RESILIENCE AND REALITIES OF

Food Insecurity & Poverty in the Okanogan Highlands

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Food security in a remote, frontier community like Ferry County is critical. To better understand the needs, challenges, and opportunities for community and economic development, WSU Ferry County Extension collaborated with elected officials and community leaders to create a framework for data-driven decisions and strategic planning in both the local and regional economies. The driving factors in this research from town halls, listening sessions, and other community outreach were community resilience, food security, and sustainability. This formal research project was a critical piece in the county formally adopting a Community Economic Development Strategy (CEDS) in 2019.

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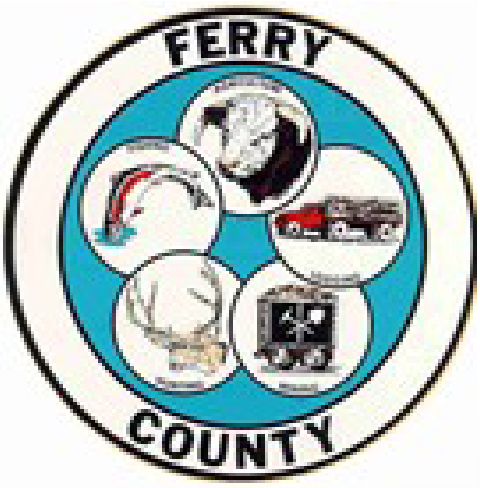

Introduction

Communities with a vision for the future will always be more successful than communities that just accept the status quo or whatever comes along. Abraham Lincoln once said, "The best way to predict the future is to create it yourself." Community resilience is important to local economic development and food systems. Community leaders in rural communities rely on case studies, existing models, surveys or evaluations, and evidence or science based best-practices to achieve organizational change leading to resilience in the community. When food is scarce, communities need strategies and action that lead to security. The importance of innovation in agriculture as a mechanism for food system productivity will continue to be driven by public interests and policy shifts. It is also responsible for promoting socially acceptable policies that facilitate small-scale, decentralized markets and encourage a greater dependence on locally available foods (Norberg-Hodge, Merrifield, & Gorelick, 2002). More importantly, ecological anthropology (Orlov, 1983) is the academic lens to view alignment with the local culture, politics, and personalities to achieve stronger small business ecosystems and a robust local food system with added value structures for entrepreneurialism.

Ecological anthropology supports successful economic development because improving a local economy is rarely about one big thing. Rather, it is typically about a series of little steps or efforts working systematically, culturally, and socially in a plan that makes sense. However, it is paramount there continues to be global interests and local implementation strategies to develop sustainable food systems that support area farmers and impacts community resilience and redundancy with food and resources, as well. This study conducted action research alongside a longitudinal community assessment by WSU Ferry County Extension to benefit Ferry County as part of a comprehensive community and economic development strategy (CEDS) for the region known as the Okanogan Highlands.

The observations and formulas in this study provide insight into the importance for rural communities focusing their economic development strategies on localization efforts, while simultaneously understanding the regional intersections of a global food system. The observations and formulas from this study help to ensure the community's sustained vibrancy or resilience. This study further aids with long-term community resilience in alignment with the local culture (ecological anthropology). This study was informed by programs and services using technology, broadband, storytelling, and placemaking to describe a few of the key activities emanating from this action research. The individual, localized efforts in each small community created a place where new development went from being possible to being actual, while demonstrating the possibility of sustainability. The communities in this study exhibited efforts to reinvent and localize strategies consistent with reshaping a food system with global implications through local production or regionalized planning by fostering smart economic growth and sustainable development.

Sustainable development is often associated with economic and agricultural security. Within the current discourse of sustainable development, both economic decline and food insecurity are attributed to more impoverished communities, often known as food deserts. The current problem with sustainable development is the challenge of improving local food systems and quality of life when exacerbated by food insecurities inherent to a food desert. Sustainability efforts are approached through economic and agricultural diversification and other alternatives, including locally owned small businesses and cooperative enterprises. These types of businesses are essential for both residents and communities in search of a more robust economy and a healthy food system. Essentially, these three counties experienced a significant downturn to their local economy. The research in this study taps into the region's entrepreneurial foundation with a local culturally appropriate desire to create social or organizational change. This foundation became known as Ferry County Sunrise and it wraps these action research findings into sound business practices leading to a formal strategy adopted by county commissioners and used within the communities across the region.

This action research offers new insights on how area developers can support local entrepreneurs making sustainable improvements across the region by developing their own scalable solutions to food security and improved programs to bolster new business ecosystems. Local participants across the Okanogan Highlands took control over their lives by nurturing local community strengths and problem-solving abilities with community leaders to kickstart, incubate, and mentor the growing social enterprise community taking form across the region. The participation of Ferry County Sunrise in tandem with other leaders in the community guided these current and future development efforts as they are redesigned to attract and maintain new business prospects and community revitalization programs. The effects of globalization have significantly changed the face of many state and national economies. As the demand side of the economy is constantly evolving, so is the need for jobs. The search for work has become increasingly more competitive and exceptionally daunting for a lot of rural residents who have elected to remain in their remote communities. Entrepreneurialism and innovation are essential for the survival of rural these communities.

Review of the Literature

The review of the literature focused on local food systems, as well as rural community and economic development. The continuous influx of populations is creating significant social and environmental problems. As major cities begin to buckle due to the demands of a larger population and narrowing infrastructure support (i.e. housing, food, transportation and employment), the real threat to rural communities is food insecurity caused by rapid growth from urban and suburban sprawl. This dynamic is changing with a shift toward urban families returning to their rural communities (Bender and Binet, 2020). The viability of every community hinges on the quality of life it affords its residents. Careful planning is crucial to building resilience in rural communities. The authority for this study emphasizes the importance of entrepreneurs, smart growth techniques, re-localization efforts, and food security when practicing sustainable community and economic development strategies. Smart growth is a way to build both neighborhoods and communities that are economically prosperous, socially equitable, and environmentally sustainable. All of which are necessary to address the insecurity issues that many economically disadvantaged communities face in known federally-designated food deserts. Smart growth takes an approach to development that encourages community engagement, diversifies both housing and transportation options, and creates a mix use of building types and spaces within already existing neighborhoods and communities (What is Smart Growth, n.d.).

Communities are at a pivotal moment for the global food system while faced with a variety of different disruptions, especially as COVID-19 causes more remote work and people returning to rural areas (Bender and Binet, 2020). By 2050, the global population will exceed 9.8 billion people and the demand for food will increase to more than 70% of what is currently being consumed today (Shaping the Future of Food Security and Agriculture, n.d.). There will be a need to make substantial improvements to the global food system in order to feed an extended number of the population both nutritiously and sustainably. This means increasing the global food system's capacity to not only provide healthy food options and other nourishing agricultural products, but we must also address the need to increase the livelihoods of our farmers and ranchers. It is going to require a significant amount of leadership, coordination, and collaborative action to address the world's current challenges and prepare for its future uncertainties. While new trends in the geopolitical environment are reshaping national governance and world trade policies, the industrial food and agricultural industry continues to put substantial strains on both local and regional environmental resources.

According to the UN Food and Agriculture Organization (UNFAO), at least 75% of the world's agricultural diversity has been lost over the last century (Norberg-Hodge, Merrifield, & Gorelick, 2002). As a result, collective calls-for-action and large-scale community organizing are on the rise worldwide. If we can align our visions across sectors and industries, and develop new partnerships to help reshape the global food system perhaps we can spur economic growth for a healthy population and a sustainable planet.

The United Nations envisions a world free of hunger by 2030. If it is supported by sustainable agriculture, it is possible to achieve improved nutrition and food security. The UN believes that food insecurities can be reduced and achieved through new business models, proactive policy, and meaningful civic engagement (Sustainable Development Knowledge Platform, n.d.). In addition to modern technology and innovation, there are opportunities to advance food security and food system insight by developing economic opportunities through a market-based and multi-stakeholder approach (Sustainable Development Goals, n.d.). The World Economic Development Forum is also ambitiously working alongside the UN and others to achieve the SDG's. There are over 600 organizations worldwide that are currently working to strengthen food systems and translate these global-level commitments into action on the ground at the local level (New Vision for Agriculture, n.d.). Along with their strategic recommendations for emerging social and economic inclusion, this network of over 150 transformative action leaders is also advocating world governance to foster collective impact and improve environmental stewardship (Strengthening Global Food Systems, n.d.). As recognition continues to grow among consumers, policy makers, and researchers about the importance of providing safe and locally-sourced food products, it is also vitally important to keep in mind that not only do these decisions determine what food is available, but also how much it costs, how healthy it is, and what its overall impact on the environment and community might be (Richardson, 2009). These decisions also determine whether or not people can participate in their community food system as a livelihood which does have a significant impact on the overall functioning of that food system and the communities within which it serves (Phillips & Wharton, 2016). Now is the time for us to think about how we grow, share, and consume our food.

