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Building Food Democracy in the Rio Grande Valley: Exploring the Relationship between Civic Agriculture and Civic Engagement

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BUILDING FOOD DEMOCRACY IN THE RIO GRANDE VALLEY: EXPLORING THE RELATIONSHIP BETWEEN CIVIC AGRICULTURE AND CIVIC ENGAGEMENT

A Thesis

by

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ABSTRACT

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Civic engagement is an important indicator of social capital in a community. The foundation of a strong democracy is dependent on citizens willingness and ability to engage. To further understand these drivers of social network building, this study utilizes the theory of civic agriculture to measure the impact of food procurement systems on civic engagement. A survey of over 400 residents in the Lower Rio Grande Valley of South Texas measures how involvement in local food systems impacts a participants' contribution to and perception of his or her community, while considering important third factor variables that also influence food procurement habits. In order to understand how build a stronger socio-political fabric in the United States, food systems are an important area of study. Food serves not only as a commodity, but also a determination of well-being and expression of social identity. The Lower Rio Grande Valley is home to the largest fruit and vegetable production in Texas, yet is a national leader in food and diet related illnesses. This study will explore the relationship between food and civic engagement in a majority Hispanic community with a history of colonial agriculture in an attempt to delineate how localizing agro-food systems may play a role in empowering marginalized communities to engage civically with their community, integrating them into the national political system.

DEDICATION

I would like to dedicate this thesis to the small, community-oriented farmers of the Rio Grande Valley. They are the activists putting their values into the ground by planting hope for justice in the food system. The soil of the RGV has absorbed the sweat and blood of Mexican and Mexican American laborers for over 100 years. These farmers are reclaiming their right to the land, their health and power in their communities. They motivate my work to study the community change they inspire.

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Many thanks to Dr. Alexis Racelis, my thesis committee chair, for convincing me to take a leap and move far away from the familiar and expand my understanding of food systems. His systems view has encouraged me to continue to analyze every situation from a multitude of angles and challenge my own perspectives. Our check-in calls and weekly barbeques fueled the engine to keep this project moving. Thanks also to committee member Dr. Owen Temby. For without his insight, perspective, and trust in this project, it would not have been possible. An additional thanks to Dr. William Donner, who cultivated the project to life with me, and Dr. Dongkyu Kim, who oversaw the project execution and came in at the final hours to give the final push towards completion.

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CHAPTER I

INTRODUCTION

Abstract

"Civic agriculture," a term first coined by rural sociologist Thomas Lyson, refers to forms of agriculture that occur on a local level by and for the local community, and which are linked to a community's social and economic development. Sixteen years since its original articulation, the term "civic agriculture" has taken on greater significance in research, political activism, and community organizing. Grown from the roots of civic community theory, civic agriculture functions as a new branch ripe for theorization. In revisiting the foundations of the term, this paper seeks to root current and future research in the field of alternative food networks in the civic agriculture approach by strengthening the focus on civic communities. By analyzing the conceptual origins of civic community theory, this thesis challenges the preconditions of civic agriculture. Despite the wave of recent scholarship on civic agriculture, there remains a considerable absence of research that focuses on the relationship between civic agriculture and civic engagement. During this time of global pandemic, civic agriculture has been thrust into public view. The COVID-19 pandemic has amply demonstrated the fragility and instability of global food supply chains, making the need for local food systems more significant. Now more than ever, the critical community impact of local food systems is evident and should be observed closely.

Civic Agriculture in Review

Over sixteen years ago, Thomas Lyson (2004) published his seminal work on "civic agriculture," tying together his and other scholars' work on civic community to theoretically formulate a term to encapsulate agriculture into the social and economic context of community. Since then, there has been an ongoing exploration of this theory in a variety of disciplines. It has been tried and tested both true and false in different scenarios with varying methodology. Although it continues to be a generally new idea in the context of social agricultural research, it is widely adopted in both popular and academic publications. In walking through the parallel variables with civic community theory, this thesis provides a theoretical framework to analyze the accuracy and efficacy of the claims of civic agriculture theory. Demographic, community cohesion, and economic concentration variables are used to prove the positive impact of civic community on social welfare. In relation to agricultural businesses, civic agriculture serves as a new branch of civic community theory. However, one of the central claims of civic agriculture—an increased civic engagement from the community—has yet to be thoroughly explored. This paper considers research from both before and after the publication of *Civic Agriculture* to determine the future directions of the theory and its application in future research and public policy. Reexamining the origins of the term is an important step in understanding how research can continue to evolve to expand the understanding of the relationship between farms, food, and community.

What is Civic Agriculture?

In creating the theoretical framework for "civic agriculture," Lyson et al. (2001) make the connection between small to medium sized production enterprises and their symbiotic success with communities when there is an engaged and economically independent middle class.

Drawing from the literature on civic community, Lyson embeds the foundation of civic agriculture in socio-economic theory. Civic agriculture:

> "is a locally organized system of agriculture and food production characterized by networks of producers that are bound together by place. Civic agriculture embodies a commitment to developing and strengthening an economically, environmental, and socially sustainable system of agriculture and food production that relies on local resources and serves local markets and consumers" (Lyson, 2004, 63).

Community problem solving is one of the foundational characteristics of civic agriculture (Lyson, 2005). Due to the local focus of civic agriculture within a community, the concerns with production, marketing, distribution, food security are site-specific. The social fabric of networks created in the proliferation of local agricultural businesses contributes to a community's ability to communicate, organize, and address issues. This focus on civic problem solving within community-oriented food systems integrates Delind's (2002) depiction of civic agriculture with an emphasis on agriculture's ties to place. Not only does the generation of economic activity serve as a focal point of community well-being, but community ties, identity, and responsibility towards a place must also be integral to civic agriculture to create equitable development.

The bedrock of civic agriculture theory stems from civic community theory, which developed from the government-commissioned studies of Mills and Ulmer (1946) and, subsequently, Goldschmidt (1978) in the wake of World War II. Out of concern for concentration of economic power, the U.S. Senate Small Business Committee commissioned these studies to measure the impacts of large-scale industrial operations and farming organizations on local communities. Mills and Ulmer (1946) categorized three pairs of cities with similar demographic features but which differed in their average business size. The study

broadly concluded that small business cities offered a more balanced economic life and higher civic welfare for citizens. The authors hypothesized that urban centers with many small-scale operations depended on the community and other small businesses for their success, and, therefore, were inextricably linked to the community's well-being.

Following findings of Mills and Ulmer (1946), Dr. Walter Goldschmidt of University of California at Los Angeles, analyzed two agricultural communities in the industrialized specialty crop hub of Central Valley California. One is characterized by the presence of large farms in its area and the other by moderately sized farms. Goldschmidt (1978) found that (1) the small farm community supports more independent business establishments than the large farm community; (2) residents of the small-farm community have a better average standard of living than those in the large-farm community; and (3) municipal services, schools, parks and civic organizations were more plentiful in the small-farm community. He concluded that large-scale farms, which may have absentee owners, do not share common goals of community well-being and civic engagement with the local community. Despite findings to the contrary (Fowler, 1958; Hayes and Olmstead, 1984; Humphries, 2001), these two studies serve as a springboard for research exploring theories of civic community.

Origins of Civic Agriculture Theory

After a shift away from studies of small businesses and community welfare in favor of industrialization, a surge of research emerged carrying the mantle of Mills and Ulmer (1946) and Goldschmidt (1978). Working under the shadow of globalization, a handful of academics concerned with community-based social welfare outcomes, approached the questions of large versus small, local versus global, concentrated versus distributed. These studies developed to support a theory of civic community, which propose that locally-facing, small businesses have a

positive relationship with civic engagement, and consequently, civic welfare. Rather than proposing free-market neoliberalism as the path for economic development, civic community theory argues that the public domain is more significant than a space individual self-interest and that the strength of a community lies in its institutions that mediate social capital (Lyson and Tolbert, 2004).

