000 or more people, whereas nonmetro counties have a population of less than 50,000 citizens (Office of Management and Budget, 2010). In this study, *nonmetro* counties are referred to as rural counties, and *metro* counties are referred to as urban counties.

The Economic Research Service (2018) reports, approximately 20% of rural counties are farming-dependent counties. To be classified as a farming-dependent county, 25% or more of the county's earnings, or 16% or more of the employment averaged over 2010 to 2012, must be from farming enterprises (Economic Research Service, 2017). Over time, there has been a decline in farming-dependent counties in the U.S. (Jackson-Smith & Jensen, 2009; Kassel & Carlin, 1999); this reduction of the share of income from farming impacts federal farm and rural development projects and objectives (Dimitri et al., 2005; Whitener, 2005). Within farming-dependent counties, farming payments and business ventures have the most significant impacts within the rural economy (Drabenstott, 2015).

Additionally, farming-dependent communities face challenges in relation to population decline, income, and employment (Jackson-Smith & Jensen, 2009; Kassel & Carlin, 1999). Population loss due to outmigration from off farm job opportunities and farm consolidation has a negative impact on farming enterprises and government subsidies, which in turn, can affect rural farming-dependent counties by limiting profit opportunities (Ahearn et al., 1988; Chowdhury, 2008; McGranahan & Ghelfi, 2004). In fact, economic growth within a county can be hindered by a high farm dependency due to trends that are impacting agriculture within rural America (Deller et al., 2003). Farming-dependent counties' economies and social structures are affected by changes made in the agriculture/farm sector (Ahearn et al., 1988) through government policies and rural economic restructuring (Jackson-Smith & Jensen, 2009). Changes in the various sectors

of the agricultural industry can be related to laws and regulations, compliance monitoring and assistance, and policies and guidance determined by the U.S. Environmental Protection Agency, U.S. Department of Agriculture, and the U.S. Food and Drug Administration. Labor scarcity in the farming sector impacts a farm's ability to produce products and be profitable leading to higher cost of products at retail (Devadoss & Luckstead, 2011).

In the state of Oklahoma, 1.3 million of the state's 4 million residents are rural citizens (Economic Research Service, 2021a). Of Oklahoma's 77 counties, 59 are classified as rural counties (Economic Research Service, 2017). Oklahoma has 10 rural counties that are solely farming-dependent (Economic Research Service, 2017). Urban counties such as Tulsa, Oklahoma, Cleveland, and Canadian, have experienced 8% to 28.3% population growth during 2010-2019 while rural counties such as Okfuskee, Harmon, Adair, Hughes and Tillman, have experienced -1.6% to -9.3% population decline during the same decade (Economic Research Service, 2020). Per-capita income for people in rural Oklahoma counties income is approximately \$10,000 less per year than their urban counterparts (Economic Research Service, 2021a). Unemployment rates in 2019 were lower in urban Oklahoma than rural Oklahoma, according to the Economic Research Service (2021a), and poverty rates are higher in rural counties (17.6%) than in urban counties (13.8%). When compared to their urban counterparts, Oklahoma rural counties have a higher completion rate of youth who graduate high school, but they fall short of urban counties when comparing college completion rates (Economic Research Service, 2021a). As a result of higher unemployment rates, poverty, and lower income levels, rural Oklahoma counties have experienced a decline in population when compared to urban counties the past decade (Economic Research Service, 2021a).

The USDA Economic Research Service created County Typology Codes from data emanating from the Bureau of Economic Analysis and the U.S. Census Bureau (Economic Research Service, 2017). These typography codes identified five areas for which counties could

be deemed deficient: low education, low employment, population loss, persistent poverty, and persistent related child poverty (Economic Research Service, 2017). Thirty-eight counties across the U.S. were low in all five of those areas, two of which were in Oklahoma: Harmon and Tillman.

Statement of the Problem

Harmon and Tillman Counties are the only two counties in Oklahoma to be deficient in all five Economic Research Service (ERS) Typology Codes. However, it is possible both counties likely include important assets necessary for improving their own situations. It is also possible these counties are unaware they possess the necessary resources for improving their own communities' status. Highlighting the deficits as well as the resources and assets of these communities could provide the encouragement needed to accentuate the opportunities and reverse the trends that have long plagued these two communities. Understanding how these two target counties compare to others in the state similar to them regarding capital assets and needs can help residents consider ways to reverse the downward spiral of their communities. Bringing these comparison data to light might help such communities recognize and use their existing assets to make the necessary changes for developing a stronger, more vibrant, and renewed community.

Purpose of Study

The purpose of the study was to compare the community capitals of two rural counties in Southwest Oklahoma (i.e., Harmon and Tillman) to all rural, farming-dependent counties in the state on metrics related to education, employment, population loss, persistent poverty, and persistent child poverty.

Research Objectives

The following research objectives guided the investigation:

1. Determine the community capitals present in rural, farming-dependent counties in Oklahoma.
2. Compare the community capitals present in Harmon and Tillman Counties to other, rural, farming-dependent counties using the Economic Research Service Typology Codes.

Definition of Terms

Listed below are operational definitions of terms referred to in this study:

Asset: tangible or intangible items retained to build on to sustain future development (McKnight, 1996).

Capital: a resource invested to create new resources (Flora et al., 2016).

Community: a location where people share common interest and sense of identity together (Flora et al., 2016).

Community Assets: tangible or intangible items retained to build on to sustain future community development.

Community Capital: a resource invested to create a new resource within a community (Flora et al., 2016).

Community Development: efforts to enhance the overall structure that defines a community (Tweten, 2008).

Community Shocks: sudden event that has a significant impact on a community (Besser et al., 2008).

Community Trends: general direction or trajectory within a community.

Community Vulnerability: circumstances that arise from social, natural, physical, and economic factors (Morrow, 1999).

Farming-dependent Counties: counties in which 25% or more of the county's earnings, or 16% or more of the employment averaged over 2010 to 2012, must be from farming enterprises (Economic Research Service, 2017).

Non-metropolitan Counties: counties that do not have one or more urbanized area with a core population of 50,000 or more people.

Outmigration: leaving a community to settle in another location (Jacquet et al., 2016).

Poverty: the total income a family generates is less than its threshold (U.S. Census Bureau, n.d.)

Rural: less dense, dispersed, population an area, territory, population, or housing (Ratcliffe, 2010; Ratcliffe et al., 2016).

Rural Counties: non-metropolitan counties.

Sustainable Communities: communities that strive to have economic security, strong ecosystems and social inclusion for members (Flora et al., 2016).

Urban: incorporated cities or towns consisting of at least 2,500 people (U.S. Census, 2016).

Limitations of the Study

This study focused primarily on the use of secondary data. As a result, we were limited in the data we could analyze. Further, secondary data are a limitation to any study because they can be incomplete and have items missing from the data set. Nonsampling error can also occur in secondary data, which further limits the study's findings. Another limitation is capitals were determined in quantitative terms, and qualitative measures from within the community would show how community members perceived the capitals present in their county. This is a study on

specific rural counties in southwest Oklahoma. As such, the data from this study cannot be generalized to all rural counties. Therefore, the reader is cautioned about applying to findings of this study to other rural counties and communities.

Assumptions of the Study

1. Harmon and Tillman Counties have access to various community capitals. Some capitals will appear in higher amounts than other capitals.
2. The websites used to retrieve data for these two communities are up-to-date, current, and accurate.

Chapter Summary

There are a variety of challenges that face rural communities across the U.S. These same challenges exist in rural Oklahoma, especially Harmon and Tillman Counties, as these are two of the poorest counties with the greatest population declines in the state. A comparison of Harmon and Tillman Counties to other similar, rural, farming-dependent counties in Oklahoma will provide insight to civic leaders and researchers as they seek to reverse the downward spiral trajectory and increase the viability of these two target communities.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Research on community capitals is a broad line of inquiry. This study aims to determine the community capitals present Harmon and Tillman Counties and compare them to all other rural, farming-dependent counties in Oklahoma using the Economic Research Service Typology Codes. The literature was analyzed to understand current trends with rural communities and the Community Capitals Framework (CCF). The review of literature will describe previous relevant research to provide a more in-depth view of the CCF in action. Research of relevant literature will allow gaps to be identified and present the current state of rural communities, their trends, strengths and weaknesses, and the role of community capitals. Individual capitals are described that compose the CCF individually to provide a better understanding of the framework.

Rural Context

One in five Americans lives in areas classified as rural, according to the U.S. Census (2016). The U.S. Census (2016) reported the urban population has increased over the past century, and the cities are expanding. According to the U.S. Census (2016), the percentage of

Americans living in rural areas declined from 54.4 percent in 1910 to 19.3 percent in 2010. A decrease in the worldwide rural population percentage has left rural communities with limited job opportunities, modern conveniences, and loss of a lifestyle (de Guzman, 2010; Nelson et al., 2021).

Rural communities often have more traditional norms and conservative values when compared to their urban counterparts (Monier, 2011; Parker et al., 2018). Flora et al. (2019) and Brown and Kandel (2006) depicted the following as often observed American rural values: rural people are hardworking, religious and God-fearing, honest and law-abiding citizens, democratic, and patriotic. Rural citizens face isolation (Lowe, 2013), but these same communities have developed innovative approaches for overcoming social and cultural isolation through communication and other technological advances (Monier, 2011). Rural populations are aging due to outmigration of younger generations and the relocation of older generations to rural areas, particularly those with high natural amenities and attractions (Glasgow & Brown, 2012). Consequently, rural areas tend to have high a population of older residents aged 60 and older (Glasgow & Brown, 2012; Yarker et al., 2020).

Rural areas historically have had a varied demographic (Brown & Schafft, 2011), being home to racial minorities that are often ignored by mainstream America due to the spatial segregation of settlements (Lichter, 2012). As such, ethnic diversity is present in rural communities (Lee & Sharp, 2017). In recent decades there has been a movement of Hispanics, the largest minority group across the U.S., into small, rural communities (Jensen, 2006; Kandel & Cromartie, 2004; Lichter & Johnson, 2006). Lichter (2012) stated, “growing racial and ethnic diversity has a demographic and economic grip on rural American, now and into the foreseeable future” (p. 2). Due to the racial and ethnic diversity present within communities, the culture of these places will lead to a shift in the norms and values, thus, reshaping the cultural capital of rural communities (Lichter, 2012; Tienda & Mitchell, 2006).

What is more, numerous rural areas are encountering the brain drain phenomenon due to the high rates of outmigration of their youth (Hastings et al., 2011). This phenomenon occurs when young working-age people leave rural areas in search for better employment opportunities (Carr & Kefalas, 2009; de Guzman, 2020; Mayer et al., 2017; Moore, 2016; Petrin, 2014; Sherman & Sage, 2011). For decades, outmigration from rural areas has been primarily due to employment opportunities found outside of rural areas (Jacquet et al., 2016; Malanski et al., 2021). In the past decade, over 20% of rural counties across the U.S. have experienced a decrease in population due to the outmigration of youth and young adults ages 15 to 29 (Smith et al., 2016). This decrease in population leads to various economic stressors in the community, which can impact housing conditions in rural areas resulting in blight, vacancy, and dilapidation (Skobba et al., 2019). Therefore, efforts should be devoted to preventing the brain drain phenomenon from (re)occurring. One way is to involve these youth in civic engagement activities to help them feel a stronger connection to their community and increase their desire to remain in or return to their communities long-term (Mohamed & Wheeler, 2001).

In addition, technical advancements have contributed to the loss of employment opportunities, which have led to the uprooting of traditional rural livelihoods, especially in the natural resources sector (Mayer et al., 2017). Agricultural production endeavors positively affect a community by supporting its rural economies (Burton & Wilson, 2006; Stock & Forney, 2014; Suryanata et al., 2020). However, recent scientific and technological advances in agriculture, such as modernized implements and improved chemicals, have decreased various economic and labor-based job opportunities in rural communities (Bhandari & Ghimire, 2016). Simply put, rural areas provide fewer agricultural employment opportunities than in previous decades, and those rural areas that primarily rely on natural resources industries have witnessed the steepest declines in population in recent years (Kindell, 2009).

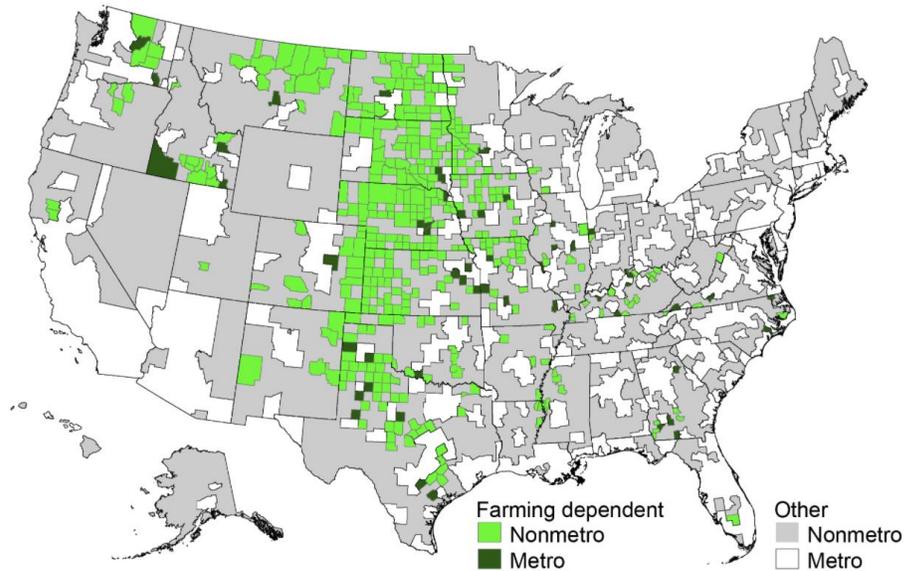
Jacquet et al. (2016) reported rural citizens in South Dakota are more dissatisfied with their communities than their urban neighbors; however, they also are more likely to express attachment to their community. Rural areas are described as *Gemeinschaft* communities – meaning these communities have close personal ties and relationships (Belanche et al., 2021; Christenson, 1984; Flora et al., 2016). Rural communities allow for the cultivation of familiarity and community involvement due to their more frequent social interactions and direct relationships with their neighbors (Belanche et al., 2021; McNight et al., 2017). Rural citizens tend to develop a closer bond with and in their community, and they can have a higher level of community pride when compared to citizens living in urban areas (Belanche et al., 2021; Edwards, 2012; Sanders et al., 2015). These strong social bonds that are present in rural communities (Melbourne & Kitchen, 2014) often lead to community development efforts (Belanche et al., 2021; Zissi et al., 2010). As outmigration occurs, communities lose these social bonds and their agrarian values (Theodori & Willits, 2018).