Recent trends in the global food system and world economy are making social enterprise facilitation more urgent. More women have entered the workforce and are interested in starting their own businesses (Shah, 2015). Others who have been laid off and discarded by the mainstream economy are also looking to launch new businesses in order to supplement their incomes. Meanwhile, younger generations are looking for more control over their working lives through their own entrepreneurial endeavors (Shuman, 2015). The demand side of the economy is also changing. Customers want variety, quality, service, and ethics in who they do business with. These new trends have created new ways of winning market share through niche marketing that is both personalized, labor-intensive, client-centered, and highly localized around cooperative endeavors. According to Ernesto Sirolli (a global advocate against poverty and hunger), every successful business needs to have a great product, a boundless marketing campaign, and strong bookkeeping capabilities. In order to ensure a strong foundation for long-term stability and growth, local economic development strategies need to be driven by local assets and realities, a diverse industry base, equal opportunity commitments, and sustainable business practices (Gonzalez, Kemp, & Rosenthal, 2017). A smart developer then taps into local strengths (including a community's assets, its people, and the local demand) to nurture both the startup and growth of locally-owned and operated small businesses. This allows them to: 1) maximize cost-effective self-reliance through import substitutions, while also expanding exports from local businesses; and 2) to identify, celebrate, and spread models of triple-bottom-line (i.e. people, planet, and profit) success in local businesses; and 3) tries to accomplish as many of these goals as possible through private investment (Shuman, 2015). If you can grow it, make it, process it, and/or service it locally, then you should be able to buy it locally as well. This is an important strategy to remember when implementing local economic development initiatives.

There is a growing number of small private businesses that are beginning to carry out these important functions of economic development in their local communities. As members of this global platform, these individuals are facilitating local planning and place-making, nurturing local entrepreneurs, helping consumers to buy local, and are also financing some local businesses (Shuman, 2015). This is because locally owned businesses are by far the most significant contributors to community job growth, social equality, and sustainability. For example, when local nonprofits and for-profit businesses collaborate, it opens up new opportunities for innovation, scale, social benefit, and a growing business model (Haber, 2016). If implemented correctly, economic development can be both low-budget and high impact. Local governments can also help businesses overcome critical barriers to success by allocating resources for entrepreneurial and new business support services including: small business development centers, entrepreneur training, market information, networking opportunities, marketing assistance, business incubators, and even some

financing opportunities (Gonzalez, Kemp, & Rosenthal, 2017). There are also some self-financing alternatives or what are called, "pollinator" businesses that can carry the best elements of one local business to another, thereby supporting all local businesses and creating a healthy entrepreneurial ecosystem (Shuman, 2015). It is equally important for locally-elected officials to bring the same amount of commitment and enthusiasm to existing businesses as they do to new business prospects. Locally owned businesses are those with most owners living within the same geographical community where their business is based, usually within a 50-mile radius. These businesses are also often small (usually less than 500 employees) and usually come in the form of either a local corporation, nonprofit, co-op, regional chain, or a small franchise. The uniqueness of "small" area businesses also demonstrates the importance of place for many rural and remote communities.

One of the most compelling observations for rebuilding community food systems is that it requires people to build new relationships. These relationships help to strengthen local economies, conserve local landscapes, create entrepreneurial ecosystems, and enhance food security. True community-based development includes local concerns for the natural environment, social equity (or social justice), and economic development (Miller, 2017). Social justice, as defined as the "equality of outcomes" (i.e. fair and just relations and equitable access to wealth, opportunities, and privileges for individuals within a society), is just one way in which these three concerns can overlap and mutually reinforce one another. The best approach to social justice is a healthy economy rooted in strong local businesses (Shuman, 2015). By definition, social entrepreneurship is about justice, inclusiveness, fairness, saving lives, opportunity, hope, and human development (Lewis, 2017). To develop well, it is going to require a diversity of community players, experts from different fields, and some inevitable but carefully considered compromises. While older generations are looking to reclaim lost memories, meanings, and tastes from previous decades, the younger generations are looking forward with an eye towards food security and nutrition (Ackerman-Leist, 2013). Local food has the ability to connect people to their community, it tells a story, and it adds value to both people and their work. Local food can also play a vital role in place-making, economic development, and creating community narratives that can help to attract more visitors to rural communities and family farms for either educational or entertainment purposes. This is known as agritourism. By supporting both agribusiness and agritourism efforts, these locally-based enterprises can help to strengthen the connection between farmers and consumers through their direct-to-consumer marketing strategies, and in the process improve community well-being and promote economic inclusion. Especially in an era when unemployment is a chronic problem, the self-sustaining nature of a local food system makes it highly desirable. Small farms for example, employ far more people per acre than larger farms. This is largely due to the fact that smaller farms are not as conducive to the use of large-scale equipment. Instead, these small farms use proportionately more human labor to perform regular operations. Therefore, every effort to rebuild resilient communities needs to fit the community in question and its surrounding environment. As such, the viability of every community, regardless of its size or location, hinges on the quality of life it affords its residents. Throughout the U.S., many rural communities are losing its people, businesses, jobs, and vibrancy. However, the re-ruralization of these heartlands is on the rise, but in a lot of communities, it has become a slow and tedious process to gather the momentum necessary to move both residents and communities forward towards a more prosperous future. Those pushing for this kind of progress are rural residents who want a stable economy, small businesses, local schools, and family farms to remain in their local communities. Sustainable community-based economic development starts with education because an educated population is more resilient to a variety of potential future economic changes and challenges (Miller, 2017). When considering rural recovery, a lot of communities already have many of their building blocks in place, including infrastructure, entrepreneurs, and commerce. Rural communities can also build on these assets by supporting their residential entrepreneurial spirit and by reinvigorating their local agricultural sector. A social entrepreneur can be an individual, group, network, organization, or an alliance of organizations that seek sustainable, large-scale change through pattern-breaking ideas in what or how governments, nonprofits, and businesses do to address significant social problems (Haber, 2016). They are change agents and community activists that are schooled in the real world; by the real world, for the real world (Lewis, 2017). For them, passion propels action and as such, the most effective economic development strategy for rural communities is social entrepreneurship and locally-owned and operated small businesses.

The current food system is failing to serve both farmers and consumers. These are two of the most vulnerable actors in the global food system. Current statistics show that U.S. farmers are only earning a small fraction (about 15%) of the profits generated for every food dollar that is spent. This amounts to about 15 to 17 cents per dollar (Phillips & Wharton, 2016); and in the US (alone) more than 19,000 farmers rely solely on their nearby farmers' markets to sell their produce. One reason for this stems from the numerous levels of diversity inherent in local food systems (i.e. differences in climate, geography, and natural resources). For local farmers who supply nearby markets, there are also strong incentives to diversify their production. By improving the economic welfare of farmers, farm workers, small producers, and shopkeepers, entire local economies benefit. There are also deep social benefits to be had for communities as well. While many farmers want to sell locally, it has been difficult to connect them with local grocers and restaurants who also want to sell locally-sourced farm products. Yet, this is an ideal opportunity for these local independent distributors and retailers to do what is called, a "joint procurement," or to set up a producer-owned cooperative in order to mutually improve both their market values and sales revenue. It has been shown that local processing and distribution has the potential to both reduce prices for consumers and raise farmer incomes. A local cooperative would also provide neighboring consumers with fresher, healthier food options (Shuman, 2015). Other local food proponents agree that by supporting local farmers, it can help to slow suburban sprawl and reduce the amount of consumer-added carbon footprints. The increased use of cars and congestion by supermarket shoppers is leading to heavy costs for society as a whole; as an example, in the UK it is estimated that the total cost of car use for an out-of-town supermarket – including air pollution, carbon dioxide emissions, noise, and accidents – is almost 25% higher per week than for an equivalent market in the town center (Norberg-Hodge, Merrifield, & Gorelick, 2002). When people choose local farm products over supermarket fares, farmland becomes more economically viable. Supermarket prices are often based more on transportation costs rather than on its product quality assurance. On average imported vegetables travel an estimated 1,300 miles from their place of origin to their final destination.

For local businesses that offer a great value to their customers but lack certain marketing capabilities, the internet can also be a very powerful tool for sharing information, networking, and increasing product sales beyond just a small local consumer base. The key to technology use is to use it in such a way that it balances the equation that accounts for labor, productivity, value of the product, and the lifestyle of the grower (Robinson & Farmer, 2017). An effective marketing strategy has everything to do with how well a community can handle four specific elements of planning and three specific elements of execution. These seven elements include information about the product, the market, the strategy, and the appeal, as well as the message, the graphics, and the media when dealing with direct-to-consumer purchasing and increasing sales revenue (Gonzalez, Kemp, & Rosenthal, 2017).

A solution to this scenario is intensely local but its statewide impact is much greater. Food security exist when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Community food security is then a condition of an economically and environmentally sustainable food system that promotes community self-reliance and social justice (Ackerman-Leist, 2013). Part of rebuilding local food systems and working toward community resiliency is giving people a reason to cherish their roots and consider farming in or near where they live. When the web of economic links among small farmers, processors, retailers, and consumers is strong, both the economy and the sense of interdependence – a characteristics of real community, is strengthened as well (Norberg-Hodge, Merrifield, & Gorelick, 2002). Introducing new sales arrangements could very well help to preserve the integrity of many struggling farmers and ranchers who show interest in increasing their economic viability through the diversification of their farm products. Farming as a traditionally isolated activity is being rewritten with the advent of cooperative enterprises and new forms of agriculture (Richardson, 2009). As a developer, it is important to understand both the popularity and growing momentum behind "buying local" and keeping dollars in local circulation. For farmers, this means capturing a larger share of this trend is crucial for both their growth and longevity. New farmers need to look at their farms like any new business venture, while existing operations need to carefully evaluate how (if) any changes in their current practices might affect their land, labor, capital, resources, and profitability. As area farms transition, there is also profound interest in establishing new aggregation points, cooperative processing, institutional

buying, and food hubs to make local food a more viable source for a greater number of people (Robinson & Farmer, 2017). As food systems are redesigned to enhance food security, steward vital agroecosystems, and continue to build resilient communities, it is paramount that we understand the interrelationships between farmers, distributors, and consumers as they exist in the broader system. It is no surprise then that industry partners would want to continue linking farms and agribusinesses with communities and consumers in order to enable growers to get the best value for their agricultural products. This not only improves access to fresher, healthier locally-grown agricultural commodities, but it also supports new and existing farms and other agri-businesses, thus creating jobs and recirculating capital on a much larger scale. As these food-based enterprises help to strengthen the connections between farmers and consumers, they too, improve community well-being and prosperity through local ownership and sustainable development (Phillips & Wharton, 2016).