One of the first works to articulate the relationship between business size and civic welfare after the swing towards globalization came from Piore and Sabel (1984), who asserted that small, craft manufacturing fills a gap in product markets that are rejected by mass producers. Small manufacturers are able to produce luxury goods and specialty products for which there is not a high enough demand to mass-produce and may only be desired in a specific place (206-207). Therefore, despite the industrialization of the U.S. economy during and after both World Wars, small businesses have remained a stable and now growing part of the U.S. economy that provide an important source of stability in communities. Craft or specialty goods fill a hole in the market for those who are seeking out an alternative to the industrial system, one that is based in place and history.

In the succeeding studies of business size, Lyson and Tolbert (1996) conducted an analysis of 2,235 nonmetropolitan counties to determine both the impacts of small and large manufacturers on socio-economic well-being to conclude that although the data demonstrated positive effects of large manufacturing establishments, the presence of small manufacturing is associated with lower poverty rates. In the same vein, Lyson, and Irwin (1998) measured the number of small businesses, manufacturing, and "third places," which are locations that people can gather and socialize (i.e., pubs, coffee shops, barber shops, etc.), and compared them to socio-economic welfare indicators (Oldenburg, 1991). Their findings indicate that although local

capitalism indicators had the anticipated negative effects on inequality, civil society items had a more significant prediction of income inequality than average income. Nonetheless, findings still revealed that small businesses are associated with decreased migration, lower unemployment, and less income inequality. Recently, Rupasingha (2017) found evidence that microbusinesses are associated with local income growth but not enough to claim causal effects.

Tolbert, Irwin, Lyson and Nucci (2002) employed the unit of small towns (2,500-20,000) to measure the number of businesses and third places against civic welfare indicators. The results determined that the presence of self-owned and operated businesses and third places is associated with higher levels of civic welfare in both metro and non-metro small towns. They also found that towns with a higher number of small, independently owned businesses and an abundance of public meeting spaces had higher levels of civic welfare. To put the evolving research to an updated test, Lyson (2006) conducted a modern replicate study of Mills and Ulmer's (1946) study, examining 25,000 manufacturing dependent counties to find that in those counties which had a local economy organized around smaller-scale, diversified enterprises had more favorable social welfare measurements than those organized around large-scale corporations. Counties with a higher concentration of said businesses had higher civic engagement and an economically independent middle class, which were also correlated with less economic inequality, higher education outcomes, and lower crime rates. Studies show civic community serves as a mitigation of violent crime and all-cause mortality in counties across the country (Lee, 2008; Lee and Thomas, 2010; Lee, 2010; Lee and Shaun, 2010). Similarly, Blanchard, Tolbert, and Mencken (2011) analyzed population health in relation to business size in 3,060 U.S. counties. The authors found the presence of large retailers has a detrimental effect on age-adjusted rate of mortality and presence of obese adults.

Along with health indicators, crime rates, and income, migration is also used as an indicator of civic community richness. The longer one lives in a community, the higher likelihood they have of holding a larger number and diversity of social ties (Tolbert et al., 2016). Studies have found counties and states with higher numbers of small manufacturing, retail firms, and civic associations have lower levels of migration (Irwin and Tolbert, 1997; Irwin, Tolbert, and Lyson, 1999; Stroope et al., 2017).

When further examining how agricultural enterprises affect civic welfare, Lyson et al. (2001) measure the relationship between the scale of farming operations and the socioeconomic well-being of residents. The findings supported the thesis of civic community to the extent that counties with a high percentage of residents that operate small, independent businesses and are civically engaged have higher levels of social welfare. The larger takeaway from the study is there must be a presence of a strong middle class with high levels of civic engagement to have high levels of social welfare in an agricultural county. Lyson & Guptill (2004) found that civic agriculture has an association with the specific social, economic, and demographic characteristics of the communities it serves in comparison to commodity agriculture. The differences in these two production systems have profound effects on the communities in which they are present, either bolstering civic growth and small businesses, or pushing towards a more globalized and concentrated system. Additionally, while studying the evolving relationship between small town social capital and civic engagement, Besser (2009) found that the number of small farms is the only significant variable affecting social capital and civic engagement.

Economic concentration can also serve as an avenue to explore civic community theory. Robinson, Lyson, and Hilchey (1995) examined corporate versus civic community, in which corporate community represented the values of globalization and mass production. The authors

found civic community, representing local, craft production and small independent business owners, to be positively associated with civic welfare. Self-employment can also be an indicator of civic engagement. Business owners have a greater stake in the local community and invest accordingly (Mencken et al, 2020). Blanchard and Matthews (2006) conducted a study gauging the impact of levels of economic concentration on civic participation. While controlling for population size, economic concentration was negatively correlated with electoral politics and protest activities. Additionally, homeownership and length of residents in the community are associated with greater levels of electoral participation. The authors conclude that economic concentration is associated with lower levels of civic participation.

In an effort to explore the significance of local- versus global-facing firms on community welfare, Tolbert (2005) measures how locally oriented establishments affect civic behaviors. When controlling for state median income and population, he found that the local-oriented establishments are positively associated with small manufacturing establishments, associations, public gathering places and voter turnout. Furthermore, locally oriented establishments were found to have negative correlations with rates of poverty, infant mortality and crime.

More recently, Clark and Record (2017) studied the levels of civic engagement of local farm owners to determine if there was a significant difference in owners whose farms were locally-facing, or community-oriented and selling to local customers, compared to owners whose firms were utilizing intermediating markets or were globally oriented. The results demonstrated that owners of locally-facing farms were more engaged both civically and politically. These findings display the impact of globalized markets on a community's civic engagement. When the end consumer of a firm's product is not in the community, the owner and the business's model do not depend on the well-being of the community, and the firm can be less invested in the

community. On the other hand, locally-facing firms are dependent on the community and have a direct stake in community matters, therefore, they are more likely to engage.

Through these aforementioned studies, a cannon of literature building the foundation of civic agriculture has been formed. To review the literature following the claims of civic agriculture, table 1 breaks down the literature into how the studies measured civic welfare. It is these indicators that are then used in new category of literature surrounding civic agriculture to corroborate its benefits. The following portion of the paper will delve into how civic agriculture, as a branch of civic community theory, compares to the variables utilized in the theoretically-grounded studies to measure the impacts of civic community, and subsequently, civic agriculture on community welfare.

Table 1. Small, Locally-Oriented Businesses and Civic Welfare

Indicators	**Studies**
Demographics (employment, income, education, health, religion, home ownership)	Mills and Ulmer (1946)
	Goldschmidt (1978)
	Fowler (1958)
	Putnam (1993)
	Tolbert and Lyson (1996)
	Irwin and Tolbert (1997)
	Lyson et al. (2001)
	Tolbert et al. (2002)
	Lyson (2006)
	Blanchard et al. (2011)
Municipal Services (sanitation, parks, schools, recreation)	Mills and Ulmer (1946)
	Goldschmidt (1978)