Farming-Dependent Counties

The ERS Typology codes were developed to be used as a tool to analyze rural conditions, trends, and program needs of rural counties (Economic Research Service, 2019). Farming-dependency is determined through two measurements: (a) annual farm earning in counties account for 25% or (b) more of earnings or 16% or more of employment from farming enterprises averaged over 2010 to 2012 (Economic Research Service, 2017). In the U.S. has 444 farm dependent counties, 391 of those counties are rural (Economic Research Service, 2017). These counties are depicted in Figure 1. Decline in farming enterprises and employment (Jackson-Smith & Jensen, 2009) and farm consolidation (Chowdhury, 2008) can affect these counties abilities to sustain economic growth (Deller et al., 2003).

Figure 1

Farming-Dependent Counties, 2015 edition (Economic Research Service, 2019)



Jackson-Smith and Jensen (2009) determined there is still hope in the vitality of farming-dependent counties through the measurement and research of all agro-food systems and levels of agricultural activity. The farming enterprise and contribution of farming-dependent counties contributes to the national economy through income, gross domestic product, and employment (Salsgiver & Hines, 1993).

Harmon and Tillman Counties

Located in the extreme southwest corner of Oklahoma, Harmon and Tillman Counties, have faced a myriad of recent challenges. These farming-dependent counties have struggled to maintain a healthy population, infrastructure, employment sector, and other amenities that make small towns and communities viable and attractive (Economic Research Service, 2017).

According to the 2020 U.S. Census Bureau on April 1, 2010, the population of Harmon County was 2,922. On July 1, 2019, less than a decade later, the county's population had been reduced to 2,653 residents, resulting in a population loss of 9.2% (U.S. Census, 2019c). During the same

time frame (April 1, 2010, to July 1, 2019), Tillman County's population declined from 7,992 to 7,250 resulting in a population loss of 9.3% (U.S. Census, 2019c). Such declines over a short amount of time make it difficult to sustain energy and momentum for small towns, especially when this loss is due to younger people leaving in search of better opportunities (Hastings et al., 2011; Mayer et al., 2017).

When considering factors such as gross domestic product (GDP), Harmon County was ranked last (77th out of 77 counties in Oklahoma) with the lowest GDP of \$100 million, while Tillman County was ranked 68th (out of 77) with a GDP of \$221 million the same year (Bureau of Economic Analysis, 2020). In addition to low GDP and population loss, both Harmon and Tillman Counties fell into the category of persistent poverty (Economic Research Service, 2017). To qualify for the USDA's persistent poverty classification: 20% or more of the county's population must be living in poverty based on the 1980, 1990, and 2000 decennial censuses and the 2007-20 ACS 5-year estimate. In total, 353 counties across the U.S. comprise the persistent poverty category (ERS, 2017). More than 11% of all American counties are classified as being persistently poor, and 15.2% of rural counties are classified as being persistently poor (Economic Research Service, 2017). Harmon and Tillman Counties are also both listed in the persistent child poverty category. According to the decennial census dating back to 1980, 20% or more of children under age 18 years old, are considered poor. Specifically, in 2019, it was estimated 23.7% of all residents in Harmon County and 20.4% of all residents in Tillman County, were living in poverty (Economic Research Service, 2021).

The USDA ERS coded data collected from the Bureau of Economic Analysis and the U.S. Census Bureau to create the 2015 ERS County Codes Update, which was revised in 2017. Not only are Harmon and Tillman Counties coded as farming-dependent counties (Economic Research Service, 2017), they also have a low education indicator, which means at least 20% or more of the residents aged 25 to 64 failed to receive a high school diploma or equivalent from

2008 to 2012 (Economic Research Service, 2017). What is more, they displayed a low-employment indicator meaning less than 65% of the residents aged 25 to 64 were employed from 2008 to 2012 (Economic Research Service, 2017).

In summary, Harmon and Tillman Counties demonstrate a high need for community development and renewal. Resources in these individual counties need to be identified and established to assist the people living there improve their overall quality of life and wellbeing. Even with heavy population loss and persistent poverty present, these two counties likely have local resources available to help facilitate their development and wellbeing if they know where to look and how to access them (Gutierrez-Montes et al., 2009). Such rural communities can appear dire and marginalized when assessing various metric indicators, but they also likely contain critical assets necessary to facilitate sustainable growth and development. It is imperative these assets be identified, and citizens be made aware of them if growth, development, and renewal of these communities is to occur.

Community Capitals Framework (CCF)

The CCF was used to theoretically undergird the study. CCF provides the means to evaluate community development opportunities by focusing on the capitals (i.e., assets) within a community, determine how they interact and impact one another (Emery & Flora, 2006; Gutierrez-Montes et al., 2009), and diagnose a community's present situation (Gutierrez-Montez et al., 2009).

The CCF provides a holistic view of the community development process in action (Pigg et al., 2013). The main objectives that drive the use of CCF: (a) identify community assets used to accomplish sustainable development (Fernando & Goreman, 2018; Flora & Arnold, 2012; Flora & Flora, 2013). Community assets include, but are not limited to social ties, natural amenities, and communication channels. Community assets develop into a self-reinforcing cycle to increase

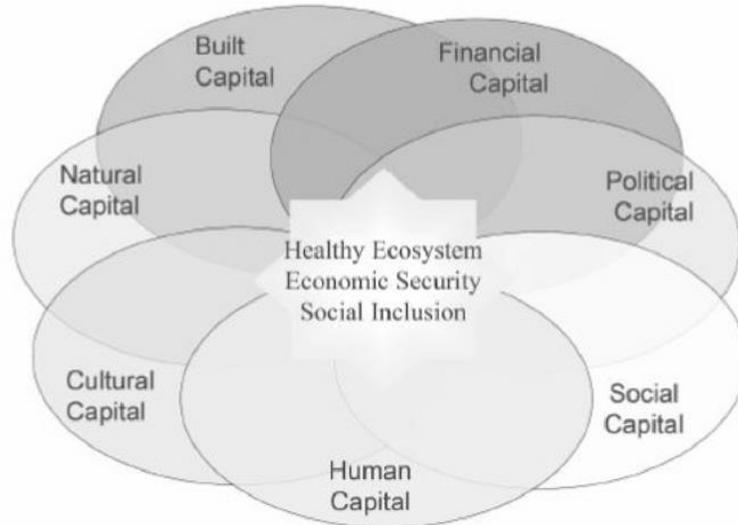
or decrease community opportunity and wellbeing (Emery & Flora, 2006; Fernando & Goreman, 2018); and (b) determine a community's success or lack thereof, by analyzing the changes in its capitals (Emery et al., 2009; Emery & Flora, 2006; Fernando & Gorman, 2018; Gutierrez-Montes et al., 2009).

CCF consists of seven specific capitals (see Figure 2): natural, built, financial, human, social, political, and cultural (Flora et al., 2016). Any resource capable of producing additional resources is classified as a capital (Flora et al., 1992). Capitals can also be defined as assets from which a particular community can build. Therefore, the assets identified in these counties are represented in the available capitals. Through the lens of CCF, researchers can examine the unique concerns and challenges various communities face (Beaven, 2014). CCF can also identify specific capitals that will facilitate a community's sustainable development process (Emery & Flora, 2006; Gutierrez-Montes et al., 2009). Each of the community capitals overlaps others resulting in a healthy ecosystem (see Figure 2).

Previous analyses using CCF focused on particular community changes such as a new economic endeavor or a natural disaster. A community is a group that reside within a close proximity and have frequent interactions (Galbreath, 2017). CCF allows researchers to examine and compare data among and between, pinpoint problem areas in, and inform response and mitigation about areas affected by various shocks and trends (Beaven, 2014). Vulnerabilities in rural communities' development have been identified using CCF to research a particular community's systematic changes (Beaven, 2014). Vulnerabilities could be the result of shocks and trends that lead to the loss of a healthy ecosystem, economic insecurity and social exclusion as depicted in Figure 2. Exposing the nuances and vulnerabilities of rural communities could result in more extensive public support, policy changes, and community resiliency (Beaven, 2014; Ritchie & Gill, 2007, 2011). Each of the community capitals work in tandem to provide insight to the needs of a particular community (Beaven, 2014).

Figure 2

Community Capitals Framework (Flora et al., 2016, p.17)



Community development is a complex process, and CCF provides a tool for understanding the dynamics presented by community change (Pigg et al., 2013). The CCF can be used to identify capital availability, their relationships with and among each other, and their impact on providing more valuable and appropriate community development strategies in rural counties (Fernando & Goreham, 2018; Jacob, 2007). As a result, using the CCF allows community developers to observe holistic community changes in their communities and provide a systematic evaluation of them through the various capitals they possess (Emery & Flora, 2006; Fernando & Goreham, 2018).

Community capitals are essential for community and economic development (Zekeri, 2013). Community capitals become tools for which communities can assess their current assets and identify potential improvement areas (Jacobs, 2011). A community's capitals, or assets, are naturally integrated (Kline et al., 2018) and form nearly all the rural communities' base (Flora et

al., 1992). A description of each independent community capital is listed and described in further detail below.

Built Capital

Built capital includes the human-made infrastructure that exists in a community, such as utility, water, waste systems, roads, schools, hospitals, community facilities, and buildings (Flora & Flora, 2008; Monier, 2011). Roads provide a means for a community to transport goods and people for the economic benefit of the community (Chandra & Thompson, 2000; Hunter et al., 2020). Built capital provides durable physical assets to a community (Flora et al., 2016; Fritz et al., 2007; Tweten, 2008) and is dependent on the financial capital present within a community because of its ability to provide goods and services to that community (Flora et al., 2016). Each community possesses some measure of built capital. Jacobs (2011) stated as rural communities continue to reduce population, tax base decreases, and funding dwindles for existing and newly formed structures, built capital declines.

A recurring theme in built capital in rural communities is a lack of quality affordable housing (Jacobs, 2011). Quality of life and the livability of a community can be measured by the housing stock within that community (Sawicki & Flynn, 1996) and community tax benefits can be accessed in homes that are owner occupied (Poterba & Todd, 2008). A lack of inadequate housing is a problem facing numerous rural communities, which includes heating, cooling, and sanitation systems (Morton et al., 2004). Rural communities are abundant in economic blight especially in the form of dilapidated housing (Skobba et al., 2019). In addition to houses, buildings in rural areas have higher levels of structural, and maintenance and condition problems than their urban counterparts (Van Zandt et al., 2009). According to the Housing Assistance Council (2012) and QutbAldeen (2020), rural communities have higher rates of substandard houses and buildings which are often outdated, hazardous, and experiencing physical deterioration. To make matters worse, vacancy rates across the U.S. have decreased over the last

five years leading to less affordable rentals (Rohe, 2017). The abandonment of homes and buildings within a community due to population loss leads to their decay and danger (QutbAldeen, 2020). Unfortunately, once a lot becomes vacant from the demolition of dilapidated buildings in rural communities, it does not have a high chance of being utilized again (QutbAldeen, 2020) further exacerbating the blight issue.

Sewell et al. (2019) highlighted inadequate road infrastructure also directly impacts communities by limiting access to basic services, decreasing socio-economic conditions, and increasing isolation and poverty. Roads provide a means for a community to transport goods and people for the economic benefit of the community (Chandra & Thompson, 2000; Hunter et al., 2020).

Communication infrastructure, such as broadband internet, is also an essential part of built capital; it allows rural citizens to acquire information, work, and access services such as education and medical care (Fox & Porca, 2001). Communication infrastructure can alleviate isolation felt by various rural communities and enhance rural social resilience or the ability of the community to withstand external stresses (Ashmore et al., 2017; Marshall et al., 2020).

Within a community, built capital supports other capital production and residents' quality of life by providing necessary physical infrastructure (Flora et al., 2016; Ringwood, 2017). Although built capital is essential to a community's success, its presence alone does not guarantee a community's economic health and wellbeing (Flora et al., 2016). Flora et al. (2016) discussed multiple types of built capital, and communities will vary in the types of built capital present. Investment in built capital is important, but it cannot be the only capital for which a community focuses; other capitals must be enhanced as well (Jacobs, 2011).

Natural Capital

Natural capital consists of natural resources and amenities, such as land and water availability and usage (Monier, 2011). Natural capital refers to a community's water and soil availability and quality, landscapes, and general biodiversity (Flora & Flora, 2008; Thompson, 2016; Zaman, 2015). Historically, natural capital has been observed in distinct categories such as land use, water concerns, biodiversity, and climate (Flora et al., 2016; Nelson et al., 2021; Zaman, 2015). The asset of land availability and access is a valuable natural capital (Flora et al., 2016) because, in part, it leads to the development of other capitals. Farming and logging are considered important aspects of a community's natural capital; however, these entities also become part of a community's financial capital (Flora et al., 2016). Natural resources are critical in the development of a community (Zaman, 2015). Various rural communities often face long-lasting droughts, which can result in harmful agricultural and ecological impacts (Witt, 1997). When rural agrarian communities experience precipitation deficits, it can lead to hardships through decreased crop yields, water shortages, increased wildfire, and death of livestock (Logan et al., 2010; Witt, 1997).