Locally-owned and operated businesses are extremely important because they provide communities with employment opportunities, taxes, building revitalization, and inspiration for other potential entrepreneurs. They sponsor local sports teams, community events, and festivals. Local businesses are also better at promoting smart growth, environmental responsibility, charitable giving, and political engagement. These businesses contribute to the overall betterment of communities and are usually the first ones to give whenever there is a public need (Shuman, 2015). Entrepreneurship has been equally vital to the economic survival of many rural workers, households, and the communities within which they reside (Miller, 2017). Entrepreneurship is also associated with reduced poverty rates. These individuals and families provide a great sense of hope for a community which is also evidence that legitimate local success is possible. Thus proving that economic justice and job creation can occur without the need for charitable fundraising appeals, fights in Congress over aid budgets or foundation grant applications (Lewis, 2017).

Organizational Context and Stakeholder Overview

Understanding the geography and culture of Washington State is critical to understanding this study at a local level in Eastern Washington. As evidenced in online spirited debates, Washington is arguably among the wealthiest and most socially progressive states in the country. These spirited debates demonstrate that the State is politically, technologically, and culturally divided along the Cascade Mountains in Central Washington. These divisions are important to understanding that even though the state consistently ranks among the best for life expectancy and low unemployment, these findings are not true in Eastern or Central Washington. According to Wikipedia, "The State of Washington is a state in the Pacific Northwest region of the United States. Named for George Washington, the first U.S. president, the state was made out of the western part of the Washington Territory, which was ceded by the British Empire in 1846, in accordance with the Oregon Treaty in the settlement of the Oregon boundary dispute. The state, which is bordered on the west by the Pacific Ocean, Oregon to the south, and Idaho to the east, and the Canadian province of British Columbia to the north, was admitted to the Union as the 42nd state in 1889. Olympia is the state capital; the state's largest city is Seattle. Washington is often referred to as Washington State to distinguish it from the nation's capital, Washington, D.C." Understanding this geographic, economic, and progressive structure is essential to understanding the role of ecological anthropology especially as it impacts the Indian Reservations and economic or social disparities pervading across the Okanogan Highlands. Many argue these disparities are perpetuated by historical development differences of urban living that are negatively impacting small rural communities and local businesses.

There is an entire international agriculture and economic landscape with global scale that is essential to all of Washington. Wikipedia further states the following about the State:

"Washington is the 18th largest state, with an area of 71,362 square miles (184,827 km2), and the 13th most populous state, with more than 7.6 million people. Approximately 60 percent of Washington's residents live in the Seattle metropolitan area, the

center of transportation, business, and industry along Puget Sound, an inlet of the Pacific Ocean consisting of numerous islands, deep fjords, and bays carved out by glaciers. The remainder of the state consists of deep temperate rainforests in the west; mountain ranges in the west, central, northeast, and far southeast; and a semi-arid basin region in the east, central, and south, given over to intensive agriculture. Washington is the second most populous state on the West Coast and in the Western United States, after California. Washington is a leading lumber producer; its rugged surface is rich in stands of douglas fir, hemlock, ponderosa pine, white pine, spruce, larch, and cedar. Washington is the nation's largest producer of apples, hops, pears, red raspberries, spearmint oil, and sweet cherries, and ranks high in the production of apricots, asparagus, dry edible peas, grapes, lentils, peppermint oil, and potatoes. Livestock and livestock products make important contributions to total farm revenue, and the commercial fishing of salmon, halibut, and bottom fish makes a significant contribution to the state's economy. Washington ranks second only to California in wine production.

Manufacturing industries in Washington include aircraft and missiles, shipbuilding, and other transportation equipment, lumber, food processing, metals and metal products, chemicals, and machinery. Washington has more than a thousand dams, including the Grand Coulee Dam, built for a variety of purposes including irrigation, power, flood control, and water storage.

Along with Colorado, Washington was one of the first to legalize medicinal and recreational cannabis, was among the first thirty-six states to legalize same-sex marriage, doing so in 2012, and was one of only four U.S. states to have been providing legal abortions on request before the 1973 Supreme Court decision in Roe v. Wade loosened abortion laws nationwide. Similarly, Washington voters approved a 2008 referendum on legalization of physician-assisted suicide, and is currently one of only five states, along with Oregon, California, Colorado and Vermont, as well as the District of Columbia to have legalized the practice. The state is also one of eight in the country to have criminalized the sale, possession and transfer of bump stocks, with California, Florida, New Jersey, New York, Vermont, Maryland, and Massachusetts also having banned these devices."

When understanding the economic, political, and cultural shift east of the Cascade Mountains defining the Okanogan Highlands, it is important to know that many historically located residents to the area depend on the exact language of the U.S. Constitution to justify their lifestyle. Meaning, freedom of speech, gun rights, and local control are sources for significant debate and disruption, making policy development and bureaucracy extremely complicated or difficult. Residents are known to embrace liberal notions of freedom and have a free spirit or independent attitude surrounded by a sense of survival resilience indicative of the historical pioneers living in the area with Native Americans. This nostalgic sense of history pervading in these communities attributes to the region's overall ability for recovery and resilience which are important to progress and economic endurance. There is a clear understanding that in these small communities, organizations and individuals must work together to be more effective and efficient to achieve sustainable results. During times of disaster and other challenges, as evidenced in recent wildfire and flood activity, community leaders like commissioners have said, "Only together, can we coordinate the development of opportunities for economic growth, strong health and public service programs, and a healthy population." The Okanogan Highlands are known for its local, high quality, nutritious, and sustainably grown farm and ranch products with added value chains and agritourism activities fueling local commerce. According to the USDA, Okanogan, Ferry, and Stevens County combined have over 280 farm operators in the area. These very different farms, ranches, and orchards contribute to a significantly vast agriculturally enriched environment that ensures the distinct value in locally sourced food across the entire region. However, the region is not geographically proportionate to the population density which in turn makes the Okanogan Highlands a federally designated food desert. The USDA defines food deserts as parts of the country that are vapid of fresh fruits, vegetables, and other healthful foods which are usually found in more impoverished communities (USDA Defines Food Deserts, n.d.).

Community Profile. The communities that reside within the Okanogan Highlands region are both small and extremely limited in financial resources where barter and trade often prevail leading to the resilience of families historically located in the area.

Due to the high unemployment and increased poverty across the Okanogan Highlands region, access to capital and extra-mural funding is exceptionally challenging for agencies, schools, and businesses. Furthermore, the communities in this region are uniquely isolated from one another due to the mountainous terrain and extreme distances between them. Thus, the communities are often referred to as frontier or remote. In some ways, these types of characteristics add to a disconnected rural living environment. A majority of the towns in this region are unincorporated and set up along major highways, roads, and rivers, resulting in at least two access points (one on each end of town), and most are mainly small residential communities. On average, each of these communities are at least 10 to 20 miles apart and at most, over 60 miles from one another. Almost all of them include some form of a public service or commercial retail outlet such as a gas station, convenient store, or a small grocer. These social and commercial constructs enable residents to buy basic goods; but for all other needs, the main shopping centers remain centrally located within each county, and include Omak, Republic, and Colville. While public transportation in the region is limited and Uber does not exist due to broadband and cell phone tower shortages, a majority of residents do travel a significant amount, outside of their communities to maintain their self-sufficiency and shop for supplies often resulting in processed foods and bulk inventory.

Ferry County is one of the last remaining regions (at least in Washington) that is not only opposed to but completely obstinate towards any new business operations in the area that may be a derivative of any non-local, commercial, or bureaucratically corporate enterprise. Evidence of this practice can be found in Ferry County's Development Regulations (Ordinance #2008-03) where it clearly states in the general provisions for rural development that the rural lifestyles and economies (or employment in Ferry County) is based predominately on jobs located outside of the urban growth area (i.e. the town of Republic), which means, a majority of these jobs are more resource-based and driven by local agriculture, mining, timber production, recreation, as well as home occupations, small businesses, and other cottage industries that are critical to the overall economic success of Ferry County (Development Regulations, n.d.). Therefore, most businesses and organizations in the region are both small and locally-owned. Thus, making Ferry County a unique environment in that it is one of the most authentic (and last remaining) frontier communities in northeastern Washington. In 1898, the town of Republic saw its first streets, and lots platted. A year later, residents elected to formulate their own government and become a county. Since the early mining days (of the 1900s), its fortunes and fame have shifted with the times as war and peace, depression and "boom" have left their marks (Perry, 2013). Major industries have come and gone, including the decline in both timber sales and mining operations. This type of decline is prevalent in almost all regions that have been traditionally highly dependent on the extraction of natural resources by industries such as timber and mining (Miller, 2017). However, despite the more recent economic decline, the area continues to survive and its residents (though incredibly resilient) reserve the right to preserve the once tough but mainly independent attitude of this frontier community. The goal now is to protect more of the natural environment, focus on community assets, build both social and financial capital, and then begin to address individual community needs by embracing regionalism efforts and greater statewide impact through entrepreneurial ecosystems (including food system work). There is a significant amount of relevance and opportunity here for communities that elect to develop their own local food system and connect it to other neighboring systems (Phillips & Wharton, 2016). In addition to system interconnectivity, there are also significant economic benefits for farmers and ranchers who can demonstrate both local and/or organic crop production, as well as the revival of indigenous crop species for commercial application. Some of these species are already well-known for their economic, ecological, and genetic benefits. Then when combined with other cold-weather vegetation projects, these plant varieties can also play an integral role in the maintenance and restoration of the regions overall environment and food system as it directly correlates to the health and resiliency of agroecosystems statewide. Studies also show that small-scale, diversified agricultural systems have a higher output per unit of land over their large-scale monocultureed counterparts. In the US alone, small farms produce more than ten times as much value per hectare as large farms (Norberg-Hodge, Merrifield, & Gorelick, 2002).