	Lyson (2006)
Concentration of Power (industrial concentration, unionism, demographic conformity, political views)	Mills and Ulmer (1946)
	Fowler (1958)
	Robinson et al. (1995)
	Lyson et al. (2001)
	Blanchard et al. (2011)
Community Cohesion (general social welfare scores, poverty rate, community attitudes, social capital, violent crime rate, non-migration)	Fowler (1958)
	Putnam (1993)
	Tolbert and Lyson (1996)
	Irwin and Tolbert (1997)
	Irwin et al. (1999)
	Lyson et al. (2001)
	Tolbert et al. (2002)
	Lyson (2006)
	Besser (2009)
	Lee (2010)
	Lee and Shaun (2010)
	Obach and Tobin (2014)
Civic Engagement (voter turnout, associational membership, third places, volunteering, participation in civic activities)	Putnam (1993)
	Irwin et al. (1999)
	Irwin and Tolbert (1997)
	Tolbert et al. (1998)
	Irwin et al. (1999)
	Humphries (2001)
	Lyson et al. (2001)
	Tolbert et al. (2002)
	Tolbert (2005)
	Lyson (2006)

	Blanchard and Matthews (2006)
	Besser (2009)
	Pole and Gray (2013)
	Obach and Tobin (2014)
	Clark and Record (2017)
	Carolan (2017)

Concentration of Power

Civil Society and Community Capitalism

Since proponents of civic agriculture have promoted the economic benefits of civic community theory, studies have set out to corroborate the allegation at the community level. Theorists claim that a decreased concentration of economic and social power inherent in the proliferation of small, independent businesses will result in more equal distribution of wealth and power. Specifically, researchers have honed in on farmers markets as a manifestation of business diversity. Studies have determined farmers markets as spaces for entrepreneurship, business innovation, market research, enterprise diversification, and business incubation (O'Hara and Coleman, 2017; Cameron, 2007; Gillespie et al., 2007; Hinrichs et al., 2004; Feenstra et al., 2003). They create a unique and visible place for small businesses and community members to test new ideas, generate feedback, and learn from other vendors. Other evidence has suggested that farmers markets have a direct economic impact on the downtown areas of towns and cities. Shoppers who would normally not visit the downtown area or frequent the stores are drawn to the market, which also results in increased sales for neighboring businesses (Lev et al. 2003; Abel et al. 1999; Swenson, 2009). Brown (2002) reported evidence that in the district of the farmers markets, property values increased. Reverberating economic benefits increase the

amount of capital available to local residents and local governments to invest in community well-being. Another form of civic agriculture, community gardens, has also proved to increase property values, augment community confidence and safety, and increase the availability of fresh produce in lower-income and racially diverse areas (Allen et al., 2008; Sullivan 2004; Altunkasa, 2004; Irwin, 2002; Kuo 2001).

In an overview of the trends in local food systems in the United States, Low et al. (2015) discuss the overarching impact of local food systems on the U.S. agricultural landscape and economy. The authors found an economic ripple effect in communities where food is purchased locally. Moreover, a United States Department of Agriculture (USDA) Economic Research Service (ERS) (2011) report found that fruit and vegetable farms selling into local and regional markets employ 13 full-time workers per $1 million in revenue earned, compared to the three full-time workers per $1 million in revenue earned by fruit and vegetable farmers selling elsewhere (Low and Vogel, 2011). Local food production creates skilled, higher paying employment opportunities, which could indirectly increase household spending (Shideler et al., 2018; Rossi et al., 2017; Bauman et al., 2019). In Europe, farm-to-school programs have been found to increase opportunity for suppliers and contribute profit to the overall economy (Sonnino, 2013). In a case study of Hardwick, Vermont, also known as "the town that food saved," Olson (2019) found that the increase in small agriculture related-businesses coincided with a decrease in poverty rates and unemployment. Although the economic impact is not the sole concern of civic agriculture components, it may play a role in producing economically stable, equitable communities – contributing to the creation of small, locally oriented businesses and an independent middle class. Nonetheless, scholars and practitioners still debate whether local food production is a viable business venture, as the majority of farms struggle, economies

of scale may be the most profitable for the individual farm (Deller et al., 2017). However, overall community welfare may benefit more from this place-based food production.

Place and Market

One of the hallmark components of civic agriculture is the connection to place. In the six principles of civic agriculture, Lyson (2004) writes that farming is oriented toward local customers and local demands built by personal relationships. The social and the economic are intertwined together, embedding agriculture into the community. Small farmers are dependent on their specific knowledge of place: the earth, the resources, and the people. Cultivation of food locally has the potential to embed consumers with an identity and connection to place (Cone and Myhre, 2000).

However, several authors have warned against these claims as a "local trap," otherwise termed as "defensive" or "unreflexive" localism (Allen, 1999, 2008, 2010; DeLind and Bingen, 2008; Hinrichs, 2003; Mount, 2012; DuPuis et al., 2006; Born and Purcell, 2016). In critiques of civic agriculture, the preoccupation with the "local" is seen as a toothless solution to the neoliberal, global marketplace which does not address the foundations of individualism and profit-driven markets that create inequality and injustice (Hinrichs, 2000; O'Hara and Stagl, 2001; Allen et al., 2003; Guthman, 2011; Jarosz, 2011; Kirwan and Maye, 2013). Furthermore, other scholars are concerned civic agriculture may be inaccessible and exclusive to parts of the population based on race, class, and location (Guthman 2003 and 2008; Allen, 2010; Alkon and McCullen, 2011; Godette et al., 2015).

In another set of concerns, others warn that civic agriculture without a grounding in place or focus on community tends to concentrate less on culture and social ties and more on market functions (Hinrichs, 2000; DeLind, 2002). Local, direct-market agriculture in itself is market-

based. It does not inherently address issues of social injustice, consequently, 'reflexive localism' implies maintaining vigilance about potential injustices that could arise at the community level in a 'localized' system (DuPuis et al., 2006). Purchasing local food may not inherently prompt consumers to question inequality or to get involved in their community, but it must also change the meaning of consumption to create change (Johnston, 2008; Ostrom, 2008). A robustly contextualized understanding of place that is accompanied by community responsibility is pivotal to truly embed a food system in the social well-being of a community.

In their discussion of global versus alternative food markets, O'Hara and Stagl (2001) and Hinrichs (2000) make important theoretical connections between the economic market and physical place. Deferring to Polanyi's (1944 and 1957) utilization of the term 'disembedded' to describe economic markets, the authors highlight how a globalized food system is socially and environmentally disembedded from its place and people of origin. The specific production techniques, knowledge systems, and ecological attributes that create a product in a specific place, become increasingly homogenous and devoid of those specificities in a global market. Alternatively, civic agriculture brings a value, quality, and craft to food that can only be created with an understanding of place (Barbera et al., 2020; Wittman, 2012; Chiffoleau et al., 2019). These social ties can be part of what a producer is selling in a market.

Nonetheless, production and consumption cannot necessarily be equated with citizenship and civic engagement. DeLind (2002 and 2011) cautions that civic agriculture must be applied in a way that incorporates the common good of the greater community over the individual market interests of the individual. Market and political strategies alone cannot lead to the social outcomes local food systems espouse to engender; civic culture itself must be supported. Civic agriculture can provide the setting for this type of embedding in place and community with

education and political practice. The production and consumption of a local product in the same physical space offers a promising unification of market exchange with identity and what DeLind and Bingen (2008) call "placed"-ness (Trivette, 2017). This is an example of what some authors argue is reflexive or adaptable localism (DuPuis and Goodman, 2005; DuPuis, et al., 2006; Ross, 2006; Crossan). A community's inherent diversity and complexity is reflected in its civic agricultural markets, relationships, and networks and recognized as imperfect and incomplete in the political process (Schnell, 2016; Hasanov et al., 2019). Awareness of the realities of neoliberalism, individualism, and exclusion serves as the means toward building a successful and equitable civic agriculture landscape (Tornaghi, 2016).