Land use also provides a community with increased financial capital through the buying and selling of property that can then be used to improve built capital; the land is also used to provide for the conservation of a balanced ecosystem and cultural capital (Flora et al., 2016). Land and other natural resources have a direct connection to agricultural production and use in rural areas (Kilkenny & Partridge, 2009). Natural capital directly connects to financial capital due to economic activities such as farming and mining; additionally, natural capital affects cultural and social capitals by inspiring traditions and lifestyle behaviors (Emery & Flora, 2006; Flora & Flora, 2013; Ringwood, 2017). Rural communities can use their natural capital for ecotourism, which allows for non-consumption use of said natural capital, and agritourism, which allows for the participation in agricultural practices (Fennell & Weaver, 1997). Rural residents face unique challenges on their land in relation to agricultural production and other economic production such

as runoff, pesticide/herbicide spreading to neighbors, and ownership of underground estates, i.e., water, oil, coal, and natural gas (Zimmermann & Weible, 2017). A community's interaction with its natural capital is dependent on its infrastructure used to bring access to that resource, e.g., irrigation or other systems supplying water (Ternes, 2017).

Communities rely on water availability to be sustainable (Flora et al., 2016). Thus, water and surface water area are measured natural capitals (Hunter et al., 2020; McGranahan, 1999). Communities have used natural capital to develop other capitals; hence, the balance of biodiversity and climate change are part of the conversation surrounding natural capital (Flora et al., 2016). Biodiversity efforts of farmers in rural communities may help them be able to better manage natural capital (Birge & Herzon, 2019). An abundance of natural capital leads to a balanced ecosystem (Callaghan & Colton, 2008). Natural capital forms the foundation from which all community capitals develop (Fey et al., 2006; Flora et al., 2016).

Rural employment is often strongly influenced by the agricultural sector (Korsgaard, 2015; Malanski et al., 2021), while extractive natural resource employment comprises, on average, less than 2% of rural employment (Mueller, 2020). Extractive natural resources employment includes activities such as oil and gas, mining, or commercial logging (Muller & Tickamyer, 2020). Natural capital is essential in fostering economic development in rural communities (Crowe, 2008; Mueller & Tickamyer, 2020). However, additional research is needed regarding its impact on community development.

Financial Capital

“Financial capital includes savings, income generation, fees, loans and credits, gifts and philanthropy, taxes, and tax exemptions and is key to sustaining rural communities” (Flora et al., 2016, p. 16). Poverty levels and household income are measures of financial capital (Hunter et al., 2020). Urban communities tend to have more access to financial capital than do rural

communities (Marshall & Samal, 2006). Financial capital provides local governments with the ability to invest in public and private capitals with the intention community members can establish and maintain businesses (Flora et al., 2016; Monier, 2011). Financial capital can be accessed through federal and state government organizations for individual communities (Flora et al., 2016). Financial capital also provides resources for individuals to establish homes and businesses (Flora et al., 2016). As such, it is the most mobile and one of the more easily transformed of the community capitals (Flora et al., 2016; Ringwood, 2017). Rural communities aiming for sustainable growth need to retain their financial capital, identify local investment risks, and seek outside funding to help sustain local, rural businesses (Flora et al., 2016).

Entrepreneurship or other business ventures within a community must have financial capital to sustain development and growth (Hui Siang, 2017). Entrepreneurship through the development of local businesses is one way to revitalize rural communities (de Guzman et al., 2020). Currently, in rural areas, self-employed farm businesses are the leading entrepreneurship enterprises while urban areas have more a more diverse set of entrepreneurial activities (Gladwin et al., 1990). Joo (2011) determined entrepreneurship is more aberrant in rural communities than urban communities because urban communities offer additional resources, i.e., higher education levels, higher ethnicity and diversity, higher income per capita, and higher population density, to name a few, than do their rural counterparts. Both civic and social entrepreneurship are supported by financial capital, and this capital assures a community's ability to continue development through the creation of wealth (Dunn-Young, 2012; Emery & Flora, 2006). Unfortunately, rural firms are vulnerable to changes in shocks and trends in demographics, economics, and market conditions (Marshall & Samal, 2006). Resilient communities, however, have strong financial capital because of their ability to support economic activity, leverage additional capitals, and increase business productivity and expansion (Zaman, 2015).

Human Capital

Human capital includes the number of people living in a community and their personal attributes such as health, education, training, and interpersonal skills (Becker, 1964; Flora et al., 2016; Tweten, 2008; Zaman, 2015). The components of health, education, training, skills, and talents of each community member help strengthen and contribute to a community (Hunter et al., 2020; Monier, 2011; Ringwood, 2017). Tajuddin (2011) and Zaman (2015) found human capital must be present in a community development program to ensure the program's success. A community deficient in human capital will face challenges seeking economic development (Flora et al., 2016). Therefore, available and appropriate human capital can improve the economic capabilities and vitality of a community (Mattos, 2015; Schultz, 1971; Sweetwater, 1996). In addition to innate learned skills, age is a component of human capital. A community's collective human capital is imperative because the various attributes and abilities each individual possesses determines what can be provided for the community, writ large (Flora et al., 2016). Human capital allows numerous advantages to businesses and employers because of the skills and knowledge of the people they employ (Lepak & Snell, 1999).

Migration trends and the presence of a local labor force can profoundly affect a community's human capital (Flora et al., 2016). Petrin et al. (2014) argued not all migration is negative. In fact, outmigration of youth can increase a community's collective human capital if they return home with increased education, life experiences, and skills (Farmer et al., 2006; Petrin, 2014). A person's education and skills are important components of human capital development (Dunn-Young, 2012) because they lead to individual, community, and national growth (Sweetland, 1996) and are critical to creating sustainable community development (Voila et al., 2019). Therefore, rural schools and school systems are especially critical in the development of human capital because they provide a place for youth to acquire and practice knowledge and skills that can be applied in the community (Flora et al., 2016).

The loss of rural schools has been associated with rural population decline of human capital (Lehtonen, 2021). The change in education level needed to work available jobs has left rural communities in a compromising position as they face an educated workforce's outmigration (Flora et al., 2016). One measurement of human capital within a community is the attainment of academic degrees of its residents (Marrocu & Paci, 2012). People who are more highly educated (i.e., hold advanced academic degrees) tend to create more innovative, open, and inclusive environments, which increases a region's economic efficiency (Marrocu & Paci, 2012).

Finally, rural areas are faced with human capital challenges, such as high poverty rates, due to the lack of opportunities present in education and health (Flora et al., 2016). Such communities face a plethora of challenges in relation to healthcare, or lack thereof, i.e., qualification and quantity health care professionals, proximity to health care facilities, and insurance coverages (Inagami et al., 2016; Nelson et al., 2021; Zhao et al., 2019).

Social Capital

Social capital is the network of relationships that link members of a community together (Monier, 2011; Wold, 2007). Community development is expedited by the amount of social capital a community possesses (Zaman, 2015). Organizations, groups, networks, and other community bonds all comprise social capital (Jacobs, 2011). One individual cannot achieve social capital alone; rather, it is a community- and group-level phenomenon (Flora et al., 2016). Social capital is responsible for the connection or social ties individual members feel toward one another within a given community (Beaven, 2014). Social capital can build trust among community members who may facilitate positive contributions for the adoption of new innovations, and the ability to cope with catastrophic events such as drought, fires, and frost (Cofre-Bravo et al., 2019). Social capital can be categorized into two groups: bonding and bridging.

Bonding Social Capital

Bonding social capital includes the intimate ties that build cohesion within relatively homogenous groups of a community, i.e., peers, families, and neighbors (Cofre-Bravo et al., 2019; Emery & Flora, 2006; Flora et al., 2016; Hui Siang, 2017; Mattos, 2015; Wold, 2007). Greater community cohesion helps a community withstand vulnerabilities such as an aging population, population loss, and enhancement of skills need to engage with technological advancement (Heness et al., 2013). Community cohesion can be achieved through a myriad of ways such as narrowing the gaps between generations through the building of relationships between youth and their communities by establishing youth programs such as 4-H and FFA (Heness et al., 2013). Such efforts have the capacity to create and sustain a more unified community (Hui Siang, 2017). Bonding capital can also unite a community in and through a common cause (Wold, 2007). It is a bond that forms strong ties between familiar people such as families, close friends, neighbors, and homogenous groups (Babaei et al., 2012; Wakefield & Poland, 2005; Woolcock, 1998).

Bridging Social Capital

Bridging social capital creates and maintains ties that bridge organizations and communities together (Emery & Flora, 2006; Flora et al., 2016; Hui Siang, 2017; Mattos, 2015; Wold, 2007). Without bridging capitals, it would not be possible for a community to connect with outsiders (Hui Siang, 2017). Bridging social capital can link rural communities with formal research-based knowledge, training, and financial resources to apply to their communities (Cofre-Bravo et al., 2019).

Communication channels are a key aspect of social capital and must be present to improve social capital (Flora et al., 2016). Social networks need to be present and diverse within and outside the community in question (Flora et al., 2016). The prevalence of social capital within a community provides depth to a community's ability to build, network, and organize (Beaven,

2014; Flora & Flora, 2008; Putnam, 2000). Collective action is facilitated through social capital; thus, it is essential for community development (Hotchkiss, 2019; Woolcock, 2001). Social capital is critical for communities to develop because it includes reciprocity and mutual trust (Flora et al., 2016). Social capital serves as a catalyst for sustainable development within a community because it provides synergy amidst the other forms of capital (Flora et al., 2016). Advancements occur when social capital is present and utilized (Dinda, 2008). Strong social capital will aid communities in a crisis (Sanders et al., 2015; Whittaker et al., 2012).

Tajuddin (2011) found social capital significantly influenced an Iowa rural community's ability to sustain economic development, which is consistent with other research (Putnam, 1993). Communities with high social capital can improve their communities both socially and economically (Tajuddin, 2011). Desired outcomes are most likely achieved if founded in social capital due to their ability to connect individuals and groups (Agnitsch, 2003). Rupasingha et al. (2006) determined a community's social capital can be measured by ties that could be created by religious organizations, civic and social associations, business associations, political organizations, professional organizations, labor organizations, bowling centers, physical fitness facilities, public golf courses and sports clubs, managers, and promoters, as well as the number of non-profits present in a community.

Political Capital

Members of a community have an instinctive need to promote community development, which is known as political capital (Monier, 2011). Political capital plays a critical role across communities and community development because it directly reflects citizens' willingness to contribute to their community (Monier, 2011). It includes access to resources such as other capitals and serves as leverage to people who are in power (Jacobs, 2011). Power and the power brokers are reflected in political capital as well as their ability to influence and enforce rules,

regulations, and standards (Mattos, 2015). Historically, rural power was held by the elites, those who owned land, and enforced hierarchal and paternalistic societies (Woods, 2008). Political power holders in rural communities can be an influential person who was not necessarily formally elected (Utami & Cramer, 2020). As outmigration occurred due to economic opportunities, power positions became available and rural residents filled these positions to defend cultural and economic interests within their communities (Woods, 2003). Civic and political involvement can be achieved on the youth level through programs such as FFA and 4-H, thus providing youth with the ability and opportunity to contribute to their communities (Hennes et al., 2013).

The use and distribution of influence determine the power structure of a community (Flora et al., 2017). This power associated with political capital is not evenly distributed and can reflect the dominant cultural capital (Flora & Flora, 2013; Ringwood, 2017). The use of power allows political capital to be transformed into built capital, cultural capital, financial capital, and social capital (Flora et al., 2016). Gutierrez-Montes (2005) stated:

Political capital reflects the ability to deal with coercion and enforcement, the ability to participate and have a voice and the ability to access power and influence decisions and actions that in a modernization process will transform all the other community capitals.
(p. 15)

Thus, political capital finds its place with the other community capitals within this framework. For sustainable development to be successful in a community, power structures need to be pluralistic and have broad participation from the community (Flora et al., 2016). Simply, the communities with higher political capital have a greater focus on sustainable policies (Mueller, 2019) because, in large part, political capital creates political actors who are more inclined to address community problems (Mueller, 2019).

Cultural Capital

How a community perceives values and the world around them is considered cultural capital (Flora et al., 2016; Gutierrez-Montes, 2005, Thompson, 2016). Flora et al. (2016) stated: “cultural capital generally is expressed through families and other social institutions, and it varies by race, class, ethnicity, and gender” (p. 103). Rural communities are ethnically diverse (Lee & Sharp, 2017; Lichter, 2012), which provides rural communities with the opportunity to develop strategies to improve cohesion and quality of life for all residents (Lee & Sharp, 2017). Sizemore (2004) determined language and race diversity can lead to the benefit of the community because it can draw in monetary value through the implementation of programs to help existing minority groups and that wealth can benefit the entire community. Diversity benefits can only be obtained if current community members choose to increase community harmony over intergroup avoidance and integration conflict (Lee & Sharp, 2017; Sizemore, 2004).

Cultural capital can include the language spoken because languages connect people and shape how they view information (Moskal, 2014). As such, cultural capitals can aid in the discovery of dominant beliefs of a community (Beaven, 2014). Rural communities have diverse backgrounds, beliefs, and experiences that impact their cultural capital (Foreman & Nelson, 2021). Cultural capital forms from the main values in the community, and since many rural communities are historically agrarian societies, their cultural capital typically revolves around the importance of agriculture (Talhelm et al., 2014). As rural communities have become more developed, certain values have diminished (Flora et al., 2016). Ward (1955) argued property ownership and neighborliness have been cultural values that have reduced over time due, in part, to advancements in society such as agricultural mechanization.

Cultural capital provides identity to communities (Zekeri, 2013). Cultural capital is important to a community because it provides meaning, context, passing on norms, values, and possessions, and how individuals or community perspectives react to community development initiatives (Flora et al., 2016). Community capitals are interconnected, and the group with the

most political capital will often greatly influence the prevailing cultural capital (Beaven, 2014; Flora & Flora, 2008). A community's cultural capital helps members determine what is good about their community and what change is necessary and possible (Flora et al., 2016).