All across the Okanogan Highlands, major industries have come and gone, including the decline in both timber and mining operations. Local agriculture is almost non-existent with alfalfa as the primary crop in a majority of neighboring communities, with

the exception of some small to large home gardens which are also often difficult to assess. Ranching (on the other hand) is one of the only farming enterprises to have survived over the last century and its main commodities now are the simple act of raising livestock and producing its feed, thus the alfalfa production. This gradual transition away from major industries and local agriculture has caused substantial economic decline over time that includes the high unemployment, increased poverty, and food insecurities in the region today. As a region, the Okanogan Highlands has some of the highest unemployment rates in the state (Map of County Unemployment Rates, n.d.); and it ranks the lowest in overall health and nutrition (County Health Rankings, n.d.). According to 2016 data from the USDA, at least 22% of the population (est. 20,360) is living at or below the national poverty level. As for local economics and employment statistics, the average median household income across the region is approximately $40,277 annually, whereas the state average is about $61,062. The average unemployment rate is approximately 9.3% (est. 9,254), whereas the state average is just over 6.1% (SNAP Community Characteristics, n.d.). As for regional health and nutrition, current statistics show that at least 45% of households (est. 41,640) receive Supplemental Nutrition Assistance (SNAP). Yet, only 75% of the population (est. 69,400) is consuming at most, half the number of USDA recommended nutritional servings per day, with the remaining 25% consuming even less or none at all. Nevertheless, 60% of the population (est. 55,520) is either overweight or classified as obese, and at least 60% of the K-12 student population (est. 55,520) qualifies for free or reduced-priced meals (Research Your Community, n.d.). These results are the consequences of poor planning and stagnant development practices. A life lived in poverty is fragile, cheap, dangerous, and unpredictable (Lewis, 2017). Now there is an underlying social problem: unhealthy diets that contribute to a strain on the local health-care system and produce unnecessarily sick residents (Haber, 2016). It is also well known that both poverty and limited economic opportunity impacts people's ability to access housing, transportation, insurance, and healthy food; all of which have both direct and indirect impacts on their health and their healthcare access. So, it is not far-fetched to believe that community-based economic development can play an important and constructive role in re-growing local economies and food systems.

Geographic Profile. The Okanogan Highlands are located in central and northeastern Washington (known as NEWA). The geographic makeup of NEWA and Central Washington include parts of Okanogan, Ferry, and Stevens Counties. This region is home to two First Nations separated and federally recognized on tribal reservations; including the Spokane Tribe, a treaty tribe, and the Colville Confederated Tribe (CCT), which actually consists of 12 Tribes confined to the reservation by executive order. Major industries in this region are extraction based from natural resources and the economic makeup historically includes timber sales, mining operations, and agri-businesses (farms, ranches, and orchards). The Okanogan Highlands are home to two separate national forests including the Okanogan National Forest (which is 2,342 sq. miles) and the Colville National Forest (which is 1,491 sq. miles). As a region, the Okanogan Highlands is approximately 18,000 square miles. It is roughly 90 miles in length (from north to south) and about 200 miles in width (from east to west). To the north, it shares an international border with British Columbia, Canada. To the west (in Okanogan County), the region is situated along the North Cascades and the upper Columbia River Basin. In Ferry County, the Kettle River Mountain Range divides the area into two parts, with elevations ranging between 5,000ft to more than 7,000ft above sea level (WA DNR, n.d.). To the east, the Okanogan Highlands are separated from Stevens County by the Kettle River and the Columbia River (which also runs along its southern border). It is also home to the highest all-season paved road in the state, at approximately 7,200ft. The Stevens County line is approximately 40 miles northwest of Spokane, and the Okanogan County line is well over 200 miles northeast of Seattle, with Ferry County being centrally located between the two. The entire profile means that, due to Indian Reservations and land controlled by the US Forest Service, very little land is easily accessible or available for community and economic development.

Overall, the region is characterized as a hilly to mountainous topography with deep, narrow stream valleys. These valleys at most, have a diameter of approximately 10-miles or less. It is also filled with several different kinds of microclimates. Each of these microclimates has its own varying growth rate, however, most of them usually result in a very brief growing season. The growing season generally lasts between 45 and 120 days (WA DNR, n.d.). Regional vegetation is primarily forestland (over 70%) with a mix

of grassland (16%), shrubland (6%), and riparian (4%). Annual precipitation totals average between 30 to 80 inches, usually in the form of snow in the winter and rain in the late spring.

Food system insecurity. As a result of the geography, the land is very limited in its capacity to serve area residents and new business prospects with feasible crop land and infrastructure support. With more than 70% of the land mass serving as national forest or Indian Reservation, there is little room for unadulterated or uninhibited community or economic development. This inability to develop the economy or agriculture landscape leads to a lack of grocery stores, farmer's markets, whole food providers, and other healthy food options in what are known as "low access" communities (American Nutrition Association, n.d.). These communities are area towns with a least 500 people (or at least 33% of the census tract's population) that reside more than a mile (or 10 miles for rural census tracts) from a large grocery store or supermarket. Food deserts also often rely more heavily on local convenient stores and/or mini-marts that unfortunately, also provide a wealth of processed foods that are known to contribute to the nation's obesity epidemic (USDA Defines Food Deserts, n.d.). Other than work, people tend to go to the grocery store more than any other place in their community, and yet there are entire towns within the Okanogan Highlands that do not have access to a grocery store with fresh produce at all (Pipkin, 2017).

Despite the region's agricultural abundance, there are definite gaps or disparities in the regional food system that cause food insecurities for a significant amount of the population. At least 11 out of the 25 total census tracts in the region are known low-income, low-access tracts (Research Your Community, n.d.). This equates to approximately 5,500 people that are known to be food insecure based on the current USDA criteria. However, the actual number of individuals and families who are facing food insecurity in the region is much higher when considering the entire landscape of the Okanogan Highlands. The following table is from a 2016 report that aims to demonstrate both food access in the region and its population's limited access to area supermarkets.

Table One

Food retailers across the Okanagan Highlands

	Okanogan County	Ferry County	Stevens County	Total
Population	41,299	7,639	43,744	92,682
Full-Service Supermarkets	13	2	8	23
Limited-Service Stores	6	2	6	14
SNAP Retailers	50	12	38	112
Farmer's Markets	4	0	4	8
Fast-Food/Take-Out Restaurants	19	0	26	45

The superiority of food or food access is not based on geography, but it does have a lot to do with intensely localized economic conditions. For instance, food security begins by knowing what is available and how to access it, which contributes to increased self-reliance and community resilience. Community resilience is the sustained ability of a community to utilize its available resources to respond to and recover from adverse situations such as economic decline and food insecurity. Better resilience planning can improve a community's quality of life and its ability to both attract and maintain its residents and businesses as integral parts of the local economy. Most people simply want a job that provides them with dignity and a livelihood (Haber, 2016). Rural residents are no different, they simply want stable communities, family farms, small businesses, and local schools. In community development, small is good and given the rising interests in local foods, both agribusiness and entrepreneurship are essential components of a healthy food system and a stable economy for the communities within which they serve. For social entrepreneurs, the most important thing for them is progress towards social justice and impact; which serves as their connection to their community (Lewis, 2017).

Impact is important to the local culture and serves as an effective economic development strategy for rural communities to continue to support their local businesses and social entrepreneurs. However, communities need to be methodical in moving forward in their approaches to harvesting the potentials of local food. It is a process of labor, timing, curing, contemplation, and stamina that works with the natural system and its seasons to produce sustainable results. At best, local food connects people to their surroundings, it rebuilds community, and it restores value to both people and their work. It also re-humanizes people's social life and it reconnects them to the natural environment (Robinson & Farmer, 2017). Thus, proving that it is possible for locally-sourced and produced food to be a significant economic benefactor for communities in need of addressing both economic concerns and food insecurity (Phillips & Wharton, 2016). So, for as long as communities can continue to invest in themselves, they will be better able to both keep and attract the kinds of people who also energize their communities and start new businesses. Therefore, modeling local food and community-based economic development offers a prime opportunity for intentionally designed research for sustainable outcomes. Economic insecurity is known to drive food insecurity that then creates these public health concerns which tend to generate additional economic burdens for both households and communities. As this evidence shows, the significance of this problem (in this area) is heavily influenced by multi-generational poverty, a large area demographic, limited access to public services, and the consequential health concerns that include cancer, heart disease, diabetes, and other cardiovascular disorders (Northeast Washington Trends, n.d.).