The reflexivity and adaptability of the communities in conversation should be granted as a given part of developing civic agriculture markets. Studies show that civic agricultural activities often embed social capital into market relationships (Flora et al., 2012; Schnell, 2013). Bunkus et al. (2020) demonstrated that a community's relationship to agriculture is stronger when the density of resident farmers is higher. The authors also found where there is a greater presence of farms in rural areas, residents describe a more significant attachment to place. Of course, there are exceptions, yet this impact cannot be overlooked. Locally oriented agriculture plays an important role in influencing social embeddedness, sense of belonging, identity, and network building of economic markets.

To cultivate inclusive localism, civic agriculture must create accessibility for marginalized groups. For example, some Community Supported Agriculture (CSA) programs and markets prioritize low-income residents, while certain gardens and farms intentionally bring in marginalized groups into civic folds and social networks of a community (Baker, 2004; Poulson, 2017; Cumbers, 2018; Smit and Bailkey, 2006; Allen et al. 2008). Actively pursuing

community problem solving by participating in civic agriculture allows participants to explore the potential of collective power (Vieira et al., 2019; Siegner et al., 2020). Opportunities such as these create the chance for marginalized groups to regain their voice and a bit of power in the community (Alkon, 2008; Bradley and Galt, 2014; Bornemann and Weiland, 2019). By creating the conditions under which knowledge, networks, and awareness, which can be cultivated, civic agriculture can generate both community and social capital. As mentioned, arguments are made that power remains within a select few. However, as demonstrated previously, both privileged and marginalized groups have accessed and employed this newfound accessibility to community networks.

Community Cohesion

Cultivating Social Capital

Civic agriculture promotes the growth of social networks. Whether it is building a new business in a community, establishing a farm, soliciting membership for a CSA, or cultivating a community garden, people's paths cross and connect in ways they would not have before. In creating direct-to-consumer businesses for local food, farmers and entrepreneurs are dependent on a host of organizations, individuals and government sectors to be successful (Christensen and Phillips, 2016; Hughest and Isengildina-Massa, 2015; Cvijanović, 2020; Vieira et al., 2019; Hasanov et al., 2019; Janssen, 2010). Civic agriculture addresses community issues such as rural revitalization, food availability, and civic welfare, and doing so requires strong networks (Bagdonis et al., 2009; Allen, 2008; Renting et al., 2003). At urban farms, gardens and CSA gatherings, participants find a shared sense of belonging, nurturing the growth of community cohesion and vocalize its significance (Firth et al., 2011; Dunlap et al., 2019; Kingsley et al., 2019; Macias, 2008; Sumner et al., 2010). It is that desire for social embeddedness and a sense of

community that drives many farmers to participate in civic agriculture (Migliore et al., 2014). In fact, direct-to-consumer farms are dependent on strong farmer-consumer relationships to be successful (Poulson, 2017).

Not only do network connections form to create social integration, but they also create empowerment through knowledge-sharing by collective and individual learning. Gardeners learn new skills, farmers learn to engage their community, volunteers learn to organize, and a broader sense of political awareness is brought to the attention of all involved (Trauger et al., 2010; Kingsley et al., 2019; Prost, 2019; Liu et al, 2017). Farmers are dependent on mutual education between themselves and the consumer to demonstrate the importance of their craft and receive feedback on their work. These exchanges are shown to increase participation and retention of customers, as well as further their own innovation (Ross, 2006; Hinrichs et al., 2004). Schmit et al. (2017) revealed an increased flow of intellectual capital to rural areas through the networks of local food systems. This original knowledge creates a more robust network and individual resiliency, in which a community is more equipped to address certain problems with newfound social capital (Furman et al, 2014). In that notion of place, the physical space of a farm or garden can become a missing public space where community members have an opportunity to meet, work together, and socialize (Trauger et al., 2010; Firth et al., 2011; Liu et al., 2017).

Community Attitudes

Small, community-oriented farms, gardens, and markets seek to create a space where community can gather and be considered as contributing to something greater than oneself (Poulson, 2017; Flora et al., 2012; Bingen et al., 2010; Bingen et al., 2011; Cox et al., 2008; Chung et al., 2005; Sharp et al., 2002). Onozaka et al. (2010) found that consumers who bought directly from farmers felt a larger sense of community in being influenced by others buying

practices around them (Low et al., 2015). Moreover, they overwhelmingly felt that their actions "make a difference" for both public and private outcomes (ibid). Civic participation in agricultural systems has been shown to expand the civic imagination of participants and consider issues and opportunities in the community that had not been evident before (Cox et al., 2008, Schugerensky, 2003). Civic agriculture creates an opportunity for community involvement that connects to the larger community well-being (Niewolny et al. 2012; Allen et al., 2008).

Food Democracy and Citizenship

This opportunity for community involvement generates an avenue for individuals to practice civic engagement. Participation in civic agriculture can serve as a form of exercising one's right as a citizen to engage in community issues. Lang (1999) captured this concept with the notion of "food democracy," which entails citizens taking an active role in food procurement. Hassanein (2003) proposes food democracy as a step towards social, economic, and ecological justice. Nonetheless, he notes that citizen participation and engagement are requirements to this solution. The shift away from passive dependency toward active participation can empower individuals and communities (Kingsley et al., 2019; Levkoe, 2006; Cumbers, 2018 Renting et al., 2012). In fact, this is a requirement for successful civic agricultural endeavors (Lyson, 2005). It takes an active attitude of responsibility towards the community to create equitable agro-food systems. Therefore, indicators of civic engagement and processes toward equitable food access can go hand in hand with building local, community-based food systems.

Whether it is shopping at a farmers market, volunteering at a CSA, or working in a community garden, there are a variety of opportunities for community members to take back the power of food provisioning. Changing the relationship from solely customers to producers or active consumers, allows individuals to reclaim the opportunity to shape their community (Bródy

and deWilde, 2020; Hasanov et al., 2019; Crossan et al., 2016). To take back power and physical space, marginalized groups are able to find their place and voice in communities through the cultivation of gardens (Baker, 2004; Saldivar-Tanaka and Kransy, 2004). Efforts to re-orient the agricultural market to local needs offer consumers the opportunity to increase awareness around community issues and become active to address them (Cox et al., 2008; Schugerensky, 2003; McIvor and Hale, 2015). Recognizing the ownership of place, networks, and self can empower people to look beyond the formal governing body as the responsible figure for community well-being and turn to collective, community action to problem solve (Baker, 2004; DuPuis and Gillon, 2009; Dunlap et al., 2019). Moreover, some civic agriculture participants consider their involvement as a gesture of activism to reject the industrialized food system (Schnell, 2010; Macias, 2008).

Demographics

Barriers to Civic Agriculture

Many practitioners and scholars of local food systems have expressed continued concern about whether demographics predetermine and corner only a specific subset of the population into the benefits of civic agriculture (Alkon and McCullen, 2011; Guthman, 2008; Allen, 2010; Colasanti et al., 2010 and others). Studies over the years documenting the demographics of participants in civic agriculture show mixed results to this question. Overall, studies of CSAs (Lass, 2001; Cone and Myhre, 2000; Ostrom, 2008; Schnell, 2010), farmers markets (Civijanović et al., 2020; Wolf and Berrenson, 2003; Alkon and McCullen, 2011; Byker et al. 2012) and local food sales (O'Hara and Low, 2016; Godette et al., 2015; Martinez et al. 2010; Thilmany et al. 2008; Feldmann and Hamm, 2015) show that participants are generally white, wealthy, female, and college-educated and are located in the Northeast or West Coast near a

metropolitan area. Similarly, indicators of wealth and social class also affect access to local food, such as proximity to a farmers market or a flexible work schedule (Zepeda and Nie, 2012; McGuirt et al., 2014; Abelló et al., 2014; Galt et al., 2018). Other authors have found demographics to be factors, but not drivers for local food consumption patterns (Guptill et al., 2018; Thilmany et al., 2008; Galt et al., 2019; Galt et al., 2017). Rather, ideological and emotional considerations should also be considered as potentially stronger indicators than demographics (Lombardi et al., 2015; Beagan et al., 2015; Zoll, 2018). In certain areas, people of diverse socioeconomic backgrounds solicit farmers markets (Sadler, Gilliland, and Arku, 2013). Although they undoubtedly play an important role, race, income, education, and other demographic variables have not been shown to be conclusive determinants of civic agriculture.