CCF research has been a lens used by researchers to better understand the shocks, trends, and vulnerabilities a community may face (Flora et al., 2016). CCF allows a community the ability to detect if it has the resources available to sustain community development efforts. CCF has been used extensively by the Rural Renewal Initiative (RRI) research team at Oklahoma State University to highlight and address various wicked rural problems in Oklahoma and across the world (Oklahoma State University, 2021a).

Rural Renewal Initiative (RRI)

In 2019, with the help of the Office of the Vice-President of Research, a group of Oklahoma State University researchers launched the RRI to address research needs critical to improving quality of life in rural communities. The mission of the RRI is to “catalyze the renewal of rural communities and places in Oklahoma and beyond through interdisciplinary research, student mobilization and community engagement” (Oklahoma State University, 2021a, para. 2). To pursue this mission, RRI has established: 1) a Rural Scholars program, which consists of student researchers living and working in selected rural counties to collect research and participate in community development and service activities; 2) funding as seed grants to support interdisciplinary research teams in collecting data on the needs, assets, and capitals affecting rural places; and 3) an annual symposium to celebrate the organization's successful research and service ventures (Oklahoma State University, 2021a).

As a place-based initiative (Oklahoma State University, 2021a), RRI recognized a need for rural renewal efforts in Harmon and Tillman Counties, Oklahoma because of their low score in the USDA ERS Typology Codes. Harmon and Tillman Counties were selected for a seed grant

with the goals to determine how rural health systems can alter the communities' persistent poverty levels (Oklahoma State University, 2021a). This seed grant awarded up to \$100,000 over a two-year period for a research project (University State University, 2021a).

Chapter Summary

Rural communities face multifaceted and complex challenges; however, the communities are necessary to the culture and livelihood of the U.S. by providing food and clothing for the world. CCF serves as a conceptual lens by which researchers can better understand and assess communities. CCF allows a community the ability to detect if it has the resources available to sustain community development efforts, which can assist organizations that are making strides to initiate successful community development efforts.

CHAPTER III

METHODOLOGY

This chapter includes the published sources from which data were retrieved, the observed values measured, capitals present in Harmon and Tillman Counties, and their comparison to other, similar, farming-dependent counties in Oklahoma. All data for this study were quantitative and archival data, which were collected through previous research studies (Church, 2002; Hox & Boeije, 2005). Archival data provided information for the capitals that were present in the selected farming-dependent counties. A minimum and maximum scaling system was used to analyze indicators used to represent community capitals (Links et al., 2018).

There was a need to identify these counties' assets for rural renewal. Assets, or resources, possessed or accessed by people in a community are referred to as capitals (Gutierrez-Montes et al., 2009). The CCF model by Flora et al. (2016) provided the lens to examine the community capitals present in these two target counties. Two research objectives guided the study.

1. Determine the community capitals in all rural, farming-dependent counties in Oklahoma.

2. Compare the community capitals present in Harmon and Tillman Counties to other, rural, farming-dependent counties using the Economic Research Service Typology Codes.

Research Design

Comparison County Selection Process

Counties provide a scale by which to measure communities (Links et al., 2018). Therefore, counties were chosen as the unit of analysis, and various indicators were measured according to the CCF. When selecting comparison counties, all counties coded as metro or urban were eliminated. Next, all counties not coded as farming-dependent were eliminated. To meet the criteria of being farming-dependent, 25% or more of the county's earnings, or 16% or more of the employment average over 2010-2012, must come from farming (Economic Research Service, 2017). A comparison of counties with similar economic types was determined to be a better comparison. The ERS County Typography Codes determines economic types by the percentage of county earnings coming from a specific industry (Economic Research Service, 2017). Multiple counties in Oklahoma were solely farming dependent and did not overlap with any other economic type. Using farming-dependent counties allowed for the comparison of counties based on similarities.

Harmon and Tillman Counties are deficient in all five areas rated by the ERS County Typology; the remaining farming-dependent counties are deficient in fewer areas. All counties selected are solely coded as farming-dependent and do not receive significant income in any other area. Stofferahn (2009) determined farming-dependent counties provided a way to compare community, economic, and social issues across communities due to their similarities. Therefore, additional farming-dependent counties were chosen for the analysis. In all, ten counties in Oklahoma are identified as being rural and farming-dependent: Atoka, Cimarron, Coal, Harmon,

square miles for these ten counties ranged from 516.68, Coal County (the fewest square miles of land availability) to 1834.74, Cimarron County (the largest square miles of land availability).

Table 1

*Land Area in Square Miles of Farming-dependent Counties in Oklahoma,
2010*

County	Land Area in Square Miles	Rank ^a
Atoka	975.52	3
Cimarron	1834.74	1
Coal	516.68	10
Harmon	537.19	9
Harper	1039.02	2
Hughes	804.65	5
Jefferson	758.83	6
Nowata	565.78	8
Okfuskee	618.57	7
Tillman	871.13	4

Note. ^aCounties were ranked from largest to smallest.

Table 2 provides population and population per square mile for the selected ten counties. Land area provided the researchers the ability to analyze measured capitals relating to land area within the counties. For human capital to be present each county had to have a resident population. The population and population per square mile indicators allowed for the analysis of different aspects of the CCF. The county with the greatest population was Atoka (13,758), and the county with the least population was Cimarron (2,137).

Table 2

Population Estimates 2019

County	Population	Population per square mile	Rank ^a
Atoka	13,758	14.3	1
Cimarron	2,137	1.2	10

Table 2 (continued)

Population Estimates 2019

County	Population	Population per square mile	Rank ^a
Coal	5,495	10.9	7
Harmon	2,653	4.8	9
Harper	3,668	3.5	8
Hughes	13,279	16.3	2
Jefferson	6,002	7.8	6
Nowata	10,076	17.8	4
Okfuskee	11,993	19.0	3
Tillman	7,250	8.3	5

Note. ^aCounties were ranked from largest to smallest.

Data Gathering

Secondary data sources were used for all capitals present across the ten counties. Data were gathered from the following sources: U.S. Census, USDA’s Natural Amenities Index, Penn State University’s Social Capital Index, Oklahoma Department of Transportation, Oklahoma Mesonet, United States Department of Agriculture-National Agricultural Statistic Service (USDA-NASS), and Internal Revenue Service. All data were collected from the most recent year recorded. These sources provided critical data important in determining if Harmon and Tillman Counties have the current resources present to support community development compared to other rural farming-dependent counties.

Observed indicators were selected for each of the seven community capitals. Researchers selected indicators that most accurately represented the capitals based on previous research (Flora et al., 2016; Ringwood, 2017; Turi, 2014). The indicators selected represent essential services and needs of the communities (Links et al., 2018) and were selected from the review of literature. Following the example of Links et al., (2018), indicators were measured by structures and process (e.g., total highway mileage by land area in square miles) rather than reporting outcomes (total highway mileage). Indicators chosen were observed and varied in measurement across all rural,

farming-dependent counties in Oklahoma. There are multiple indicators selected for each capital. Indicators were compiled into the capital category they most represented. However, it is possible they may contain aspects that might align with another or multiple capital category(ies).

Built Capital Observed Indicators

Human activity within a community cannot function without built capital (Flora et al., 2016). Communities use built capital to help develop other capitals through the infrastructure they provide. Rural communities are vulnerable due to poorly maintained, inappropriate, and underutilized infrastructure (Ashley & Touchton, 2016; Brotsky et al., 2019; Corbet, 2014; Ryer et al., 2020). Inadequate infrastructure can significantly impact development because it can take additional resources to maintain, renovate, and improve resources such as high-speed broadband internet and other technologies (Bauch, 2001; Gibson et al., 2014; Ryer et al., 2020). Miles of highway (Chandra & Thompson, 2000; Hunter et al., 2020), percent of households with internet subscriptions, and occupied housing are all indicators of built capital (Ringwood, 2017; Turi, 2014). To gain an understanding of the available built capital in these communities, the following indicators were included and assessed in these farming-dependent counties: (a) miles of highway per county square mile of county area, (b) percent homes owner occupied, and (c) percent of households with internet subscription.

Our expectation is that counties with higher built capital will most likely have more miles of highway present, and a higher percentage of their population with a high-speed internet subscription. Of observed internet subscriptions, a high percentage of that should be broadband, which is high-speed internet (Whitacre & Strecker, 2007). We also desire for the percentage of owner-occupied homes to be high in these counties.

Financial Capital Observed Indicators

Financial capital is a resource with liquidity; it can easily be transformed into another asset (Flora et al., 2016). Ringwood (2017) stated monetary resources and assets display a community's financial capital. "Community financial capital can be assessed by changes in poverty, firm efficiency, diversity of firms, and local people's increased assets" (Flora et al., 2016, p. 16). Financial capital is measured through poverty levels and household income (Hunter et al., 2020). With those assessment recommendations, the following indicators were measured to assess and compare the financial capital availability in the ten target counties: (a) percent population below the poverty line, (b) mean annual income, (c) taxable interest, and (d) ordinary dividends.

Poverty is represented by the percent of the total county's population living below the poverty line. Mean annual income, taxable interest, and ordinary dividends provide insight regarding the counties' useable assets that could be transformed into other capitals. We anticipated counties with higher financial capital would possess higher percentages of firms, taxable interest, and ordinary dividends, in addition to a high mean annual income. As such, we assume the percent population below the poverty line should be low in these cases.

Natural Capital Observed Indicators

Natural capital is the basis from which other capitals form (Flora et al., 2016). Percent water and percent land areas are suitable measures of natural capital (Hunter et al., 2000; McGranahan, 1999; Ringwood, 2017). We added rainfall to the measured natural capital metric because of its direct relation to agricultural production (Alam et al., 2011). We also made the decision to include irrigated agricultural land acres as a form of natural capital because it demonstrates water availability (Flora et al., 2016; Ternes, 2017), a necessity in farming-dependent counties. Because agricultural production is so largely influenced by water, we used

the following indicators to assess natural capital present in the ten targeted counties: (a) total annual rainfall in inches, (b) percent water area, and (c) irrigated agricultural land acres.

Human Capital Observed Indicators

The analysis of human capital was represented by various data. One portion of the data consisted of education, such as the percent of the population with various education levels and opportunities to acquire advanced education. Health, education, and skills are all appropriate measures of human capital (Hunter et al., 2020; Monier, 2011; Ringwood, 2017). Regarding education, academic degrees (i.e., percent of population with a high school diploma, percent of population with an associate's degree, bachelor's degree, and percent of population with a graduate or professional degree) are expressed as human capital measurements (Ringwood, 2017; Turi, 2014). In addition to education, the workforce and healthcare coverage (i.e., medically insured versus medically uninsured) are also indicators of a community's human capital (Ringwood, 2017).

The overall human capital is benefitted by the community's education level (Tweten, 2008). Percent labor force participation showed the percent of residents who are using skills and talents in the workforce. The higher percentages of people involved in the labor force is rationale that appropriate human capital (i.e., skills and talents) is being used. Therefore, we expected that communities with high levels of human capital also have higher levels of educational attainment and medically insured residents.

Social Capital Observed Indicators

A community formed from human interaction is known as social capital (Flora et al., 2016). Social capital builds trust and establishes bonds within a community (Flora et al., 2016). Social capital can be difficult to measure because it exists within and between people inside and outside of a community (Ringwood, 2017). Following guidance from previous research

(Ringwood, 2017; Rupsingha, 2006; Turi, 2014), the following indicators were included to represent the social capital present in the target and selected counties: (a) religious organizations, (b) civic and social organizations, (c) business associations, (d) professional associates, (e) labor organizations, (f) bowling centers, (g) fitness and recreational sports centers, (h) golf courses and country clubs, (i) sports teams and clubs, and (j) non-profit organizations. All indicators were totaled. The sum was then divided by the total population to determine the rate of organizations within each farming-dependent county.

The capitals provide opportunities for residents of these communities to build social capital through human interactions. They quantify bonding relationships. Within rural communities', churches or religious organizations provide the opportunities for residents to experience diversity and build social capital due to their interconnected nature and ability to form social ties (Foreman & Nelson, 2021). Ties that could facilitate community development can be identified in these social associations, clubs, and organizations. For our study, we assumed elevated numbers in all social capital measurements were ideal because they demonstrated positive relationships within the various counties.

Political Capitals Observed Indicators

Political capital represents the dominant thoughts and ideas within a community (Flora et al., 2016). Census response rates and political organizations per capita were deemed to be measurable metrics for determining political capital (Ringwood, 2017). Previous research recorded voter turnout (Ringwood, 2017), but voter registration was chosen to represent political capital in this study because it is indicative of the total potential voters available in the counties. These items were selected to be measured because they demonstrated citizens' political engagement within their respective communities. The following indicators were measured to

assess the political capital present in the target and selected counties: (a) percent voter registration, (b) census response rate, and (c) political organizations per capita.

Political capital provides community members the ability to access power and transform their communities (Gutierrez-Montes, 2005). Voter registration quantifies the residents who are available to impact community development through voting. Census response rates allow the people to have a voice, which then can be translated into representing other capitals. Empowering people to voice their thoughts and concerns can lead to disagreement. Therefore, community development issues present in the community need to be discussed and debated sufficiently (Flora et al., 2016). Within the counties, political organizations can provide outlets for such discussion to ensue. Thus, communities with higher political capital were assumed to have higher percentages of voter registration, census response rates, and higher political organizations per capita.

Cultural Capitals Observed Indicators

Cultural capital is received from one generation to the next through various factors, and it shapes how individuals interpret the world around them (Flora et al., 2016). Community identities would not be present without cultural capital (Zekeri, 2013). Cultural capital is difficult to measure because it is a community's mindset and sense of identity (Ringwood, 2017). Flora et al. (2016) suggested families can impact the culture within a community. Cultural capital can be influenced by language (Moskal, 2014); thus, it was a chosen variable. Tangible items impact and help measure a community's cultural capital. For this study, the following indicators were measured to assess the cultural capital present in the target and selected counties: (a) percent language spoken, (b) percent population race and ethnicity, and (c) family households.