Table Two

Ferry County economic performance indicators

	2015	2016	2017
Business by type			
All	406	395	411
Resident	60.8%	63.3%	65.7%
Nonresident	3.7%	3.3%	3.9%
Noncommercial	35.5%	33.4%	30.4%
Jobs by Stages			
All	2.7K	2.7K	2.7K
Self-Employed	2.3%	2.6%	2.6%
One (2 to 9)	44.0%	43.5%	43.9%
Two (10 to 99)	43.7%	43.9%	43.5%
Three (100 to 499)	10%	10%	10%
Four 500 (+)	0.0%	0.0%	0%
Jobs Change			
Gained	217	356	166
Lost	252	351	169
Net Change	-35	5	-3
Sales/Revenue			
All	$343M	$334M	$207M
Sales per Employee	$127K	$123K	$77K
Sales per Business	$843.7K	$844.5K	$502.5K

It is important to note the strong impact from the evidence pointing to the significant presence of locally owned and operated small businesses and the economic impact to the local economy. In Ferry County, the biggest employers are residential or local businesses followed by noncommercial enterprises with a majority of those being staffed with less than 100 employees. This table also shows the amount of sales and revenue generated by each local business, which is right on the money regarding Shuman's

(2015) business analysis that proclaimed, if a local business could generate a net value of $840K, it could then generate at least 21 new jobs with annual salaries of at least $40,000. Which if appropriated, would move people out of poverty by providing local workers with annual salary ranges that are well above the national "living wage" standards. Yet, this community remains stagnant and heavily depended on its traditional forms of revenue (i.e. mining and logging) despite those industries unpredictability and uncertain future in this region due to the loss in permitting contracts, human resources (i.e. employees), and exhausted mineral rights and resources. However, from this perspective, the main sources of job creation in this area can be future startups and existing small to medium-sized businesses. In April (2018), Governor Jay Inslee designated all of Ferry County as one of the newest Opportunity Zones in Washington. The aim of this effort is to drive more long-term capital into more rural communities across the state. This program provides tax incentives to investors who elect to fund local businesses and/or other economic activities in more underserved communities (Opportunity Zones, n.d.). As the year progresses, the Treasury Department will provide further guidance on how to set up area Opportunity Funds, local investment vehicles, and how to create a market for this new community asset. Whether it is developing new or expanding small businesses, affordable housing, infrastructure support, clean energy, and/or commercial developments, the Opportunity Zones program is flexible enough to support the diversity of needs and opportunities in rural communities combined with the ability to scale both social and financial capital. What is now known as the NorthStar Opportunity Zone, could very well be the dawning of a new era in economic development and community investment in Ferry County and across the Okanogan Highlands.

Research Design and Methodology

The objectives or purpose of this action research study was to better understand how locally owned small businesses and cooperative enterprises promote, intersect, and support food access and economic opportunities. The study also sought to identify the current needs, challenges, and opportunities that are related or overlapping. Ultimately, this study sought to propose new, more scalable solutions to achieve better food security, economic opportunity like access to capital, and sustainable change through policy and education. Using action research as a community development framework allowed researchers to move quickly and achieve desirable processes, outcomes, and impacts leading to sustainable change. As such, the research methodologies in this study included a community survey, a food systems resource map, an environment scan, and documents analysis. The survey was used to quantify and identify specific community and economic development strategies for local businesses across the region. The food systems resource map combined an interactive mapping platform with data regarding the regional food system using population census tracts. In addition, these tools identified new local food options and other business-related ecosystems, as well as provided insight into emerging opportunities that included much needed technological advancements for many communities across the region.

Farming and small business enterprise, inherent to rural or small suburban communities, is complex work supported by Cooperative Extension services and motivated by constructs that impact farmer thinking and performance, which directly correlates to specific types of expected outcomes. A gap analysis and scientific, systematic approach to understanding the problem of practice in this study is important to solving rural issues which can improve performance with knowledge and motivation among stakeholders and organizations (Clark & Estes, 2008; McEwan & McEwan, 2003, p.21; Merriam & Tisdale, 2016). This economic and food system study was designed to understand local businesses, communities, governments, technologies, and the residents through the geospatial confines known as The Okanogan Highlands. The findings and results were intended to subsequently aid the communities and inform elected officials with implementing the findings. The study was intended to provide affordable solutions for efficiency and scaling expansion, especially as it relates to those who can help promote and support economic access, food security, and sustainable change across the region. Ultimately, the findings identified in the needs, challenges, and opportunities from this study resulted in a formally adopted Community & Economic Development Strategy (CEDS) for Ferry County.

The action research in this study aimed to achieve three goals: a) analyze how small businesses and cooperative enterprises promote and support economic access and food security across the Okanogan Highlands; b) identify the current needs, challenges, and opportunities that are related to economic access and food security; and c) propose new, scalable solutions to achieve better food security, economic access, and sustainable change. A mixed methods approach to data collection included a three-pronged approach using community surveys, geospatial analysis with a food systems resource map, and an environment scan using document analysis. These tools were used to triangulate evidence and analyze how locally-owned small businesses and cooperative enterprises promote and support economic access and food security across the Okanogan Highlands. The conceptual framework guiding the mixed methods approach for studying the needs, challenges, and opportunities were guided by a review of the literature, previous studies, and practical experiences from those working in Cooperative Extension. According to Maxwell (2013), strategically seeing the world qualitatively (e.g. with processes, people, events, or situations) and quantitatively (with variables and constructs) helps connect and demonstrate the linkages with the evidence from a study (p. 29). The author further stated that deeper analysis can reveal how these aspects influence each other. Specifically, the exploratory sequential approach will bring forth the key concepts, factors, and variables to shed light on the presumed causal "relationships among them" (p. 39). In other words, the mixed methods approach will give better clarity to the gaps that exist in knowledge, motivation, and organizational forces impacting the problem of practice, or barriers that preclude small farms from supplemental income found with studying the needs, challenges, and opportunities in the region (Creswell, 2013; Rocco & Plakhotnik, 2009). Since there is a causal and actual relationship between small farm operators, food banks, community members, and Cooperative Extension educators, this relationship was explored in this study to better understand how to improve the economy and food system.

Since the establishment of the Morrill Act of 1867, rural education has been an important aspect in understanding the knowledge, motivation, and organizational influences with Cooperative Extension that makes the relationship with small farm operators, food banks, and community members straightforward. Cooperative Extension has been a trusted and historical primary provider of education, information, resources, research, and the best available science to assist rural communities and farmers, which has helped shape how they think and relate to the world around them (Barbieri, 2013; Dooley, 2010; Eckert & Bell, 2005; Kirschner, Kirschner, & Paas, 2006; Schraw & McGrudden, 2006). The relationship between small farm operators, food banks, community members, and Cooperative Extension emanates from cognitive and social cognitive learning. When looking at the knowledge required to approach businesses or community ventures, Eckert and Bell (2005) found evidence linking Cooperative Extension to small farm operators and revealed that cognitive learning or "mental models" guide how farmers make decisions and think about their business or farm enterprise. Additionally, rural knowledge rooted in mental models illustrated that culture, values, and beliefs further guide decision making and performance outcomes or success (Baker, 2009; Barbieri, 2013; Brodt, Feenstra, Kozloff, Klonsky, & Tourte, 2006; Burr, Chase, Ramaswamy, & Green, 2012; Di Domenico, & Miller, 2012; Dooley, 2010; Eckert & Bell, 2005; Krathwohl, 2002; Mayer, 2011). Cooperative Extension played a role in these studies or publications and continues to provide service, education, and information that is extremely vital to farm success, rural thinking, and motivation needed to be successful.

Farmer motivation is linked to aspects that Cooperative Extension can influence in rural communities. Specifically, there are three elements that are key to motivation with all small farm operators: 1) There is motivation from a strong need for extra farm revenue and supplemental income, 2) Self-efficacy is key to motivation and success, and 3) Culture, values, and beliefs are prime operatives to motivation (Barbieri, 2013; Brandth & Haugen, 2011; Clark & Estes, 2008; Denler, Wolters, & Benzon, 2006; Dooley, 2010; Eckert, et al., 2005; Hansson, Ferguson & Olofsson, 2012; Pajares, 2009; Rilla, Hardesty, Getz, & George, 2011; Sharpley & Vass, 2005; Sotomayor, Barbieri, Wilhelm, Aguilar, & Smith, 2014). Once it is understood that farmers and rural communities are influenced by and gain knowledge or motivation from Cooperative Extension, the organizational influences become clear.