On the production side, it is also the college-educated, middle-aged, and coastal individuals who are the farmers that start CSAs or sell direct-to-consumer (Tegtmier and Duffy, 2005; Lass, 2001). The farms tend to be small and cultivated with organic, biodynamic, or ecosystem-focused practices (Lass, 2001; Wells and Gradwell, 2001). There is a noticeable income gap observed between the producers and the consumers of local food (Schnell, 2010; Ostrom, 2008). Most farmers struggle to stay afloat financially and to keep members coming back every season (ibid). These factors could draw only a specific subset to local food and limit the impact of civic engagement and community building among a small socio-economic subset of community populations. Godette et al. (2015) points out that the contextual factors surrounding a community must be considered in creating a local food system – not only demographics, but also geography, infrastructure, and markets. Farmers are often more dependent on their relationships with the consumers than consumers are on farmers (Ostrom,

2008). This creates an unhealthy power balance that can cause farmers financial and social distress.

Civic Engagement

The hypothetical connections between civic agriculture and civic engagement have been thoroughly assessed through indirect means. However, only a handful of studies have attempted to directly examine the relationship. Both Carolan (2017) and Obach & Tobin (2014) produced studies demonstrating that individuals engaged with civic agriculture tend to also have increased levels of civic engagement compared to their community members who only utilize conventional food systems. In comparison to citizens solely participating in the conventional agricultural systems in New York state, Obach and Tobin (2014) found community members engaged in civic agriculture to also be more politically engaged and willing to volunteer than their conventionally minded counterparts. Carolan (2017) conducted a longitudinal study comparing the civic engagement of alternative and conventional eaters in Colorado. The results indicate that individuals who participate in alternative foodscapes are more likely to be active citizens in their community than conventional eaters. Carolan (2017) explains the values of civic engagement may already be present in participants, however, continued practice of those values in alternative foodscapes (civic agriculture) can alter or strengthen those beliefs.

In a similar vein, but with contrasting results, Pole and Gray (2013) distributed a survey to CSA members in New York state to measure levels of community engagement in relation to their CSA experience. Results indicate that CSAs do not necessarily generate or promote community internally amongst their members, nor does their CSA provide members with a sense of community. Moving away from consumers, Clark and Record (2017) studied the levels of civic engagement of local farm owners to determine if there was a significant difference in

owners whose farms were locally-facing, or community-oriented and selling to local customers, compared to owners whose firms were utilizing intermediating markets or were globally oriented. The results demonstrated that owners of locally-facing farms were more engaged both civically and politically.

Conclusion

An understanding of food systems is critical in order to build a stronger socio-economic fabric in the United States. Food is not just a commodity; it is a determination of well-being and expression of social identity. Scholarly studies have demonstrated the positive effects of small, locally-oriented businesses on community well-being. Corroborating the claim that civic agriculture is positively related to civic welfare is a crucial step towards utilizing food systems to build just, equitable economies. Many studies have shown the relationship between civic agriculture, community involvement, activism, and empowerment. Nonetheless, further studies are needed to measure and confirm the direct relationship between civic agriculture and civic engagement. This is especially true in rural, low-income, and racially-diverse communities. However, evidence does show the significance of civic agriculture on communities both rural and urban. In order to increase democratic engagement and build stronger communities, local governments, organizations and individuals should explore supporting civic agriculture as a means to equitable development.

CHAPTER II

EXPLORING THE RELATIONSHIP BETWEEN CIVIC AGRICULTURE AND CIVIC ENGAGEMENT IN THE RIO GRANDE VALLEY

Abstract

Civic engagement is an important indicator of social capital in a community. The foundation of a strong democracy is dependent on citizens' willingness and ability to engage. To further understand these drivers of social network building, this study utilizes the theory of civic agriculture to measure the impact of food procurement systems on civic engagement. A survey of over 400 residents in the Lower Rio Grande Valley of South Texas measures how involvement in local food systems impacts a participants' contribution to and perception of his or her community, while considering important third factor variables that also influence food procurement habits. In order to understand how build a stronger socio-political fabric in the United States, food systems are an important area of study. Food serves not only as a commodity, but also a determination of well-being and expression of social identity. The Lower Rio Grande Valley is home to the largest fruit and vegetable production in Texas, yet is a national leader in food and diet-related illnesses. This study will explore the relationship between food and civic engagement in a majority Hispanic community with a history of colonial agriculture in an attempt to delineate how localizing agro-food systems may play a role in empowering marginalized communities to engage civically with their community.

Introduction

Civic Engagement in the Lower Rio Grande Valley

The Lower Rio Grande Valley (LRGV) provides a succinct case study of the current flaws in the US food system. For example, although vegetable farming in the LRGV accounts for an estimated $60 million in annual production, all four of the counties fall into the fourth quartile of health factors, including physical health, mental health, and clinical care (Texas Farm Bureau, 2017; University of Wisconsin, 2019). Despite the fact that on average between the four counties, 35.06 percent of producers are new and beginning producers and the majority of farms are small with yearly under $2,500, only 3 percent of farms are reporting as selling direct-to-consumer (USDA NASS, 2017; USDA NASS, 2019). Moreover, there is an increasing need for food supply. In the LRGV alone, the population is projected to increase 50-100 percent from 2010 to 2050 with the most rapid growth rates in the state of Texas (Potter, 2014).

LRGV lies between 25-27 degrees North in latitude and is warm enough to grow crops year around, receiving only one or two ground freezes at most per year. Additionally, its proximity to Mexico historically affords a constant flow of cheap labor to agricultural settlers to produce at a competitive price. Colonized by Spain, usurped into Mexico, then claimed by the United States, the LRGV has undergone a series of power transitions. The latest in the 1900s brought a wave of Anglo settlers from the Midwestern United States to re-colonize the area as an agricultural mecca. As farmers continued to buy up and develop land for commodity agriculture, the export economy grew stronger in the region. The new farming and land-owning class viewed Mexican Americans as a labor pool, not equal citizens. They lumped Mexican Americans in the view of Mexicans as migrant laborers to segregate and oppress Mexican Americans for the purpose of cheap agricultural labor (Bowman, 2016).

To this day, the LRGV remains an important agricultural producer of fruits, vegetables, sorghum, and cotton for the United States. Although the LRGV nourishes the country with winter fruits and vegetables, the citizens of the LRGV remain plagued with food-related illnesses and a lack of access to fresh produce, while suffering from the highest rates of poverty in the country. The four counties of the Lower Rio Grande Valley rank among the highest poverty levels in the United States, falling in the 0.5 percentile highest poverty levels of all counties in the county (USDA ERS, 2019). Across the area, the median household income is only $33,692, compared to a $60,293 national average (U.S. Census Bureau, 2019). The majority of the population in the Lower Rio Grande Valley is Hispanic, 92 percent of residents on average (U.S. Census Bureau, 2019). An additional 25 percent of LRGV residents identify as foreign born and 79 percent speak a language other than English at home (U.S. Census Bureau, 2019). This combination of high poverty rates and high concentration of Hispanic and Latino populations has a tremendous predetermining effect on levels of civic engagement.