Cultural capital is transferred through various social institutions, chief among them being family units (Flora et al., 2016). Understanding cultural capital provides communities their

identities, language and race were selected to represent identities within these counties. These items affect the cultural atmosphere of the community and how individuals within the community interact. Cultural capital within itself could not be quantified as high or low without going through additional statistical or mathematical methods that extended beyond the scope of this study.

Community Capital Data Sources

A large amount of the data retrieved for this study came from the U.S. Census Bureau. Within the U.S. Census Bureau, the American Community Survey (ACS) provided data for multiple community capitals. The ACS uses “a series of monthly samples to produce annually updated estimates for the same areas (census tracts and block groups) formerly surveyed via the decennial census long-form sample” (U.S. Census, 2014, p. 1). The ACS provided recent data sets for this study. Years associated with each data set were provided under each capital’s section of data sources.

The U.S. Census strives to provide reliable and valid data. Consequently, the ACS data are based on samples subject to sampling variation (American Community Survey, 2019). The degree of uncertainty in the estimates provided by the U.S. Census through the ACS, arising through sample variability, is presented through a margin of error (American Community Survey, 2019). All values collected for this study show a 90 percent margin of error. The U.S. Census (2018) stated the organization uses quality controls during the entire data collection and reporting process to minimize the effects of nonsampling error.

Built Capital Data Sources

Data for highway miles in all counties were obtained from the Oklahoma Department of Transportation Control Section Maps for the State Highway Inventory Data (Oklahoma Department of Transportation, 2018). Oklahoma Department of Transportation (2018) provided

maps and total mileages for state highways. Total milage was divided by total land area which was obtained from National Agricultural Statistics Service (2017).

Owner-occupied housing units were provided by the U.S. Census (2019f). Owner-occupied is a housing unit with an owner or co-owner who lives in it regardless of it is mortgaged or not fully paid for or the home is owned with no mortgage or similar debt (U.S. Census, 2019b). The U.S. Census (2019b) advised organizations to use the data on internet subscriptions, especially broadband technology, to evaluate access to the Internet and to increase access to those with less connectivity. Internet subscription and source was provided by the U.S. Census (2019k).

Financial Capital Data Sources

Poverty status is based on data observed in the past 12 months using 2019: ACS 5-year Estimates (U.S. Census, 2019i). The U.S. Census determines poverty by analyzing a set dollar value threshold which varies depending on family size and composition (U.S. Census, 2019b). Poverty across multiple age groups were included because some of the counties analyzed were coded as persistent poverty and persistent related child poverty. The mean annual income data were retrieved from the U.S. Census (2019h). The data emanate from the mean annual income per household for the past 12 months in 2019 inflation-adjusted dollars. The mean household income is an aggregate of dividing the household income by the total number of households (U.S. Census, 2019b).

Taxable interest and ordinary dividends data were collected from the Internal Revenue Service (IRS). The data originated from individual income tax returns using selected income and tax items by state, county, and size-adjusted gross income for the 2018 tax year (IRS, 2021b). Data were collected and analyzed by the Statistics of Income (SOI), a program within the IRS, to distribute data to the public (Internal Revenue Service, 2021a). The county data recorded and published are based on population data that was filed and processed with the IRS the previous

calendar year (Internal Revenue Service, 2018). The SOI reports do not have a standard error presented but do include a ratio called the coefficient of variation and controls for nonsampling error (Internal Revenue Service, 2011). Reports are reviewed and compared to ensure the most accurate data are presented.

Natural Capital Data Sources

Percent water area data were retrieved from USDA Economic Research Service Natural Amenities Scale (Economic Research Service, 1999). This scale was most recently updated in 1999. The water area does not frequently change; consequently, this dataset remains reliable over time.

Average rainfall data were taken from the Oklahoma Climatological Survey (2021), which works in unison with Oklahoma Mesonet (2021). The Oklahoma Mesonet is a partnership with the University of Oklahoma and Oklahoma State University and serves as a network of environmental monitoring stations in Oklahoma (McPherson et al., 2007). The Oklahoma Mesonet provides data on temperature, humidity, barometric pressure, wind speed and direction, rainfall, solar radiation, and soil temperature (Brock et al., 1995). With stations in every county, a summary for each month's annual total rainfall in inches was provided. Total annual rainfall accumulation was averaged from the years 2010 to 2020. In counties with multiple Mesonet stations, an average was recorded from all stations. The following stations were used for the rural, farming-dependent counties in Oklahoma: (a) Atoka County- Lane Station, (b) Cimarron County- Kenton and Boise City Stations, (c) Coal County- Centrahoma Station, (d) Harmon County- Hollis Station, (e) Harper County- Buffalo Station, (f) Hughes County- Holdenville Station, (g) Jefferson County- Waurika and Ringling Stations, (h) Nowata County- Nowata Station, (i) Okfuskee County- Okemah, and (j) Tillman County- Tipton and Grandfield Stations. Estimate values were not used in these data. Consequently, annual totals were missing for some stations for

various years. For example, the Holdenville Station was missing rainfall annual totals for 2013 and 2016, the Kenton Station was missing annual totals for 2011, 2016, and 2019, the Centrahoma Station was missing rainfall annual totals for 2013, the Buffalo Station was missing rainfall annual totals for 2019, the Nowata Station was missing annual rainfall totals for 2011 and 2014, the Okemah Station was missing rainfall totals for 2014, and the Tipton Station was missing annual rainfall totals for 2011.

The USDA-NASS supplied irrigated agricultural land acres per county land area (National Agricultural Statistics Service, 2017). The USDA-NASS prepared reports on U.S. agriculture and served as a reliable source to report the total amount of irrigated agricultural land present in the counties.

Human Capital Data Sources

Educational attainment data were collected from ACS 5-year estimates for 2019 (U.S. Census, 2019d). These data display the highest level of education achieved by individuals living in the counties. Age demographics were summed together to obtain the total percentage of educational attainment for the population 18 years of age and older. Data retrieved for health insurance coverage indicates selected health insurance coverage characteristics for all noninstitutionalized population in the U.S. by the ACS (U.S. Census, 2019j). Data do not differentiate between sources of insurance coverage, i.e., private or public health coverage. Thus, we elected to use uninsured data to quantify the health component of human capital. The labor force participation rate was retrieved from the ACS 5-year estimates (U.S. Census, 2019e). the population aged 20 to 64 was selected because it more accurately represented those who are currently employed in the workforce.

Social Capital Data Sources

The Northeast Regional Center for Rural Development used secondary data sources to create a social capital index (Flora et al., 2016). Data from Penn State University, Social Capital Index information were accessed from 2014, which includes the most recent update. Aggregates of the following were selected and measured: religious organizations, civic and social associations, business associations, political organizations, professional organizations, labor organizations, bowling centers, physical fitness facilities, public golf courses and sports clubs, as well as the number of non-profits (Rupsingha et al, 2006). These indicators were selected due to their presence in the rural, farming dependent counties. All organizations were totaled to obtain the total number of social organizations per county, which allowed for comparisons to be made to each county's population. This index is conducive to research on comparing counties' social capital characteristics (Flora et al., 2016).

Political Capital Data Sources

The census response rate was gathered from the U.S. Census and included the most recent census count which was conducted in 2020 (U.S. Census, 2021). Responses for the 2020 Census were completed via postal mail, phone, or online. Voter registration data were collected from annual voter registration reports by the State of Oklahoma. These annual registration reports are published on January 15 and November 1 of each year (Oklahoma State Election Board, 2019). The report provided the total number of registered voters. The percentages of voters per county were compared to the most recent population data available for each county regarding those 18 years of age and older. The most recent available population data reported by county originated from the ACS 5-year estimate in 2019 (U.S. Census, 2019c). Data determining the available political organizations in each county were obtained from Penn State's Social Capital Index (Rupsingha et al., 2006).

Cultural Capital Data Sources

ACS provided data for languages spoken of residents in all the farming-dependent counties (U.S. Census, 2019g). English was the selected language to record because it was most commonly spoken across all the counties. Race demographic data were collected from the U.S. Census (2019a). The races and ethnicities recorded in this study included White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Hispanic or Latino of any race, some other race alone, and two or more races. Diversity can be difficult to measure. As such, race and ethnicity data were calculated and recorded for each farming-dependent county using the generalized variance (Budescu & Budescu, 2012). General Variance (GV) was determined using to the following formula:

$$GV = \sum_{i=1}^c P_i(1 - P_i) = 1 - \sum_{i=1}^c P_i^2$$

P_i represents the race or ethnicity percentage amount for each county as recorded by the U.S. Census, and C represents the number of races or ethnicities present within each county.

The ACS 5-year estimate provided data for percent of household type of which percent family households were used (U.S. Census, 2019f). The percentage of family households is determined by total households in individual counties and not the county total population (U.S. Census, 2019f). According to the U.S. Census, a “household includes all the people who occupy a housing unit” (2019b, p. 78). Therefore, all the following are considered households: house, apartment, mobile home, a group of rooms, and a single room that is occupied as a separate living quarter (U.S. Census, 2019b). The ACS defined the householder as the person whose name is listed online one as the homeowner or renter per the survey questionnaire (U.S. Census, 2019b). If this information is missing, any persons 15 years old and over could be designated as the householder (U.S. Census, 2019b). According to the U.S. Census (2020), a group of two or more

people related by birth, marriage, or adoption to the householder and are residing together are considered to be one family.

Data Analysis

Data analysis was completed following a minimum and maximum scale guided by Links et al. (2018). The minimum indicators of each metric were scaled as 0, and the maximum indicators were scaled as 1 (Links et al., 2018). A scale was used to determine how each county preformed within each community capital indicator. The scales were necessary because they allowed for the comparison of diverse and various indicators.

Microsoft Excel was the selected programming environment for this study of rural, farming-dependent counties. Once data were collected, each indicator was scaled between a +1 or -1 (Links et al., 2018). The positive numbers assume the given capital is better for the community (Links et al., 2018). In contrast, negative number assumes the given capital is worse for the community. A +1 was determined to be the maximum number used to represent the most amount of an indicator across the capitals measured, and a -1 was determined to be the maximum number used to represent the least amount of an indicator across the capitals measured in a particular county. To scale the +1 and -1 indicators, the following formulas were used:

$$= +1 \times (C - \text{min}) / (\text{max} - \text{min})$$

$$= -1 \times (C - \text{max}) / (\text{min} - \text{max})$$

C represents the measurement for each individual county. *C* changed with each new county, but the direction, minimum, and maximum remained the same for each of the ten counties on every indicator. The highest outcome of these formulas was scaled at 1, and the lowest were scaled at 0. The values in between 0 and 1 were where the counties fell in relation between the high (1) and the low (0) numbers assigned (Links et al., 2018).

The scaling of each indicator's output was averaged with other indicators to determine total built, financial, natural, human, social, political, and cultural capital present within each farming-dependent county. Then, community capitals within a county were averaged across all seven categories for these rural, farming-dependent counties. Harmon and Tillman Counties were selected, and their CCF overall averages were compared to those of the other rural, farming-dependent counties. Our rationale for how we scaled the capitals is listed below.

Total county highway mileage (i.e., Built Capital) was scaled +1 because roads are considered a built capital that benefits rural communities (Flora & Flora, 2008; Monier, 2011). Owner-occupied housing was scaled +1 due to tax benefits owner occupied homes provide communities (Poterba & Todd, 2008; Swell et al., 1999). Households with internet subscription and internet from broadband were scaled as +1 because the higher the amount of internet, the higher the potential for communication (Fox & Porca, 2001) and resilience exists in the community (Ashmore et al., 2017; Marshall et al., 2020), which translate into increased built capital.

Poverty (i.e., Financial Capital) in all age groups was scaled -1 because the lower the poverty level, the more financial capital community members have available to use (Flora et al., 2016). Mean annual income, taxable interest, and ordinary dividends were scaled +1 because they represent the economic activity and capital available in the community; a higher indicator scale would thus reflect higher economic resources (Ringwood, 2017; Zaman, 2015) in a county.

Rainfall, total water area, and total irrigated agricultural land (i.e., Natural Capital) are necessary metrics to assess for farming-dependent counties. As such, they were scaled as a +1 because water is essential for agricultural production in farming-dependent counties (Alam et al., 2001; Kilkenny & Partridge 2009; Ternes, 2017).

Skills and education (i.e., Human Capital) were scaled as a +1 because education attainment and the development of skills are deemed important for community development (Monier, 2011; Ringwood, 2017). The overall health of people living in a community is related to human capital (Flora et al., 2016). Without health insurance, accessing basic and necessary healthcare is problematic for many rural citizens (Inagami et al., 2016; Nelson et al., 2021; Zhao, et al., 2019). Therefore, uninsured residents were scaled -1. Labor force participation rate was scaled as a +1 because labor force has a direct impact on human capital (Flora et al., 2016). Therefore, the higher the labor force, the higher the human capital.

Social capital provides communities with a means to create connections (Flora et al., 2016). Therefore, counties with high levels of social organization activities were deemed to have high social capital present, resulting in the indicator being scaled as a +1.

Voter registration, census self-response rate, and political organization (i.e., Political Capital) were used to explain political engagement within a county (Mattos, 2015; Monier, 2011). Consequently, they were scaled as +1.

English only speakers (i.e., Cultural Capital) were scaled as -1. Language connects individuals and shapes beliefs (Moskal, 2014), and its diversity is beneficial to communities (Sizemore, 2004). Therefore, additional spoken languages would connect more individuals together. Family households were scaled as +1 because norms, values, meaning, and context are passed and expressed through families (Flora et al., 2016). Race and ethnicity representing the diversity within the counties was measured as a +1 because if diversity is present within communities, it allows additional opportunities for development and inclusion (Lee & Sharp, 2017; Lichter, 2012), which can serve as a benefit to a community (Sizemore, 2004).