Maxwell (2013) established the importance of triangulating data through multiple data points in the "collection of evidence or clues" that answer the research questions (p. 101). The methodology implemented for data collection accomplished credibility

and triangulation through diverse and multiple data points that culminated in member checks, reflective memos, and an audit or review of collection processes necessary to create a secure archive for data sources. Ethics were important to protect the identities of farmers and other sensitive information. Maxwell (2013) indicated that observation provides a direct and powerful way to learn about action or behavior and the context in which it occurs. Since Radhakrishna et al. (2012) determined that agriculture support agencies know how to best serve farmers, public observation of farmers in this setting was one way to collect more data in order to triangulate the findings. The observation data was collected and analyzed alongside the documents and semi-structured interviews with farmers, elected officials, and community leaders from the hospital to schools or libraries. Systematic and strategic alignment of documents to interviews followed by data collection through observations were important to structure the methodology for a rigorous analysis. Radhakrishna et al. (2012) found that it was imperative to use systematic processes and sound steps for rigorous research, as this approach ensures thorough research while maintaining the integrity of the relationships between farmers, academic colleagues, and agriculture support agencies. Validity and reliability tend to be distant thoughts in the field of qualitative research. These two concepts do not mesh well from a research lens typically associated with quantitative studies. Instead of focusing on reliability and validity, qualitative researchers substitute data trustworthiness. Trustworthiness consists of the following components: (a) credibility; (b) transferability; (c); dependability; and (d) confirmability. Thus, the terms involved in viable qualitative research are credibility and trustworthiness. Merriam, et al. (2016) stated that systematic rigor of qualitative data collection is the credible bridge to trustworthiness, despite a state of flux and contested terms correlating credibility with validity and reliability. The researcher serves as the data collection tool in qualitative analysis and must be dependable or trustworthy in data collection and analysis. Credibility contributes to a belief in the trustworthiness of the data collected.

Credibility and trustworthiness were achieved through prolonged engagement, persistent observations, triangulation, referential adequacy, and peer debriefing, coding, analysis, and member checks. The process of coding the data within and across categories was rigorously and systematically done through mentorship from Trevor C Lane, Ed.D. Community and Economic Development Director and State Specialist for WSU Ferry County Extension.

The data was organized into groups according to similar attributes, and then put into finer groups, categories, and themes. The credibility and reliability of all rigorous research is rooted in the conceptual framework, data collection, analysis, and the way the findings are presented (Merriam, et al., 2016). Triangulation and member checks are important methods to address these concepts. Essentially, triangulation was achieved by asking the same research questions of the purposive sampled population and by collecting data from different sources. Multiple sources of data collection were used to answer the study's research questions. Member checks happened when the researcher followed up with participants to evaluate the information, working together to determine whether or not the researcher's interpretation is consistent with the interview. Trust was an important aspect of the member check process and participants all appreciated the follow up. Member checks ensured that participants knew there was a chance to verify their statements and fill in any gaps and helped with establishing transferability of the findings. When presenting the findings of people and events through qualitative research, the author's conclusions emanated from organized, systematic or scientific, and rigorous data collection and analysis due to the potential impact to communities and public policy (Merriam, et al., 2016).

Transferability is the generalization of the study findings to other situations and contexts. Transferability is not always considered a viable qualitative research objective. Thus, the contexts of the participants and research in qualitative data collection define the data and frame the interpretation of the data to achieve credibility and trustworthiness. Purposive sampling mandated the contemplation of the characteristics of the participants sampled in as much as those characteristics were directly related to the research questions and aligned with the literature. Through the process of writing memos, the qualitative researcher recorded notes about the emergence of patterns, changes in responses, and other considerations associated with developing themes, groups, and categories essential to refining the data analysis process. Categorical definitions and a code book changed over the course of the study. According to Maxwell (2013) and Merriam, et al. (2016), cross validating and triangulating the evidence gleaned from people

like farmers through observations, interviews, documents, artifacts, recordings and photographs can further strengthen multiple sources of data collection.

Data Collection

Qualtrics – This Stats iQ technology platform was used to implement the survey and distribute it to the communities. Qualtrics software uses frequency counts and validated algorithms to describe, relate, and create pivot tables to trigger participatory response statistics for each selected question. The functionality of this software allowed the researchers too quickly and efficiently code, summarize, visualize, and analyze the data in order to explore further data mining capabilities, including descriptive statistics, exploratory data analysis (EDA) and confirmatory data analysis (CDA).

Geographic Information System (GIS) – Through geospatial analysis in this software, researchers were able to map and layer the food system. The map was designed to capture, store, manipulate, analyze, manage, and present geographical data in a digital format in order to create an interactive, two-dimensional contour map of the region, with specific point measurements (i.e. food system resources) that were then overlaid with other maps (i.e. population census tracts) that also covered the same region. The researcher was then able to analyze and compare those regional food system resources with nearby population census tracts as a mechanism for finding the best geographical location for new business ideas, industry prospects, and other such resources.

The Community Survey – This was an online survey about local community and economic development across the Okanogan Highlands. It was 48 questions long. Participation was both voluntary and anonymous. There was no IP logging either. It was supported by Qualtrics Software. An anonymous survey link permitted participant access. The survey took approximately 10 to 15 minutes to complete. The survey results included both qualitative and quantitative data.

The Food System Resource Map – This is an online interactive mapping platform. It is supported by Geographic Information System (GIS) Mapping, Google Maps, Google Earth, and Microsoft Excel. It includes data on the regional food system, its resources, and area population census tracts. The information collected is of public knowledge and of Washington State record. The map as 20 total industry layers (i.e. farms, feed stores, grocers, markets, etc.). Each layer is color coordinated and associated with its own pin icon. Under each layer is almost every identifiable industry-related resource in the region. Each of these resources are pinned to the map (with its color-coordinated icon) based on its current location and/or physical address.

The Environment Scan – This was a process that systematically surveyed the acquisition and use of regional information on local development strategies, programs, and practices that are used to promote healthy communities. The aim was to understand the scope and involvement of various health centers, community groups, local governments, and public service agencies in the areas of land use planning, built environments, and community-based economic development to determine the impacts that those have on the overall health and well-being of the regional population. The findings are being used to inform future development strategies to positively impact the Okanogan Highlands' built, natural, social, and economic environments.

The Documents Analysis – This was a process that interpreted regional data that had been generated from the examination of several different documents and various public records that were relevant to this research study. These documents included annual reports from a number of different government agencies, including the USDA and the Department of Natural Resources. It also included business directories from each different county, including Okanogan, Ferry, and Stevens. In addition to several other local assessments, including the WSU Mobile Health Needs Assessment; these documents comprised regional health statistics and other economic trends for all of northeastern Washington, with a primary emphasis on the tri-counties (or the Okanogan Highlands Region). Information was also collected from the WSU Farm Database and the Okanogan Highlands 2018 Food

Systems Survey. Other documents included regional food and health coalition meeting minutes, other county health insights, local press releases, and several different state and national resource guides for both community and economic development as well as sustainable agriculture and other topic-related university publications (including food system work in other northern-tier states).

The sample selection included adults over the age of 18 who reside within the Okanogan Highlands (including Okanogan, Ferry, and Stevens Counties) and had both male and female participants. Participant responses came from local business owners, government officials, nonprofit and for-profit entities, farmers and ranchers, as well as other area residents, retirees, and young adults. All research study participants were identified and elicited through the internet, primarily using social media platforms (i.e. Facebook and Twitter) as well as our local community partner websites (i.e. WSU Ferry County Extension and Ferry County Sunrise) to facilitate community participation. An anonymous survey link was posted on each social media site (by county and in a few various local community groups) twice a week to ensure adequate transparency, exposure, and enough public notice to encourage additional community participation. The sample selection was structured this way in order to achieve the most web-driven participation from such a large area demographic and a diverse group of local stakeholders.

The data analysis was performed using both Qualtrics and GIS capabilities. These tools were used to analyze local community and economic development strategies and food insecurities by studying area residents, small business owners, government officials, and other public sector staff – who either elected to participate in the community survey or they operate a food system resource in the region. The results were then coded to create a visual representation of the region in order to exemplify both local community consensus and participatory projections as a regional decision-making mechanism for both current and future community and economic development, including new entrepreneurial ecosystems and regional food system work across the Okanogan Highlands.

What the data analysis techniques revealed in order to guide the literature review and methodology was that mapping through Qualtrics and GIS capabilities has huge potential for spatiotemporal assessments in a local food system. It also has the potential for risk analysis on a regional basis. The proliferation of such freely available data creates new opportunities to both monitor and assess the economic impacts of food system re-localization efforts. By having the ability to combine this kind of data with other localized information, this not only improves information awareness, but it also promotes adaptive decision-making as well. So, by leveraging these tools, this kind of technology will help to modularize future data acquisitions (including analytic models) that can then be customized to fit the contexts of the specific needs of communities. This will help to eliminate any unnecessary duplication of efforts, it will save money, and it will ensure access to higher quality data through real-time data updates that both businesses and communities can use to support their future data-driven changes in both their business practices and their strategic plans.

However, there were some inherent limitations in the research design, which included regional survey fatigue and limited access to both broadband and cellular service in most areas which did limit some community response rates. By using Google and GIS software to map regional resources, it also had its limitations, which created small margins of error based on the researcher's ability to pin exact locations. This resulted in some local businesses having to be pinned within a small proximity to their exact location. One other final limitation was having the ability to maintain an on-going list of current resources as new operations started-up and others closed during the course of this study, which did exclude some now known entities from being fully represented or included in the research findings. Yet, most of the region's resources are accounted for now that the project results have been finalized.