Specifically, studies have shown that strong immigration patterns can lead to a native population decreasing community engagement out of fear or discomfort with the new population (Coffe', 2009; Bell, 2009; Jobes 1999). New immigrants may feel unwelcome or untrusting of residents of their community. There may be language and cultural barriers that cause them to be less civically engaged (Terriquez, 2012). Consequently, Logan (2016) reports that places with high levels of net immigrants have lower levels of civic community. In the Rio Grande Valley, there is a significant presence of migration. Perlmann (2005) and Terriquez (2012) both note that a high percentage of foreign-born in county population has significant effects on levels of community engagement. Logan (2016) notes that there is a low level of spatial community specifically in the Texas borderlands. Mexican immigrants, in particular, have been demonized

in the national rhetoric and may feel a need to insulate amongst family. Or for other reasons, such as legality, they cannot actively be engaged in the community for fear of deportation. Therefore, studies have shown that Hispanics and African Americans have lower levels of civic engagement, especially voting and volunteering (Stoll, 2001; Green and Gerber, 2008; Musick et al., 2000; Wilson, 2000; Einolf, 2009). Logan (2016) also found that increased levels of socioeconomic status, such as education and income, are associated with increased levels of civic engagement. Therefore, specifically in the Rio Grande Valley, where the population is over 90 percent Hispanic, the poverty rate is a high 32 percent, and persons with a bachelor's degree is less than 14 percent, it is important to cultivate systems that facilitate civic engagement, such as local food systems (U.S. Census Bureau, 2019).

In the Lower Rio Grande Valley, the problem of food insecurity, health, and poverty is clearly exacerbated. According to a report by Texas A&M's (TAMU) Working on Wellness Program, approximately 52 percent of the census tracts in the four-county region qualify as food deserts (TAMU, 2018). On top of that, obesity and unemployment rates are abnormally high. On average, the diabetes rate is 12 percent of the population and the obesity rate is 36 percent of the population (Center for Disease Control [CDC], 2016). Due to the conglomeration of the aforementioned factors, it is not surprising that the most cited indicator of civic engagement is so low. Only 23.7 percent of the population is recorded as voting in the 2018 elections (Texas Secretary of State, n.d.). All of these socioeconomic indicators play a role in determining and reinforcing the type of food available to residents and their political activity. Utilizing other measures of civic engagement, this study will determine if there are other ways residents use to build community outside of the federal system and the role food could play in cultivate community and civic activity.

Civic Agriculture

Civic agriculture is a term coined by rural sociologist Thomas Lyson utilized to refer to forms of agriculture that occur on a local level by and for the local community that is linked to a community's social and economic development. In creating the theoretical framework for "civic agriculture," Lyson et al. (2001) make the connection between small to medium-sized production enterprises and their symbiotic success with communities when there is an engaged and economically independent middle class. Drawing from the literature on civic community, Lyson embeds the foundation of civic agriculture in local capitalism as a contrast to the development model of globalized industrialization (Lyson and Tolbert, 2004). Civic community theory posits that local businesses are owned and frequented by local community members, stimulating civic and social engagement between the business owners, employees, and consumers, while also generating positive economic impacts (Besser, 2009; Tolbert et al., 2002; Lyson and Tolbert, 1996; Lyson and Irwin, 1998; Lyson, 2006; Lyson et al., 2001; Mencken et al., 2020; Blanchard and Matthews, 2006; Tolbert, 2005; Brown, 2002; Lev et al., 2004; Abel et al., 1999; Swenson, 2009; and more). Civic agriculture theory takes it a step further and equates local farms as local businesses that are even further embedded in place and attune to local problems because of the socio-political roots of food production (DeLind, 2002; Lyson, 2005). Examples of civic agriculture include: farmers markets, CSAs, farm to school programs, agricultural cooperatives, and more.

Civic Agriculture and Civic Engagement

A handful of researchers have produced studies demonstrating that individuals engaged with civic agriculture tend to also have increased levels of civic engagement compared to their community members who only utilize conventional food systems (Obach and Tobin, 2014; Pole

and Gray, 2013; Carolan, 2017; Clark and Record; 2017). Obach & Tobin (2014) quantified the relationship between community engagement and civic agriculture by conducting two surveys in New York. One was a pen and paper self-administered survey to three types of civic agriculture participants: CSA members, farmers market shoppers, and patrons of locally owned independent health food stores. The other survey was extended to the general population through the telephone. In total, 887 surveys were collected from civic agriculture participants and 423 survey responses were collected from the general population. The independent variable for the study was civic agriculture participation and the dependent variables were connection to community, volunteerism, and civic activities. Researchers found that community members engaged in civic agriculture to also be more politically engaged and willing to volunteer than their conventionally minded counterparts. Results point to a connection between civic agriculture and community engagement. Citizens involved with or surrounded by community-oriented agriculture are also more likely to have higher levels of civic engagement. Even when controlling for age, education, and education, the levels of community engagement found in association with civic agriculture are statistically significant at a 0.01 level.

In a similar vein, but with contrasting results, Pole and Gray (2013) distributed a survey to CSA members in New York state to measure levels of community engagement in relation to their CSA experience. They generated 565 responses across a multitude of CSAs. Based on their responses, it appears that CSAs do not necessarily generate or promote community internally amongst their members, nor does their CSA provide members with a sense of community. However, an ANOVA displayed that members who had joined their CSA earlier, or have been participating for a longer time, felt significantly more integrated into their CSA community than ones who had joined years later and are newer to the community. Although it was not compared

to the general population, overall, CSA respondents overwhelmingly expressed interest and involvement in local political or social issues.

To address the issue of spuriousness, Carolan (2017) conducted a longitudinal study comparing the civic engagement of alternative and conventional eaters in the Front Range of Colorado. For alternative eaters, participants included CSA members with and without volunteer requirements, farmers market shoppers, and member-owned food cooperative shoppers. Participants were surveyed after recently beginning to participate in these practices and then resurveyed two years later, along with participating in a qualitative interview (n=149). For comparison, 106 residents were randomly selected and interviewed by means of a phone survey to represent conventional eaters. The survey measured political participation, community engagement, motivations for buying local foods, and interest in social justice.

The results indicate that individuals who participate in alternative foodscapes are more likely to be active citizens in their community than conventional eaters. Although responses show that the individuals engaging in alternative foodscapes were answering questions differently to conventional eaters even prior to entering or participating in alternative foodscapes, results also show that these practices had an impact on responses over time. Despite predisposition to these activities, participation increased their level of civic activeness. Carolan (2017) utilizes practice theory to explain the findings that the values of civic engagement may already be present in participants, however, continued practice of those values by participating in civic agriculture can alter or strengthen those beliefs.

From a producer standpoint, Clark and Record (2017) studied the levels of civic engagement of local farm owners to determine if there was a significant difference in owners whose farms were community-oriented and selling to local customers, compared to owners

whose firms were utilizing intermediating markets or were globally oriented. The results demonstrated that owners of locally-facing farms were more engaged both civically and politically than their counterparts.

Areas for further study

These studies serve as an important step in measuring a tangible connection between civic engagement and civic agriculture. However, there is need for continued research in more demographically diverse areas with a deeper dive into the statistical analysis of the interaction between third factor variables. For example, Obach and Tobin (2014) were able to provide a statistical analysis determining the difference of means between civic agriculture participants and the general populations for each variable, however, this test does not compare multiple variables between the groups. Therefore, the relationship between the variables that may be the cause for statistical significance is unknown. Furthermore, the controlled third factor variables only covered general demographics (sex, age, gender, race) and did not account for specific or general third factor variables that could result in a change in the data.