CHAPTER IV

FINDINGS

In this chapter, indicators for each community capital are identified and then used to compare Harmon and Tillman Counties to other rural, farming-dependent counties in Oklahoma. This comparison was made by scaling the indicators selected to represent the community capital present within and across each of the counties. The data are provided for each indicator of all community capitals using archival data accessible to the public. A description of where Harmon and Tillman Counties rank in relation to scaled indicator value are described throughout. The overall averages of the indicators for each capital are present as well as the overall average of community capitals within the rural, farming-dependent counties. The data presented in this chapter provide findings useful for community developers in rural, farming dependent counties in Oklahoma and especially for Harmon and Tillman Counties, the two target communities featured in the study.

Individual Capital Findings and Scaling

Built Capital

Built capital provides the infrastructure to all the counties studied. Highway miles per land area in square miles were recorded in each county and scaled +1. The mileage depicted in Table 3 varies and depends on the individual county's geographic size. Miles of highway provided a fixed positive built capital for each of the communities. When comparing miles of highway, Harmon County (0.131 square miles) ranked ninth in highway mileage per land area in square miles. Tillman County (0.153 square miles) ranked sixth out of the ten in scaled total county highway mileage per land area in square miles. Coal County (0.207 square miles) had the most highway mileage per land area in square miles and Cimarron County (0.107 square miles) had the least (see Table 3).

Table 3

Miles of Highway Available in the Selected Rural, Farming-dependent Counties in Oklahoma

County	Total County Highway Mileage per Land Area		
	Square miles	Scale ^a	Rank
Atoka	0.135	0.28	8
Cimarron	0.107	0.00	10
Coal	0.207	1.00	1
Harmon	0.131	0.24	9
Harper	0.152	0.45	7
Hughes	0.176	0.69	3
Jefferson	0.168	0.61	4
Nowata	0.167	0.60	5
Okfuskee	0.202	0.95	2
Tillman	0.153	0.46	6

Note. ^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \min) / (\max - \min)$

Total homes owner-occupied in Table 4 show that Harmon County ranked sixth in homes being owner-occupied. In contrast, Tillman County was ranked second with 75.8% of total homes in the county being owner-occupied. Harper County ranked first with 78.4% of homes being owner-occupied. Okfuskee County ranked last regarding total homes that were owner-occupied (see Table 4).

Table 4*Total Homes Owner-Occupied in Rural, Farming-dependent Counties in Oklahoma*

County	Total Homes Owner-occupied		
	Percent	Scale ^a	Rank
Atoka	73.4	0.31	5
Cimarron	72.9	0.24	7
Coal	74.0	0.39	3
Harmon	73.1	0.26	6
Harper	78.4	1.00	1
Hughes	72.8	0.22	8
Jefferson	72.1	0.12	9
Nowata	73.7	0.35	4
Okfuskee	71.2	0.00	10
Tillman	75.8	0.64	2

Note. ^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

The Internet allows these counties to connect and potentially increase their capital. Table 5 displays the data for the internet subscription and broadband of any type for all rural, farming-dependent counties and were scaled as +1. Harmon County ranked first in households with an internet subscription with 75.1% of households with an internet subscription. Tillman County ranked second of the rural, farming-dependent counties in Oklahoma with 71.7% households with an internet subscription. Hughes County ranked last with 56.4% of households with an internet subscription. Harmon County had 74.7 of its households with internet subscription come from broadband of any type thus ranked number first out of all the counties analyzed. Tillman County ranked second on the same scale. Hughes county ranked 10th (see Table 5).

Table 5*Internet Subscription and Broadband Availability in Rural, Farming-dependent Counties in Oklahoma*

County	Households with an Internet Subscription			Broadband of Any Type		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank
Atoka	68.4	0.64	3	68.3	0.73	3
Cimarron	63.5	0.38	9	63.5	0.54	9

Table 5 (continued)

Internet Subscription and Broadband Availability in Rural, Farming-dependent Counties in Oklahoma

County	Households with an Internet Subscription			Broadband of Any Type		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank
Coal	64.9	0.45	7	64.3	0.57	7
Harmon	75.1	1.00	1	74.7	1.00	1
Harper	66.8	0.56	4	66.3	0.65	5
Hughes	56.4	0.00	10	50.6	0.00	10
Jefferson	66.9	0.56	4	66.4	0.66	4
Nowata	64.2	0.42	8	63.8	0.55	8
Okfuskee	65.6	0.49	6	64.9	0.59	6
Tillman	71.7	0.82	2	71.0	0.85	2

Note. ^aThe scale ranged from 0 to 1, using the following formula = $+1 \times (C - \min) / (\max - \min)$

Financial Capital

Financial capital provides insight into the financial assets a community possesses. Table 6 displays data regarding the poverty status of those living below the poverty level for the last twelve months and were scaled -1. Data were extracted from the U.S. Census Bureau (2019i). In 2019, Harmon County ranked first with the least amount of population under 18 years in poverty at 15.7% of this demographic in poverty. However, Tillman County ranked sixth out of the ten rural, farming-dependent counties in population under 18 years. In population 18 to 64 years in poverty, Harmon County (17.5%) ranked fourth and Tillman County (19.2) ranked fifth overall. Cimarron County (14.8%) had the least amount of 18 to 64-year-old population in poverty. In the 65 years and older population, Harmon County ranked first with only 4.4% of its citizens living in poverty. However, in the same age demographic Tillman County ranked sixth with 12% of its population in poverty (see Table 6).

Table 6*Poverty Status in Rural, Farming-dependent Counties in Oklahoma*

County	Under 18 Years			18 to 64 Years			65 Years and Older		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank
Atoka	26.9	0.39	5	20.7	0.46	8	12.6	0.37	7
Cimarron	24.5	0.52	4	14.8	1.00	1	13.0	0.34	8
Coal	31.9	0.12	8	19.8	0.54	7	16.3	0.09	9
Harmon	15.7	1.00	1	17.5	0.75	4	4.4	1.00	1
Harper	15.7	1.00	1	16.9	0.81	3	9.9	0.58	3
Hughes	29.7	0.24	7	21.1	0.42	9	9.1	0.64	2
Jefferson	34.1	0.00	9	19.3	0.59	6	11.3	0.47	5
Nowata	21.3	0.70	3	15.3	0.95	2	10.8	0.51	4
Okfuskee	34.1	0.00	9	25.7	0.00	10	17.5	0.00	10
Tillman	28.5	0.30	6	19.2	0.60	5	12.0	0.42	6

Note. The percentage is below the poverty level for 2019

^aThe scale ranged from 0 to +1, using the following formula = $-1 \times (C - \text{max}) / (\text{min} - \text{max})$

The mean annual income for the last twelve months recorded in 2019 is depicted in Table 7 and were scaled as a +1. Of all farming-dependent counties in Oklahoma, Harmon County ranked number one with the greatest annual income of \$65,261 followed by Cimarron County at \$64,782. Tillman County ranked eight with an annual income of \$56,552, and Okfuskee County was last at \$51,384 (see Table 7).

Table 7*Mean Annual Income of Rural, Farming-dependent Counties in Oklahoma*

County	Mean Annual Income		
	Dollars	Scale ^a	Rank
Atoka	58,846	0.54	6
Cimarron	64,782	0.97	2
Coal	59,996	0.62	5
Harmon	65,261	1.00	1
Harper	60,655	0.67	3
Hughes	56,864	0.39	7
Jefferson	60,666	0.67	3
Nowata	54,856	0.25	9
Okfuskee	51,384	0.00	10
Tillman	56,552	0.37	8

Table 7 (continued)

Mean Annual Income of Rural, Farming-dependent Counties in Oklahoma

County	Mean Annual Income		Rank
	Dollar	Scale ^a	

Note. Mean annual income is for household income for the past 12 months in 2019 inflation-adjusted dollars.

^aThe scale ranged from 0 to +1, using the following formula = +1 × (C- min)/(max-min)

Taxable interest and ordinary dividends were scaled at a +1 because these demonstrate available financial capital. Taxable interest and ordinary dividends are depicted in Table 8. Harmon County ranked last for both taxable interest (\$256) and ordinary dividends (\$219) of all the rural, farming-dependent counties. Tillman County ranked fourth in both taxable interest (\$891) and ordinary dividends (\$1,139). Atoka County ranked first in taxable interest (\$1,816) and Hughes County ranked first in ordinary dividends (\$1,822) [see Table 8].

Table 8

Income and Tax Items in Rural, Farming-dependent Counties in Oklahoma

County	Taxable Interest			Ordinary Dividends		
	Dollars	Scale ^a	Rank	Dollars	Scale ^a	Rank
Atoka	1,816	1.00	1	832	0.38	6
Cimarron	517	0.17	9	463	0.15	8
Coal	624	0.24	8	419	0.12	9
Harmon	256	0.00	10	219	0.00	10
Harper	730	0.30	5	1,311	0.68	3
Hughes	1,424	0.75	2	1,822	1.00	1
Jefferson	697	0.28	6	506	0.18	7
Nowata	957	0.45	3	1,688	0.92	2
Okfuskee	685	0.28	6	896	0.42	5
Tillman	891	0.41	4	1,139	0.57	4

Note. Money amounts are in thousands of dollars and are based on population data

^aThe scale ranged from 0 to +1, using the following formula = +1 × (C- min)/(max-min)

Natural Capital

Natural capital does not change easily, but it is an essential community capital. The natural capitals must be high to support agrarian communities and, as such, were scaled as +1. Natural amenities such as water availability through rainfall, water area, and irrigation are presented in Table 9 across all farming-dependent counties. In total, annual rainfall Coal County (47.5 inches) ranked first and Cimarron County (17.11 inches) ranked last. Harmon County ranked eight out of the ten counties with 23.55 inches of total annual rainfall for 2010 to 2020. Tillman County ranked seventh with 28.70 inches of total annual rainfall during the same time period. Harmon County (0.14%) ranked tenth for percent water area, and Tillman County (0.78%) ranked fifth in the same category. The county with the most water area was Nowata County at 2.74%. In agricultural land irrigated areas, Harmon ranked first with 7.12% and Tillman County (5.92%) ranked second. Jefferson County (0.14%) ranked tenth with the least amount of agricultural land in irrigated acres (see Table 9).

Table 9

Percentage of Water Availability through Rainfall, Water Area, and Irrigation in Rural, Farming-dependent Counties in Oklahoma

County	Total Annual Rainfall			Water Area			Agricultural Land Irrigated Acres		
	Inches ^d	Scale ^a	Rank	Percent ^c	Scale ^a	Rank	Percent	Scale ^a	Rank
Atoka	43.79	0.88	3	1.18	0.40	3	0.23	0.03	7
Cimarron	17.11 ^{b c}	0.00	10	0.33	0.07	8	3.57	0.50	3
Coal	47.50 ^c	1.00	1	0.59	0.17	7	0.14	0.01	8
Harmon	23.55	0.21	8	0.14	0.00	10	7.12	1.00	1
Harper	21.43 ^c	0.14	9	0.19	0.02	9	0.65	0.09	4
Hughes	43.85 ^c	0.88	3	0.97	0.32	4	0.57	0.07	5
Jefferson	35.42 ^b	0.60	6	1.94	0.69	2	0.14	0.01	10
Nowata	46.33 ^c	0.96	2	2.74	1.00	1	0.04	0.00	8
Okfuskee	42.94 ^c	0.85	5	0.66	0.20	6	0.39	0.05	6
Tillman	28.79 ^{b c}	0.38	7	0.78	0.25	5	5.92	0.83	2

Note. ^aThe scale ranged from 0 to +1, using the following formula = +1 × (C- min)/(max-min)

^b Average of multiple Mesonet sites within the county

^c Missing rainfall total annual accumulation for certain years

^d All water area is measured as a proportion to the total county area

^e Total annual rainfall for 2010 to 2020

Human Capital

Human capital depicts the skills and talents available within the counties. Population education attainment (scaled +1), population uninsured medically (scaled -1), and labor force participation rate (scaled +1) were all measured to determine the human capital. A high level of educational attainment is desired and is depicted in Tables 10 and 11. Harmon County ranked last in high school diploma or equivalent for 25 years and older (25.1%) and first for population 25 years or older with associate's degree or some college (33.9%) [see Table 10]. Additionally, Table 10 depicts Tillman County's population 25 years and older as ranking eight in both high school diploma or equivalent (33.4%), and associate's degree or some college (26.8%). In high school diploma or equivalent, Nowata County (44%) ranked number one and in associates degree or some college Coal County (23.7%) ranked tenth.

Table 10

Percentage of the Population's Education Attainment- High School Diploma or Equivalent and Associate Degree or some college Per Capita Rural, Farming-dependent Counties in Oklahoma

County	High School Diploma or Equivalent 25 Years and Older			Associate's Degree or some College 25 Years and Older		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank
Atoka	40.3	0.80	4	28.0	0.42	6
Cimarron	36.0	0.58	7	24.2	0.05	9
Coal	41.6	0.87	2	23.7	0.00	10
Harmon	25.1	0.00	10	33.9	1.00	1
Harper	33.1	0.42	9	29.3	0.55	3
Hughes	40.3	0.80	4	28.9	0.51	4
Jefferson	41.4	0.86	3	27.0	0.32	7
Nowata	44.0	1.00	1	33.4	0.95	2
Okfuskee	39.6	0.77	6	28.3	0.45	5
Tillman	33.4	0.44	8	26.8	0.30	8

Note. ^aThe scale ranged from 0 to 1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Table 11 depicts educational attainment for the 25 years and older population with a bachelor's degree and graduate or professional degrees. On that metric, Cimmaron County (18.4%) ranked first for the population with the greatest number of bachelor's degree, and Coal County (6.9%) ranked first for the population with the greatest number of graduate or professional degrees. Regarding bachelor's degree holders, Harmon County (15.9%) ranked second, and Tillman County (12.1%) ranked fourth. Regarding graduate degree or higher recipients, Harmon County (15.9) ranked fourth, and Tillman County (5.1%) ranked third (see Table 11).