Results and Findings

For starters, the known (emergent or immediate) economic barriers to food access affecting communities across the Okanogan Highlands are tied to its remote and rural location. However, the overall loss of industries and businesses in the area has created a

devastating impact. The closure of an important gold mine after the loss of a critical lumber mill and railway left a hole in jobs and employment opportunities that is not easy to replace in a historically existing extraction-based community. What the environmental scan and document analysis revealed in order to guide the literature review and methodology was that there is an extraordinary opportunity here to affect real social change (i.e. increased economic access and food security) within a known federally-designated food desert. With this opportunity comes room for improvement, renovation, and revitalization of the region's resources and its infrastructure. As a low-access community, strong leadership, cross-sector collaborations, cooperative endeavors, and mobile infrastructure will be key to moving this region forward. By taking a community-based approach to local economic development efforts, this will help local developers to re-evaluate the significance and importance of area entrepreneurs and small businesses. As mentioned in the literature review, these individuals are key catalysts to promoting local economic growth, job creation, and community revitalization. Early results did indicate the importance of establishing new food markets and aggregation points, as well as focusing local development efforts on specific main street regeneration programs, and it identified a more integrated approach to increasing local tourism efforts by promoting more of the region's natural environment (and its resources), its agricultural sector, and its many other (all-season) outdoor recreational activities. The results of this research should also encourage other local communities to be more strategic in their business development and recruitment strategies by having the ability to offer better incentive packages that are uniquely tailored and resource-driven by their own community assets in order to meet the specific needs of new area residents and other possible business prospects.

When the gold mine closed after losing critical infrastructure and other industry, the economy suffered losses negatively impacting not only employment but local timber sales, mining operations, and other agri-business or added value functions that resulted in higher measurable unemployment and underemployment rates, loss of well-paying jobs, increased health risks, and a greater dependence on government assistance or public service programs. As noted by the WSU Medical College, there is little in the way of industry apart from government or medical jobs in this region which means both poverty and economic opportunity (or the lack thereof) tend to significantly impact residential access to specific things like housing, food, transportation, education, healthcare, and insurance (Manriquez, 2018). These social determinants are the economic barriers to food access that are affecting populations and communities across the region. These social determinants can also be directly attributed to the region's overall negative attitude towards systemic change, economic growth, and renewable industries due to its higher rates of historical trauma and multi-generational poverty. Yet, these social determinants can also be used to effectively determine not only a population's quality of life and their life longevity but as life-enhancing resources, they too can also be used to improve both health and other economic inequities across region's as well (Brennan Ramirez, Baker, and Metzler, 2008). Thus, proving that different economic development strategies are going to be needed for different parts of the region. Still, for most area residents, their economic barriers to food access have everything to do with their own economic security (i.e. their ability to access a steady job or have the opportunity to grow within an industry or company). Some of this issue can be attributed to the region's lack of internet, phone service (particularly cellular), and/or broadband access, especially for the majority of the region's telework and/or freelance personnel. Without this access, a lot of local entrepreneurs and other cottage industry personnel are heavily reliant on local consumer purchases and their consumer consumption habits. But that purchasing power and consumption level is not enough to fully support these local businesses. So, a majority of them are also having to rely more heavily on local tourism and recreation, but too has its limitations due to the region's remote location, its seasonality, its limited infrastructure (or built capacity), and its lack of appeal to broader audiences. This lack of appeal not only limits what is possible as far as new ideas for potential businesses and other industry prospects; but it is even furthermore putting the region at risk of enveloping due to the ever-increasing dangers and demands that come with reoccurring natural disasters (i.e. flooding and wildfires) and a constantly evolving predator presence. Both of which continue to threaten the economic viability of this region and the livelihoods of its residents. The challenge in all of this will be finding a way to address these barriers in such a way that it balances the economic equation (i.e. residents + jobs = community). As a community, it can no longer afford to wait or think that someone else might do this for them. The time has come for its local officials and other development specialists to take the initiative to undertake the tasks of community and economic

development in this region. The question is, how do they do it and where do they start. The answer is with a strategic plan and a targeted, systems-based approach to local community and economic development. As a region, it needs to look into new job markets, feasible industry prospects, regional workforce development programs, other community revitalization techniques, and its own local (community) investment networks in order to improve local economic access and food security for both its residents and the local business community.

Secondly, the people and/or organizations who are responsible for addressing these economic concerns and supporting local businesses and other entrepreneurial endeavors across the region are without a doubt, a combination of local county and city government, chambers of commerce, economic development centers or districts, university extension programs, health districts, local tribes, and other job creators. Sustainability will rely on a combination of the municipal and county entities because (on their own) not one single entity has the full capacity to serve the entire region (both adequately and equally). So, a collaborative approach is not only necessary but needed in order to negate counter-productivity and work performed across the region in service silos. As a region, its communities are too remote and rural for the free market to function on its own. Therefore, these same individuals are also responsible for implementing the current "attract and maintain" business development strategy. However, this strategy has not been working to fully develop and support the local businesses in the region's more economically disadvantaged and smaller communities. This is primarily because up until recently, the economic development in this region had been the sole responsibility of only a few select organizations. Yet, for a number of reasons, those organizations have exhausted their capacities to fully serve the tri-county area and as a result, several local governments, university extension programs, and other neighboring county health and/ or hunger coalitions have had to step up in order to fill service gaps, take questions from the public, and facilitate next steps as part of an ongoing regional conversation about how to move these communities, their residents, and local businesses forward.

Implications and Community Development

As it turns out, the locally owned small businesses and other cooperative enterprises can promote and support economic access and food security across the Okanogan Highlands by simply creating shared space and sharing their resources. These types of environments provide both businesses and other area entrepreneurs, including local farmers with an immense opportunity to not only build relationships and create new products but increase local sales revenue as well. This increase in local sales revenue is exactly how local businesses can help recirculate local consumer capital, which is also what ultimately drives the local economy too. Another way for these locally owned small businesses and other cooperative enterprises to promote and support economic access and food security across the region is by being what is called a "business incubator." Business incubators are known as companies that help startups and other new companies or organizations to develop, grow, and succeed by providing them with industry-specific opportunities that include local leadership and guidance, business and management training, financial resources and tools, and some are even providing these individuals with their own office and/or retail space. This kind of space also provides these area entrepreneurs with a place to scale their business model without having to risk significant failure or financial loss. In a small community, these types of businesses are incredibly important because they are integral to providing local entrepreneurs and other area farmers with the opportunity to not only access the local economy but contribute to it as well and in response, that local economy is then what supports their entrepreneurial endeavor as well as the other economic livelihoods of this region. This approach is about cultivating the success of an already established business community and its owners as a mechanism to empower the next generation of local business owners, entrepreneurs, and other area farmers. In this case, the evidence is clear. When faced with adversity, severe economic decline, limited infrastructure, and a smaller consumer base; it makes sense that a lot of our locally-owned small businesses and other cooperative enterprises would already be participating in such a program because it makes room for new businesses and other industries in the area without having to unnecessarily impact the region's overall (yet limited) built capacity in order to fully support these new entrepreneurial endeavors.

However, some of the more current needs, challenges, and opportunities that are related to these efforts are going to require a more systems-based (or regional) approach in order to affluently promote and support economic access, food security, and local development across the Okanogan Highlands. For starters, without a properly educated workforce, the local economy cannot support itself. As a region, its current approach to doing development actually leaks more money (from the local economy) than it recirculates. The cause of this economic leakage is primarily due to the region's limited workforce, which as a result, causes much of the region to rely more heavily on other outside workers and/or contractors in order to complete most of their local development work. Yet, the problem with that is that many of these contractors only come here to work, stay for a short period, and then leave when the job is done. Thus, taking a majority of their proceeds with them, rather than recirculating them back into the local economy the same way a local resident would. Therefore, the only way to tip the scale in this example is through education. This region and its communities need more opportunities for education for both its residents and its business owners. For example, for a lot of the local residents who lack the education and/or skills necessary to start a new business, vocation, or trade; this simple provision (alone) would have an immense impact on the local economy by simply equipping local workers and other residents with the knowledge and/or skills necessary for them to be successful in a new occupation or trade. This is also a prime opportunity for the region's local officials and other development specialists to explore new innovations and technologies across the industries and fields that are already pertinent to this area, which could also help more local businesses and other area entrepreneurs to expand and/or upgrade their social venture or enterprise. More specifically, this action research is talking about agriculture, clean technology, communications infrastructure, forestry, healthcare, and other life sciences or occupational trades that help to support local entrepreneurism and rural health. This not only helps to diversify the local industry base, but it also helps keep local communities more viable as it directly correlates to the region's overall economic endurance as well. So, in addition to a more diverse industry-base, many local residents would also like to see their local officials prioritize a) increasing local job growth, b) creating a more diverse tax base, c) expanding local healthcare services, and d) providing local entrepreneurs with new business incubators and/or other cooperative work spaces. These (they believe) are the best ways to improve local economics and provide area support for small businesses as they continue to grow and expand across the region. Which also according to this action research, is about to increase substantially over the next five years. Where at least half of the community survey respondents in this study (74 in total) are planning to either start or expand a local business in the next five years. Which for this area is extremely significant and with that kind of growth opportunity, the best ways for our local officials to assist these area entrepreneurs is to help them: a) access capital or startup funds, b) improve broadband access and infrastructure, c) reduce regulations and fees, and d) streamline permitting processes. Given these needs, the challenges are going to be in how this region can effectively and efficiently meet those needs, and still have time to explore other options and possibilities. Yet (even in the last year), there have been significant strides made by several local officials and other development specialists to meet and exceed the needs of these area residents. Some of which are still ongoing as Ferry County continues to establish itself as the new NorthStar Opportunity Zone, which is not only supported by a local (community) investment network, but it also provides tax incentives for investors who want to fund or finance other local development projects and help make accessing capital and/or startup funds a lot easier for our local residents and other area entrepreneurs. As a region, it is also working with Microsoft and a few other government officials as part of a new statewide initiative to increase local broadband access in more underserved and/or under-resourced rural communities, including those across the Okanogan Highlands. This approach is part of an ongoing strategy by Ferry County to continue building its working relationships with both state and federal agencies in order to advocate (on behalf of its residents) for less regulations and more streamlined application (or permitting) processes in order to better support its local businesses community in their future start-up and/or expansion plans across the region.