Carolan (2017) provided a significant contribution to the literature by performing a longitudinal study of alternative eaters, who procure a portion of their food from local food systems, in comparison to conventional eaters, who purchase food supplied national or regional retailers (i.e. grocery chains). However, the quantitative analysis is not robust enough to draw conclusions. The sample sizes of n=149 of alternative eaters and n=106 for the general population are not large enough to generalize without compromising reliability. Furthermore, the statistical analysis of the results does not allow for determination of any causation or relationship between variables. Since third factor variables were not measured or controlled, the results cannot make an assumption about the relationship between alterative eaters and their relationship

to political participation, community engagement, motivations for buying local foods, and interest in social justice, in comparison to conventional eaters. This is especially true because the same random respondents were not sampled over the same time period. Therefore, community events that may have affected both groups responses are not accounted for.

Pole and Gray (2013) measured CSAs members with no comparison to the general population. Although the study found a lack of a robust relationship between CSAs and members' sense of belonging or community involvement, they do not have a general population to compare to from that area that experience similar third factors. Furthermore, their ANOVA across income groups measuring the variables of community engagement does not take into account important third factor variables such as political views, occupation, or migration. All these factors and more have an effect on the significance of the relationships.

Therefore, in an attempt to continue to improve the understanding of this relationship, this study will analyze variables in statistical regression models to ensure that all variables are considered in regards to their interactions with each other, rather than in paired relationships, and a conservative measure of significance is put in place to account for third factor variables that were not directly measured in the survey. The statistical models consider all third factor variables, internal reliability of each survey question, and comprehensive variable interaction. Furthermore, the population in consideration is low-income, Hispanic, and generally holding lower levels of education. This will serve as an important socio-cultural contrast to the majority white, educated populations surveyed in previous studies.

Methods

The research investigators administered a survey (see Appendix A) to two population groups in the Rio Grande Valley: citizens participating in civic agriculture activities and citizens who are not participating in civic agriculture activities. All participants are residents of the Rio Grande Valley and over the age of 18. The sample size is 446 (n=446) without including 74 incompletes. The variables in the study are civic agriculture, accounting for the dependent variable, and civic engagement and community well-being, accounting for the independent variables. Civic agriculture is conceptualized as any citizen participating in any civic agriculture activity. Civic engagement is conceptualized as political and civic activities, volunteerism, sense of belonging, and community connection (see Table 2).

Table 2. Operationalization of Variables

Civic Agriculture Indicators	**Civic Engagement Indicators**	**Community Well-Being Indicators**	**Third Factor Indicators**
Farmers Market	Political Efficacy	Sense of Belonging	Gender, age, race, ethnicity
Community Supported Agriculture (CSA)	Community Involvement	Community Cohesion	Income
Farm to School	Political Activities		Religiosity
Community or School Garden			Political affiliation and views
Farm to Table Restaurant			Generation
Buying food from local farmers			Education
Farmer-Owned Cooperative			Migration
U-Pick			
Farming for LRGV residents			

Sampling

The study utilizes two sampling techniques to gain responses from the general population and to target groups of people involved in civic agriculture: random and purposive. The University of Texas Rio Grande Valley Survey Center carried out the survey over the phone, utilizing random digit dialing to call residents and administer the survey in both Spanish and English. The Survey Center ran the survey for eight weeks from February through March 2020 with 6-8 student employees and received a 3.94 percent response rate and collected 432 responses with 54 incompletes. The survey was also distributed over Qualtrics through anonymous links and QR codes to farm organizations, non-profits, CSAs, student organizations, and farmers markets' email lists in order to reach the smaller portion of the population who does participate in civic agriculture activities. The Qualtrics survey was available for 10 weeks from January to March 2020 and received 88 responses with 20 incompletes. The survey had a total of thirty questions and averaged 15 minutes a survey on the phone and 45 minutes on Qualtrics, which may be due to participants leaving the survey open on their computer while doing other things. Both surveys were anonymous with participant identifiers not linked with the data.

Survey Design

These variables are operationalized through a set of survey questions (see Appendix A for survey). Questions 2.1-2.4 distinguish civic engagement involvement. Question 2.1 serves as a sorting question. Participants are asked if they are involved with any of the listed civic agriculture activities included in the study and respond with a yes or no answer. If no, skip logic brings participants to question 4. If yes, participants are asked about the type, frequency, and duration of activity involvement. Questions 4-12 measure participants' levels of civic engagement and community well-being through concepts of community cohesion, sense of

belonging, political efficacy, political activities, and community involvement (Table 2). The demographic questions (questions 13-30) identify whether a third factor may explain a correlation between civic agriculture and civic engagement. These question address, age, gender, ethnicity, race, income, employment, education, religiosity, and general political views.

Table 3. Survey questions 4-11, operationalized civic engagement variables and sources

Question	Indicator	Operationalized Variable	Source
Question 4	Community Satisfaction	Community Cohesion	Arbuckle et al. (2012)
Question 5	Community Connection: Rating	Community Cohesion	Obach and Tobin (2013)
Question 6	Community Efficacy	Community Cohesion	Obach and Tobin (2013)
Question 7	Volunteerism	Community Involvement	Pole and Gray (2013)
Question 8	Involvement in Political and Civic Groups	Community Involvement or Political Activity	Pole and Gray (2013)
Question 8_2	Sense of community from above activities	Sense of Belonging	Pole and Gray (2013)
Question 9	Involvement in Political and Civic Activities	Community Involvement or Political Activity	Obach and Tobin (2013)
Question 10	Interest in local politics	Political Efficacy	Obach and Tobin (2013)
Question 11	Sense of Belonging in LRGV	Sense of Belonging	Bollen and Hoyle (1990)
Question 12	Political efficacy	Political Efficacy	Miller (1998)

Factor Analysis

Initial bivariate analyses of civic engagement and community well-being, revealed high correlations between several component variables. Therefore, prior to running models to analyze these concepts, a factor-analysis was performed on the previous questions chosen from prior studies. The analysis revealed that civic engagement cannot be measured as a

blanket concept covering all civic engagement activities. Rather, the variables loaded separately onto the factors of community involvement, political activity, and political efficacy. Consequently, in future studies it is important to acknowledge the diversity of the concept of civic engagement and how it might be operationalized and interpreted from different angles. This is especially true as studies are carried out in a variety of demographics. In a Hispanic community with high levels of familialism, involvement in religious, neighborhood, and school organizations is quite a normal activity. However, engaging in political groups takes on a completely different meaning. They are not considered comparable. Understanding these nuances is a step towards a more holistic understanding of the relationship between civic engagement and food systems.

Table 4. Factor Analysis Results

Loading	**Variables**	**Loading**	**Variables**
Civic Agriculture	Civic agriculture involvement	**Political Efficacy**	Qualified to participate
	Civic agriculture activities		Understanding of political issues
	Civic agriculture frequency		Qualified to serve in office
	Civic agriculture duration		Informed about politics
Community Involvement	Religious organizations	**Community Cohesion**	Good place for future generations
	Neighborhood organizations		Community future looks bright
	City or town organizations		Community has a lot going for it
	Work or school-related organizations		Want to live in this community
	Work on a community project		Community efficacy
Political Activity	Political groups	**Sense of belonging**	Sense of belonging to the RGV

	Political meetings	Member of the RGV
	Sign a petition	Part of the RGV community
	Write a letter to legislator	
	Contribute money to a cause	

Modeling

To more thoroughly delineate the relationship between civic agriculture and community well-being, independent variables were tested with civic agriculture in five different measurements of civic agriculture dependent variables, comparing the five different independent variables in conjunction with control variables. Upon initial correlation analysis, sense of belonging and community cohesion were found to overlap in fifty-percent of cases. Therefore, two separate analyses were run so as to allow only one variable to appear in each. In order to determine the most significant control variables, the models began with fifteen different control variables. Variables that were insignificant across the models were removed to increase the strength of the models. Political views, political affiliation, religious affiliation, religiosity, age, employment status, length of residence, and generational status were all revealed as insignificant control variables.