Table 11

Percentage of the Population's Education Attainment- Bachelor's Degree and Graduate or Professional Degree Per Capita Rural, Farming-dependent Counties in Oklahoma

County	Bachelor's Degree (%) 25 Years and Older			Graduate or Professional Degree 25 Years and Older		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank
Atoka	10.4	0.24	6	4.6	0.38	6
Cimarron	18.4	1.00	1	4.4	0.32	7
Coal	10.4	0.24	6	6.9	1.00	1
Harmon	15.9	0.76	2	4.8	0.43	4
Harper	13.9	0.57	3	5.4	0.59	2
Hughes	8.2	0.03	9	4.7	0.41	5
Jefferson	11.3	0.32	5	3.4	0.05	9
Nowata	8.3	0.04	8	3.2	0.00	10
Okfuskee	7.9	0.00	10	3.7	0.14	8
Tillman	12.1	0.40	4	5.1	0.51	3

Note. ^aThe scale ranged from 0 to 1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

As a measure of human capital, a low uninsured medical population was desired. Of the ten farming-dependent counties, Harper County (12.3%) ranked first with the fewest citizens uninsured. In comparison, Harmon County ranked third (15.2%), and Tillman County (15.3%) ranked fourth. The county with the most uninsured residents is Okfuskee County (23.6%) ranking tenth (see Table 12).

Table 12

Percentage of the Medically Uninsured Civilian Noninstitutionalized Population in Rural, Farming-dependent Counties in Oklahoma

County	Medically Uninsured Population		
	Percent	Scale ^a	Rank ^a
Atoka	17.0	0.58	5
Cimarron	14.8	0.78	2
Coal	23.2	0.04	9
Harmon	15.2	0.74	3
Harper	12.3	1.00	1
Hughes	19.6	0.35	8
Jefferson	17.7	0.52	7
Nowata	17.3	0.56	6
Okfuskee	23.6	0.00	10
Tillman	15.3	0.73	4

Note. ^aThe scale ranged from 0 to +1, using the following formula = $-1 \times (C - \max) / (\min - \max)$

Regarding the labor force rate in these communities, Cimarron County (75.2%) ranked first with the most employed workers. Harmon County (71.7%) ranked third along with Harper County. In comparison, Tillman County (66.6%) ranked sixth regarding its labor forced participation rate (see Table 13).

Table 13

Labor Force Participation Rate Per Capita in Rural, Farming-dependent Counties in Oklahoma

County	Population 20 to 64 Years		
	Percent	Scale ^a	Rank
Atoka	55.3	0.06	9
Cimarron	75.2	1.00	1
Coal	68.0	0.66	5
Harmon	71.7	0.83	3
Harper	71.7	0.83	3
Hughes	54.0	0.00	10
Jefferson	63.2	0.43	7
Nowata	73.3	0.91	2
Okfuskee	55.7	0.08	8
Tillman	66.6	0.59	6

Table 13 (continued)

Labor Force Participation Rate Per Capita in Rural, Farming-dependent Counties in Oklahoma

County	Population 20 to 64 Years		
	Percent	Scale ^a	Rank

Note. ^aThe scale ranged from 0 to +1, using the following formula = +1 × (C- min)/(max-min)

Social Capital

Table 14 depicts the social capitals that were present in the counties. Harmon and Tillman Counties both had social capital in their respective counties in the form of religious organizations, civic and social organization, business organizations and nonprofit organizations represented in total organizations. Harmon County (0.009) ranked third for total organizations per county population, and Tillman County (0.007) ranked fifth overall. In comparison, Cimarron County (0.014) ranked first, and Jefferson County (0.0045) ranked last regarding total organizations per county population (see Table 14).

Table 14

Social Capital in Rural, Farming-dependent Counties in Oklahoma

County	Total Organizations per County Population		
	Amount	Scale ^a	Rank
Atoka	0.0047	0.02	8
Cimarron	0.0140	1.00	1
Coal	0.0060	0.16	6
Harmon	0.0090	0.47	3
Harper	0.0110	0.68	2
Hughes	0.0046	0.01	9
Jefferson	0.0045	0.00	10
Nowata	0.0080	0.37	4
Okfuskee	0.0048	0.03	7
Tillman	0.0070	0.26	5

Note. Total organization per county includes religious organizations, civic and social organization, business associations, professional organizations, fitness and recreational sports

centers, golf courses and country clubs, and non-profit organizations

^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Political Capital

Table 15 displays the political capitals available in the counties. Voter registration, census self-response rate, and political organizations were all assessed and scaled as +1. None of the counties featured in this study had political organizations, thus, they were all scaled and ranked at 0. Regarding voter registration, Cimarron County (94.0%) ranked first. In comparison, Harmon County (66.4%) ranked eighth, Tillman County (70.6%) ranked fifth, and Okfuskee County (61.8%) ranked last. Regarding the census response rate, Nowata County (52.0%) ranked first. In comparison, Harmon County (45.9%) ranked fifth, Tillman County (48.0%) ranked third, and Cimarron County (33.8%) ranked last (see Table 15).

Table 15

Population Political Capitals in Rural, Farming-dependent Counties in Oklahoma

County	Voter Registration			Census Self-response Rate			Political Organizations		
	Percent	Scale ^a	Rank	Percent	Scale ^a	Rank	Number	Scale ^a	Rank
Atoka	66.5	0.15	7	51.1	0.95	2	0	0.00	0
Cimarron	94.0	1.00	1	33.8	0.00	10	0	0.00	0
Coal	88.3	0.82	2	44.3	0.58	6	0	0.00	0
Harmon	66.4	0.14	8	45.9	0.66	5	0	0.00	0
Harper	67.8	0.19	6	44.3	0.58	6	0	0.00	0
Hughes	64.0	0.07	9	46.8	0.71	4	0	0.00	0
Jefferson	72.0	0.32	4	40.8	0.38	9	0	0.00	0
Nowata	72.6	0.34	3	52.0	1.00	1	0	0.00	0
Okfuskee	61.8	0.00	10	42.2	0.46	8	0	0.00	0
Tillman	70.6	0.27	5	48.0	0.78	3	0	0.00	0

Note. ^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Cultural Capital

Cultural capital existed in all the rural, farming-dependent counties in this study.

Language spoken (scaled -1), race (scaled +1), and family households (scaled +1) were chosen to represent the cultural capital as depicted in Tables 16, 17, and 18. In language spoken for population five years and older, English only speakers, Harmon County (80.6%) ranked first, and Tillman County (80.8%) ranked fourth. In comparison, Nowata County (97.9%) ranked last (see Table 16).

Table 16

Language Spoken for Population 5 Years and Older in Rural, Farming-dependent Counties in Oklahoma

County	English Only Speakers		
	Percent	Scale ^a	Rank
Atoka	96.6	0.07	9
Cimarron	80.6	0.97	2
Coal	95.9	0.11	8
Harmon	80.0	1.00	1
Harper	80.6	0.97	2
Hughes	94.5	0.19	6
Jefferson	94.9	0.17	7
Nowata	97.9	0.00	10
Okfuskee	93.9	0.22	5
Tillman	80.8	0.96	4

Note. ^aThe scale ranged from 0 to +1, using the following formula = $-1 \times (C - \max) / (\min - \max)$

Harmon and Okfuskee Counties (0.58) tied for first regarding the general variance of race and ethnicity present in their counties. In comparison, Tillman County (0.57) ranked second, and Cimarron County (0.36) ranked last (see Table 17).

Table 17

General Variance of Race and Ethnicity in Rural, Farming-dependent Counties in Oklahoma

County	Race and Ethnicity		
	General Variance	Scale ^a	Rank
Atoka	0.47	0.50	7

Table 17 (continued)

General Variance of Race and Ethnicity in Rural, Farming-dependent Counties in Oklahoma

County	Race and Ethnicity		
	General Variance	Scale ^a	Rank
Cimarron	0.36	0.00	10
Coal	0.49	0.59	6
Harmon	0.58	1.00	1
Harper	0.38	0.09	8
Hughes	0.55	0.86	4
Jefferson	0.38	0.09	8
Nowata	0.52	0.73	5
Okfuskee	0.58	1.00	1
Tillman	0.57	0.95	3

Note. Race and ethnicities included: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Hispanic or Latino of any race, some other race alone, and two or more races.

^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Regarding family households, Atoka County (69.2%) ranked first, Harmon County (68.2%) ranked fifth, Tillman County (66.9%) ranked seventh, and Cimarron County (61.3%) ranked last (see Table 18).

Table 18*Percent Family Households in Rural, Farming-dependent Counties in Oklahoma*

County	Family Households		
	Percent	Scale ^a	Rank
Atoka	69.2	1.00	1
Cimarron	61.3	0.00	10
Coal	65.5	0.53	8
Harmon	68.2	0.87	5
Harper	64.1	0.35	9
Hughes	67.2	0.75	6
Jefferson	68.3	0.89	4
Nowata	69.1	0.99	2

Table 18 (continued)

Percent Family Households in Rural, Farming-dependent Counties in Oklahoma

County	Family Households		
	Percent	Scale ^a	Rank
Okfuskee	69.0	0.97	3
Tillman	66.9	0.71	7

Note. This percentage is of total households in individual counties not the county total population

^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Overall Capital Findings

Once scaled, all findings were averaged across the community capital indicators per capital and then averaged for each county. These findings are depicted in Tables 19 and 20. Regarding average built capital, Harper County ranked first, Tillman County ranked second, Harmon County ranked third, and Hughes County ranked last. Regarding average financial capital, Harper County ranked first, Harmon County ranked second, Tillman County ranked seventh, and Okfuskee County ranked last. In average natural capital, Nowata County ranked first, Tillman County ranked second, Harmon County tied with Coal County to rank sixth, and Harper County ranked last. In averaged human capital, Harper County ranked first, Harmon County ranked second, Tillman County ranked fifth, and Okfuskee County ranked last. Regarding average social capital, Cimarron County ranked first, Harmon County ranked third, Tillman County ranked fifth, and Jefferson County ranked last. Regarding political capital, Coal County ranked first, Harmon County ranked sixth, Tillman County ranked fourth, and Okfuskee County ranked tenth. In cultural capital, Harmon County ranked first, Tillman County ranked second, and Cimarron County ranked tenth (see Table 19).

Regarding overall community capitals, Harmon County ranked number one and had the highest average scale across all seven capitals. Tillman County ranked third across the seven

community capitals average scale. Okfuskee County ranked last (10th) out of all the rural, farming-dependent counties in Oklahoma on these same metrics (see Table 20).

Table 19*Averaged Scaled and Ranked Community Capitals in Rural, Farming-dependent Counties*

County	Built Capital		Financial Capital		Natural Capital		Human Capital		Social Capital		Political Capital		Cultural Capital	
	Average Scale ^a	Rank												
Atoka	0.49	6	0.52	6	0.43	4	0.41	8	0.01	8	0.37	3	0.52	6
Cimarron	0.29	9	0.53	5	0.19	9	0.62	3	1.00	1	0.33	5	0.32	10
Coal	0.60	4	0.29	9	0.40	6	0.47	6	0.16	6	0.47	1	0.41	8
Harmon	0.63	3	0.63	2	0.40	6	0.63	2	0.47	3	0.27	6	0.96	1
Harper	0.75	1	0.67	1	0.08	10	0.66	1	0.68	2	0.25	8	0.47	7
Hughes	0.23	10	0.57	4	0.42	5	0.35	9	0.01	9	0.26	7	0.60	4
Jefferson	0.49	6	0.37	8	0.44	3	0.42	7	0.00	10	0.23	9	0.38	9
Nowata	0.48	8	0.63	2	0.65	1	0.58	4	0.37	4	0.45	2	0.57	5
Okfuskee	0.51	5	0.12	10	0.37	8	0.24	10	0.03	7	0.15	10	0.73	3
Tillman	0.69	2	0.45	7	0.49	2	0.50	5	0.26	5	0.35	4	0.87	2

^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

Table 20*Overall Community Capitals in Rural, Farming-dependent Counties*

County	Overall Community Capitals	
	Average Scale ^a	Rank
Atoka	0.395	7
Cimarron	0.469	5
Coal	0.399	6
Harmon	0.569	1
Harper	0.511	4
Hughes	0.350	8
Jefferson	0.332	9
Nowata	0.532	2
Okfuskee	0.307	10
Tillman	0.516	3

^aThe scale ranged from 0 to +1, using the following formula = $+1 \times (C - \text{min}) / (\text{max} - \text{min})$

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Rural communities face a plethora of issues that threaten their livelihoods (Li et al., 2019). This study aimed to compare the community capitals present in Harmon and Tillman Counties in southwestern Oklahoma to similar, rural, farming-dependent counties in Oklahoma on metrics related to education, employment, population loss, persistent poverty, and persistent child poverty.

Although each of the counties featured in this study are similar in terms of being farming-dependent and rural, they are diverse in numerous ways. For instance, the size of these counties varies tremendously. Cimarron County (the largest of the farming-dependent counties) is three and one-half times bigger than Coal County (the smallest of the farming-dependent counties) regarding land area in acres per square mile. In addition, Atoka County (the most heavily populated farming-dependent county) is almost six and one-half times bigger than Cimarron County (the least populated farming-dependent county) regarding population. However, these counties were chosen due to their perceived needs as rural, non-metro, farming-dependent counties. In particular, Harmon and Tillman Counties have been communities that have been

consistently high in persistent poverty (Bureau of Economic Analysis, 2020) and population decline (U.S. Census, 2019c). As such, the CCF was chosen as the lens to analyze these counties' assets, resources, and deficiencies. CCF was deemed a satisfactory framework to undergird the study because it allows researchers to assess all resources critical to a community's wellbeing (Emery & Flora, 2006; Gutierrez-Montes et al., 2009; Mattos, 2015). Fortunately, all seven capitals were observed in the rural, farming-dependent counties featured in this study. The results build on existing evidence that each community has access to various capital necessary for improving community wellbeing and economic vitality (Fernando & Goreham, 2018; Flora & Arnold, 2012; Flora & Flora, 2013; Zekeri, 2013). In addition, the use of CCF identified current resources available for development and improvement within the communities (Fernando & Goreham, 2018).

Fortunately, each of these farming-dependent counties has the potential to facilitate community development. A comparison of Harmon and Tillman Counties to the other rural, farming-dependent counties in Oklahoma, on each community capital, is provided below.