In addition to these plans, there are a few other local community and economic development initiatives that aim to address both economic access and food security in this known federally designated food desert. These initiatives have become part of a larger opportunity (especially for Ferry County) to reboot, rebrand, and redesign its community and economic development strategy and regional framework to better promote and support its own economic access, food security, and local development. This

is by far, one of the best decisions for Ferry County (and this region) to make because by investing in themselves, they will be better situated to accommodate both future growth and other new development opportunities as more businesses and industries startup and expand across the region. Part of this new re-localization effort by Ferry County is to continue emphasizing both local food and local ownership (or entrepreneurship) as essential components to the regional economy, thus creating greater resilience and better functioning communities by way of its residents, businesses, and other local development efforts. So (in response to that), several local organizations have come together as a sort of collaborative effort to ensure that the local business community has immediate access to the information and/or resources that they might need to not only maintain their current operations but to also empower them to expand their current product and/or service reach into new consumer markets and/or other economic hubs across the region. These resources include access to nearby small business development centers, highly personalized entrepreneurial training and support, local business incubation (where and when necessary), and other possible funding opportunities from one of the region's own local (community) investment networks. These funding opportunities are designed to help increase local development efforts by specifically addressing the economic barriers for both businesses and area residents, thus also positively impacting their food security status and the local economy as well. Yet, because these two ideals (both economic security and food security) are so inextricably linked, it is also necessary for this region to at least start to consider other possible alternatives to its current business and industry base. For too long, residents have considered this idea to be a negative approach to local development efforts. However, it does not have to be. There are plenty of other alternatives to corporate expansion plans that include the relocations of other small (like-minded) enterprises that could actually help to complement existing resources (in the region) and help to revitalize many of its local communities as well. Therefore (as a region), it needs to be working simultaneously on its current "attract and maintain" business development strategy in order to better promote and support the local business community. When it comes to business recruitment, we (as a region) need to be very strategic in our approach to reaching out to new businesses and other industries that may have the capacity or potential to serve our local communities, even if they continue to serve greater audiences and/or larger consumer markets elsewhere. While further research is still needed to determine who these specific businesses, companies, and/or industries might be; but for starters, we can now compare and contrast the likelihood of local residential buy-in with specific industry areas of interest and from there, determine which of those businesses and/or industries are worth further pursuit. So, as new areas of need are identified, the possibilities for new businesses and other industries across the region is almost endless. There is a lot of potential here and because of that, this is also where the regional food system map could play a major role in helping local officials and other development specialists to prioritize and place these new community assets by being able to virtually align them with other valuable and/or similar resources in the region. As a module, it can also help to improve local workforce development strategies, increase residential access to education and training, and help to streamline local community and economic development plans as they pertain to the regional food system.

Conclusion

To summarize, this action research project set out to identify and analyze seven different key components that are related to economic access, food security, and other local development efforts across the Okanogan Highlands. Those seven key components include 1) categorizing the known (emergent or immediate) economic barriers to food access that are affecting populations and communities across the region; then 2) discovering who the people and/or organizations are that are responsible for addressing these economic concerns as well as supporting local businesses and other entrepreneurial endeavors; then 3) determining if their current "attract and maintain" business development strategy is still working to fully develop and support other local businesses in the region's more economically disadvantaged and smaller communities; and if it is not, then 4) how can the region's locally-owned small businesses and other cooperative enterprises promote and support local economic access and food security on their own; 5) what are the current needs, challenges, and opportunities that are related to these efforts; 6) are there any current local community and economic development initiatives that aim to address both economic access and food security in this known

federally-designated food desert; and 7) can this action research propose any new, more scalable solutions in order to achieve better food security, economic access, and sustainable change.

So, in order to achieve better food security, economic access, and sustainable change, this action research needed to propose new, more scalable solutions to improve local development efforts, including those within the regional food system. The primary intent behind this organizing principle was to increase domestic production, consumption, nutrition, and access to locally-sourced agricultural products as a mechanism to better serve area farms, ranches, residents, and businesses. People do not simply live here just for its rural character and scenic beauty, they live here because of the quality of life and/or the lifestyle it provides; which includes its primal opportunities for subsistence living, recreation, and all things frontier related – including its agriculture. This action research proved and confirmed the increased need (by several local residents) for more agriculture and natural resource development; including better access to fresher, healthier local foods and other value-added products. This means that there are still some significant opportunities (across the region) to expand local processing and manufacturing efforts in order to meet these new wholesale demands that are stemming directly from the region's consumers. These consumers are local residents who want to be able to shop at their own local marketplace without having to leave their community in order to access specific consumer goods (including local food products). These local marketplaces are what ultimately supports the regional economy as well and it is growing in size as the population continues to steadily rise across the region. But, in order to fortify and strengthen that economy, Ferry County (specifically) needed to create a strategic plan for its own community and economic development. This is where innovation (and new technologies – including the regional food system map) become a major contributing factor to not only guiding this new economic development strategy, but also helping these local officials and other development specialists to refocus their efforts and prioritize local community revitalization projects by simply using more localized data to drive local community decision-making processes as well as this written strategy. Residents want to see progress and as a result of several new, local community assessments (including this action research), we now have a surveying mechanism in place to derive this kind of participatory data (i.e. community input, buy-in, and/or local participation levels) directly from our residents without having to outsource it to another group or entity. So by having this kind of mechanism in place, it is likely to positively impact and improve both local business and residential access to the regional food system and its resources. As a result of this research, we now have a better understanding of the regional food system (and its economy), so we can begin to develop new market opportunities for our farms, ranches, and other food hub operations, including more agritourism, commercial kitchens, cooperative processing, cold storage units, and new mobile food infrastructure. This information is also likely to help our local businesses and other area farmers to identify more strategic opportunities for expanding their current operations as well as helping to modernize their basic livestock management and/or farming practices. Thus, improving local efficiencies in the regional supply-chain, which should also help us to develop more ergonomic ways to both transport and distribute food system goods and other resources across the region. So, while this renewed interest in both local food and local ownership (i.e. entrepreneurship) is good news, it also means that as the region continues to evolve and adapt to these newer, smaller industry-type prospects, the local workforce will need to opt to do the same; which means, that many of our local communities will need to find a way to make these adaptation processes as seamless as possible. Hence, the need for our local officials and other development specialists to champion the local attitude and change the ways in which this area and its residents think about new development opportunities, community growth, business expansions, and/or other industry alternatives that could also help to better support the region's economic access and its food security.

In closing, while many small towns across the U.S. continue to look for ways to strengthen their economies, build on their local assets, and provide a better quality of life for their residents. Many of them continue to face significant challenges and struggle financially in order to keep up with new modernization projects even as rapid growth and populations continue to rise along metropolitan edges. Whereas, in many rural communities, the population continues to decline, and the promise of new small family farms and other available working lands is slow to return or able to financially prosper. Here in the Okanogan Highlands, many of our local communities continue to face similar challenges and other economic obstacles, even as the tri-county tries to bring

change and prosperity back to the region. These economic hardships are exceptionally more difficult for the many residents who continue to reside in the region's more rural and/or remote locations; which has also put them at greater risk for food insecurity due to the lack of resources and/or other food options in those areas. However, it should also be noted that the people in this region have been thriving here for over 100 years; which means, the people (themselves) are already incredibly hearty, self-reliant, and self-sustaining. So in that regard, the essence of frontier-living (i.e. adaption and repurpose) has served them and this community well; despite its loss of industries, severe economic decline, and limited food access. Yet, some communities could actually start to see some significant growth across the region as Ferry County continues to structure its new smart growth development strategies as one of the newest Opportunity Zones in Washington. Remember, these strategies are aimed at helping rural communities to achieve their goals for growth and development while also maintaining their distinctive rural character; which is exactly what the residents here are asking for. They want a community-based approach to increasing local economic access, food security, and community development; which for its local officials and other development specialists, this means focusing their efforts on four main areas including a) improving local infrastructure and broadband access; b) increasing local tourism and recreation; c) expanding local markets as a means to increasing residential access to both healthy and affordable foods; as well as d) finding alternative ways to promote and support the growing population's health and well-being. So, by taking this kind of approach, not only will this help to eradicate poverty (across the region) but it will also emphasize the livelihoods of area residents as a means (or motivator) for improving and expanding the local job market in order to establish a more virtuous cycle of continuous and inclusive economic growth. Looking ahead, there is a lot of room and flexibility to explore the region's economic potential and its other community development options. However (as a region), it needs to be very strategic in its approach to promoting and supporting its local business community and its other area entrepreneurs when it comes to implementing its current business recruitment and retention strategy. This strategy needs to be simultaneous, community-based, and locally-focused in order to ensure that certain improvements to the region occur here first prior to expanding our bounds before we have the capacity to do so. This will give us the opportunity to establish a strong foundation for local development in order for us to achieve better food security, economic access, and sustainable change. This foundation will also help to ensure that we have the structural support (i.e. infrastructure, workforce, and communication technologies) in place and in as many of our local communities as possible in order to continue to accommodate the influx of new residents, businesses, and industries across the entire Okanogan Highlands region.

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