Built Capital

A lack of highway mileage stunts economic growth in Harmon and Tillman County (Chandra & Thompson, 2000; Hunter et al., 2020). The lack of improvement in this indicator of built capital could cause other capitals to spiral down because there would be limit access to basics services, transportation of foods and increased poverty (Sewell et al., 2019; Chandra & Thompson, 2000; Hunter et al., 2020).

The relatively low portion of owner-occupied homes in Harmon County has the potential to lead to dilapidated homes because there are no residents in the homes maintaining, or improving, utilities (i.e., heating, cooling, and sanitation systems), and paying taxes on the homes (Morton et al., 2014; Skobba et al., 2019). The amount of owner-occupied homes in Tillman

County can be perceived as citizens making a positive impact on their community, which would resonate with research by Sawicki and Flynn (1996).

Communication infrastructure is important to both Harmon and Tillman Counties because both counties have built resiliency by citizens having access to internet within the homes and of the internet a majority of that is broadband of any type (Ashmore et al., 2017; Marshall et al., 2020). The communication infrastructure within Harmon County allowed the county to rank third overall for built capital. The same conclusion is drawn for Tillman County; communication infrastructure is providing a way for the citizens in these counties to access information, work, education, medical and other services (Fox & Porca, 2011). The quantity of communication infrastructure may increase the value of other capitals through the ability to access resources not present within the communities and allow for the flow of ideas back into the community.

Without the built infrastructure present in these counties, Harmon and Tillman, their communities could be more susceptible to external stresses (Ashmore et al., 2017; Marshall et al., 2020), the lowering of the quality of life (Flora et al., 2016; Ringwood, 2017) and economic health (Flora et al., 2016).

Financial Capital

Regarding financial capital, Harmon and Tillman Counties are in persistent poverty and persistent child poverty, according to the Economic Research Service (2017). The measures for this study were taken over 12 months and were not a longitudinal study. Therefore, the results will be different than the ERS Typography Codes. Harmon County has relatively high indicator measures for poverty status across multiple age demographics, i.e., low poverty rates, and high mean annual income. These two indicators work in tandem. The ability of Harmon County residents to have high income leads to a lower their poverty rates. The higher ranking in poverty status and mean annual income could be because of the utilization of other capitals present within

the community such as the skills and education within human capital. Community capitals do not work independently but impact one another (Fernando & Goreham, 2018; Pigg et al., 2013). Better homes and businesses are developed through high financial capital (Flora et al., 2016). Harmon County does rank relatively low in financial capital present in terms of taxable interest and ordinary dividends. This could lead to consequences within the community such as less ability to invest in development projects.

Placing of seventh out of the ten rural, farming-dependent counties, Tillman County could face potential problems in sustaining community development projects, rural business, and entrepreneurship opportunities (Flora et al., 2016; Joo, 2011; Marshall & Samal, 2006).

Natural Capital

Communities without natural capital will have difficulty increasing other capitals (Fey et al., 2006; Flora et al., 2016) and fostering economic development (Crowe, 2008; Mueller & Tickamyer, 2020). A lack of natural capital has the potential to hinder community development now and in the future. Regarding natural capital, Harmon and Tillman Counties are classified as rural, farming-dependent counties that thrive on agriculture as their major industry and livelihood. Production agriculture is heavily impacted by water availability. However, Harmon and Tillman Counties are two of the most arid counties based on annual rainfall and total water availability when compared to the other rural, farming-dependent counties in Oklahoma. As a result, these two counties are drought-prone and vulnerable to stretches of long periods without adequate rainfall, which can have detrimental effects on the communities' vitality (Witt, 1997). Such hardships can contribute to the devastation of crops, livestock, and water access and supplies (Logan et al., 2010; Witt, 1997). Natural resources are critical in the development of a community (Zaman, 2015) because they have implications for citizens' livelihoods and can lead to the community's financial capital, or lack thereof (Flora et al., 2016). Fortunately, Harmon and

Tillman Counties both possess the highest amounts of irrigated acres of agricultural land when compared to the other farming-dependent counties, thus, partially offsetting the lack of consistent rainfall.

Human Capital

Regarding human capital, Harmon and Tillman Counties ranked above a majority of other rural, farming-dependent counties regarding citizens who hold bachelor and graduate or professional degrees. This indicates people in these two counties value education, which is a tool that can be used to increase the employability and overall livelihoods and wellbeing of community citizens (Becker, 1964; Schutlz, 1971). Based on the investment these citizens have made in their human capital, it appears they have the capacity to make substantial, positive changes to their communities, especially when compared to the other farming-dependent counties in the state. The existence of necessary human capital within the counties can improve their ability to obtain quality health care (Inagami et al., 2016), economic efficiency, and additional education (Marrocu & Paci, 2012), if desired.

In addition, Harmon and Tillman Counties have the ability to maintain the health of their residents because they have a lower amount of citizens without medical insurance when compared to other farming-dependent counties. Citizens in Harmon and Tillman Counties have insurance to cover the cost of medical care; however, this does not solve other potential problems related to health care for rural communities such as qualification and quality of health care professionals, and proximity to health care facilities as described by other researchers (Inagami et al., 2016); Nelson et al., 2021; Zhao et al., 2019).

These human capital skills and knowledge accessed through education attainment, health, and labor force, will be critical in the development of communities and increase its economic capacity (Mattos, 2015; Schultz, 1971; Sweetwater, 1996; Tajuddin, 2011; Zaman, 2015). These

skills and knowledge are being accessed, but further increasing these human capital indicators could benefit Harmon and Tillman Counties substantially.

Social Capital

Harmon County scored high in its available social capital when compared to other farming-dependent counties, indicating an ability to create bonds and relationships that rally the community together around a cause. This conclusion resonates with findings by Tajuddin (2011) who found that social capital is usually strong and present in rural communities. However, Tillman County, in comparison, scored in the middle of the pack regarding farming-dependent counties. Therefore, it can be implied that Tillman County has potential for uniting its citizens for a cause; however, it might not be as efficient at doing so as other farming-dependent counties in the state.

Political Capital

It can be concluded that high variation exists regarding political capital in these farming-dependent counties. Specifically, a 32% difference exists between citizens who are registered to vote in Cimarron County (94%) compared to Okfuskee County (61.8%). Eight of the ten counties have less than 75% of their citizens registered to vote. Further, because there are no active political organizations in any of the farming-dependent counties featured in this study, it can be concluded that citizens in these farming-dependent counties may lack capacity to effectively work together for policies that are important to their local communities.

Cultural Capital

Harmon and Tillman Counties have two of the lowest proportions of English-speaking residents when compared with the other farming-dependent counties in Oklahoma. As such, these two counties have a higher amount of diversity present regarding preferred spoken language when compared to other similar counties. In addition, they tend to be more racially and ethnically

diverse as well, which is positive because communities benefit greatly from a diverse citizenry (Sizemore, 2004). A high cultural capital is potentially caused by the presence of diverse human capital through the migration of a labor force into a community. Neither Harmon or Tillman County ranked high in the percentage of family households, which suggests that family and local community values may not be passed down to future generations as effectively in these counties as in others (Flora et al., 2016).

When comparing all farming-dependent counties in Oklahoma across all capitals in the CCF, Harmon and Tillman Counties ranked first and third, respectfully. Therefore, although these two counties are consistently ranked at the bottom in the ERS typologies because of persistent levels of poverty and high levels of outmigration (ERS, 2017), there is hope for renewal. It can be implied that the reason the rankings of these two counties contradict those of other studies are due to the fact that this study employed the CCF framework, instead of the ERS Typology Codes, which used different metrics to measure and evaluate these farming-dependent counties. It is encouraging that these two counties have the necessary, available, and potential capital for renewal efforts to ensue. However, helping these two communities identify, develop, and use their existing capitals will be imperative to their renewal success.

Recommendations for Practice

The findings of this study should be shared with the RRI research team at Oklahoma State University as they seek to highlight and address various wicked rural problems in Oklahoma and across the world (Oklahoma State University, 2021a). Understanding the rankings of these farming-dependent counties can assist the RRI research team in developing grant proposals and legislative policy to improve the wellbeing and economic vitality in these counties.

In addition, these findings should be shared with elected county officials (i.e., county commissioners), civic leaders, and the general public in these farming-dependent counties so that

appropriate measures can be taken to enact necessary changes to address the issues highlighted in the study. Specifically, regarding the study's findings, county leaders in these farming-dependent counties, and Harmon and Tillman Counties in particular, should work together to consider alternative avenues for improving their communities' general appeal and ability to attract new businesses, improve the community wellbeing of its citizens, and increase the overall economic vitality of its community, especially since they are disadvantaged in total miles of highway per square mile when compared to their other farming-dependent county counterparts and cannot benefit from the ease of transfer of goods and services (Chandra & Thompson, 2000; Hunter et al., 2020) like others can.

In particular, it is recommended that decision makers in Harmon and Tillman Counties help citizens in those communities brainstorm ways to increase their economy through the use of their high-speed internet service, as such capital has the potential to allow rural citizens to communicate, acquire information, work remotely, and access services such as education and medical care (Fox & Porca, 2001). High-speed internet service in these two communities is a strength that can potentially benefit other capital, especially human, financial, and social.

Regarding human capital, efforts should be devoted to increasing the number of high school graduates and postsecondary educational attainment of community citizens living in these rural-dependent counties. Specifically, it is recommended that school officials at secondary schools and surrounding community colleges work jointly to develop programs where students may earn advanced credits by being dually enrolled as a college student while in high school. Offering such programs may motivate additional students to attain advanced degrees.

Finally, it is recommended that efforts be devoted to improving the political presence and interest in Harmon and Tillman Counties. One way to increase participation and representation is through civic clubs (Zaman, 2015). Therefore, these two counties should be encouraged to

revamp and reintroduce civic clubs and organizations to their communities to increase the overall social capital and leadership capacity that exists there. It is also recommended youth be included in these leadership development efforts as they tend to be more innovative and open, which can positively impact the vitality of a community (Marrocu & Paci, 2012).

Recommendations for Research

A strength for Harmon and Tillman Counties in particular is their diversity. However, research is needed to determine how or if these counties are benefiting from their diversity. Are various ethnicities represented in leadership organizations? Future research is needed.

Finding ways to help communities increase the percentage of owner-occupied homes, particularly in Harmon County, appears to be a need. The condition of homes in these rural communities varies greatly, and some are dilapidated and in need of varying levels of repair (Housing Assistance Council, 2012; QutbAldeen, 2020). This study also failed to assess the number of vacant homes in these counties. As such, future research should be conducted to create an inventory of all houses in these communities and their quality. Once conducted, a map of the status of the homes could be created and shared with developers who desire to demolish vacated, dilapidated homes, or build new ones, in these communities.

Another strength for both Harmon and Tillman Counties is their access to high-speed internet. Continued research of technological infrastructure is needed to understand the rural broadband availability, accessibility, and use in these communities (Ashmore et al., 2017; Marshall et al., 2020). Understanding of this built capital might lead to greater resiliency within these communities. Specifically, how high-speed internet is being used in these communities is important to identify. Understanding the gaps and deficiencies in technological usage would allow for professional development of citizens regarding their technological aptitude. Specifically, youth should be taught how to use high-speed internet for developing entrepreneurial business ventures as a means for increasing their financial capital.

Financial capital provides local governments with the ability to invest in public and private capital with the intention that community members can establish and maintain businesses (Flora et al., 2016; Monier, 2011). However, with so little tax revenue being produced by existing firms and individuals in these places, efforts should be devoted to helping people consider becoming entrepreneurs, particularly utilizing the high-speed internet access in Harmon and Tillman Counties. To that end, curriculum and training are needed to provide youth and other interested individuals with entrepreneurship skills and education necessary for novel business start-up projects. Helping people, especially youth, identify potential businesses they can operate and manage could contribute to the economic vitality of these small, rural, farming-dependent communities. Such preparation also contributes to the human capital of the communities by increasing the knowledge, skills, and experiences of the community (Becker, 1964; Lepak & Snell, 1999; Mattos, 2015; Schultz, 1971; Sweetwater, 1996). Further research could be conducted to determine the relationship between financial capital and human capital within rural communities.

Both Harmon and Tillman Counties benefit from higher rates of diversity when compared to the other farming-dependent counties. However, this study failed to determine the representation of such diversity regarding local leadership positions. Additional research is needed in this area. It is recommended new civic leaders in these two counties be developed throughout all racial and ethnic groups. Ensuring all voices are heard contributes positively to the wellbeing of a community (Flora et al., 2016; Ringwood, 2017). The development of this diverse leadership will allow for Harmon and Tillman Counties to utilize their high cultural capital. As such, future studies should determine the degree to which ethnic and racial diversity are present in civic groups and decision-making circles. Further, it is recommended research determine how decisions are enacted in these two counties. Once identified, additional research should determine if these decisions are in the best interest of all citizens. For example, is it possible one race or

ethnicity is underrepresented among the decision-making leadership groups in the communities? If so, is it also possible the decisions made may actually impede growth in the counties? Research should be conducted to answer these questions. Regardless, it is recommended attempts be made in these two counties for inclusiveness in the various decision-making processes.

Finally, additional research is needed to compare the farming-dependent counties featured in this study to others across the region and U.S. to determine the similarities and differences that exist. Is it possible the needs of farming-dependent counties in Oklahoma are the same as others across the nation? If so, perhaps RRI should work to create a model that might be scalable to other rural communities wishing to improve their livelihoods and overall wellbeing (Flora et al., 2016; Schmidt & Severson, 2021). If the farming-dependent counties in Oklahoma are found to be distinctly different than others across the nation, perhaps policy efforts could be developed to help all farming-dependent counties leverage the capital (i.e., assets) they have with others in various states for greater overall revitalization. Regardless, such comparisons might increase awareness of deficits experienced in rural communities and provide opportunities to leverage needs with legislators for greater distribution of funds from the federal government to improve the livelihoods and renew rural farming-dependent communities.

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VITA

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