Length of residence and age overlapped in over fifty-percent of the cases. Therefore, to determine if length of residence is a significant factor, the length of residence was divided by age to create a residency ratio to utilize as a separate factor. This factor was not significantly correlated with civic agriculture involvement, nor ethnicity or education. Hispanic and Catholic variables had a high correlation, therefore Catholic variable was also removed to increase the number of observations. Generational variables were not significant in the initial models, nor

was generation correlated with income or education, therefore they were removed in succeeding models. Race is measured on the survey, however, since Hispanic-white describes 82.7 percent of the population and non-Hispanic white describes 10.6 percent of the population, there is not enough racial diversity to accurately measure the concept. Consequently, ethnicity (Hispanic or non-Hispanic) is utilized as a more precise variable of diversity in the LRGV.

Five dependent variables are designed to measure the relationship between civic agriculture and community well-being variables. The first consists of logistic regression comparing civic agriculture involvement (yes/no) to civic engagement and community well-being. The second compares civic agriculture involvement (factor loading) to civic engagement and community well-being utilizing OLS regression. In a logistic regression, the third separates each civic agriculture activity individually in comparison to the independent variables. The fourth measures the frequency of civic agriculture involvement in ordered logistic regression. The fifth measures the length of civic agriculture involvement also with ordered logistic regression.

Results

Sample Demographics

In comparison with the 2019 Census data, the sample generally reflects the larger population of the LRGV. Around 82 percent of the participant population identifies as Hispanic, in comparison with 92 percent accounted for in the census. White race represents a higher proportion of the population at 97.8 percent of the sample, compared to 88 percent average collected in the census. There are more non-Hispanic white participants in the civic agriculture group. The average age of the sample is 42 years old. The sample collected also demonstrates a

higher level of attained education that the average represented in the 2019 Census data. Around 83 percent of the sample has earned a high school degree or higher and 34.6 percent earned a college degree or higher. In comparison, census data shows, across the four counties, only 60.7 percent of the population earning a high school diploma or higher and 14.6 percent earning a bachelor's degree or higher. Table 5 shows the significantly higher educational attainment of civic agriculture participants in post graduate work. The average household income across the LRGV is recorded as $32,778. Around 48 percent of the sample population earns under $40,000 as a total household income. The sample skews higher in income, which is reflected in the slightly higher income of civic agriculture participants.

Table 5. Population demographics

Variables	**Civic Agriculture Participants**	**Conventional Food Shoppers**
Sample Size (n=472)	**n=121**	**n=351**
Age (n = 409)	**100 (n)**	**309 (n)**
18-29	25.6 %	27.6 %
30-39	13.2 %	16.5 %
40-49	15.7 %	14.8 %
50-59	12.4 %	12.0 %
60-80	14.9 %	16.2 %
80+	0.8 %	0.9 %
Education (n=405)	**102 (n)**	**303 (n)**
Less than 9th grade	2.5 %	11.4 %
Some high school	2.5 %	6.3 %
High school graduate	9.1 %	19.7 %
Some college	20.7 %	19.9 %
Trade/vocational training	5.0 %	4.6 %
College graduate	19.8 %	19.4 %
Some postgraduate	4.1 %	0.9 %
Postgraduate	20.7 %	4.3 %
Income (n=320)	**95**	**225**
<$20,000	18.2 %	15.4 %
$20,000-$40,000	11.6 %	18.2 %
$40,000-$60,000	14.9 %	10.5 %

$60,000-$80,000	10.7 %	8.3 %
$80,000-$100,0000	12.4 %	5.4 %
$100,000-$160,000	6.6 %	5.1 %
160,000-$200,000 (%)	1.7 %	0.6 %
>$200,000 (%)	2.5 %	0.6 %
Ethnicity (n=408)	**101**	**307**
Hispanic (%)	55.4 %	76.9 %
Non-Hispanic (%)	28.1 %	10.5 %
Race (n=397)	**96**	**301**
Non-Hispanic white (%)	14.9 %	6.8 %
Hispanic white (%)	61.2 %	79.5 %
Middle-Eastern (%)	0.0 %	0.0 %
Black (%)	0.0 %	0.3 %
American Indian or Alaska native (%)	1.7 %	0.3 %
Asian (%)	0.8 %	0.3 %
Other (%)	0.8 %	0.6 %
Gender (n=409)	**101**	**308**
Male (%)	47.1 %	36.2 %
Female (%)	36.4 %	51.6 %

Civic Agriculture and Civic Engagement

Across five different dependent variables, measuring civic agriculture involvement, type of civic agriculture activities, frequency of civic agriculture activities, and length of civic agriculture involvement, it is evident that community involvement, political activity, and political efficacy have a statistically significant relationship with civic agriculture. Across all dependent variables, these independent variables remain significant and serve as drivers of civic agriculture involvement. There is also a general consistency of control variables that also hold a statistically significant relationship with civic agriculture activities. Gender and education play a role across three of the five civic agriculture variables. Female participation is negatively correlated with civic agriculture involvement ($p<0.10$), frequency ($p<0.05$) and length of

involvement ($p<0.10$). Education is positively correlated with civic agriculture involvement ($p<0.01$), frequency ($p<0.10$) and length of involvement ($p<0.01$). Other significant control variables include Hispanic ethnicity (civic agriculture involvement and type, $p<0.10$) and religiosity (civic agriculture frequency, $p<0.10$). Both these variables are negatively correlated with civic agriculture involvement.

Sense of belonging and community cohesion were not significant in any of the models. It is not surprising to find this result in a majority Hispanic community. Both variables tested very high across all observations. Cultural factors may be playing a role in creating this effect. Specifically, the geographic designation, low out-migration rates, and demographic homogeneity may be utilized to predict and justify this finding.

Model Results

The discrepancy between table 6 and table 7 which both measure civic agriculture involvement, occurs due to the difference in question prompt. Table 6 displays participants response to civic agriculture involvement (yes/no), after listening to a list of activities defined as civic agriculture. Table 7 displays participants responses who answered yes to any of the types of civic agriculture activities presented in table 8, which is analyzed with a factor loading. Although the difference in significance cannot be definitively explained, it can be assumed that the specificity of table 7 eliminates any false positive responses from table 6, refining the results. Table 7 reveals that community involvement, political activity, and political efficacy are all significant drivers of civic agriculture involvement ($p<0.01$-0.05) without any influence from the tested control variables. Income, gender, age, education, and ethnicity were not significant in these models. Meanwhile, table 6 identifies education ($p<0.01$), gender ($p<0.10$) and ethnicity ($p<0.10$) as significant predictors of civic agriculture involvement.

Table 8 demonstrates a more nuanced analysis of the types of civic agriculture activities and how different variables predispose individuals to that specific activity. Drivers for participation in farmers market include community involvement ($p<0.05$), political activity ($p<0.01$), political efficacy ($p<0.10$), high levels of education ($p<0.01$), and non-Hispanic ethnicity ($p<0.10$). Community supported agriculture participants show one of the least significant relationships with civic engagement indicators. Community involvement is the only variable correlated with civic agriculture, although the relationship is weak ($p<0.10$). Community involvement ($p<0.01$), political activity ($p<0.01$) and political efficacy ($p<0.05$) are the only variables predicting involvement in farm to school programs. On the other hand, participants are predisposed to community gardening by community involvement ($p<0.01$), political activity ($p<0.01$), but also by being older ($p<0.05$) and male ($p<0.10$).

Patrons of farm to table restaurants are driven only by community involvement ($p<0.05$) and political activity ($p<0.01$). Buying local food, utilized as a catch-all category, is only significantly correlated with community involvement ($p<0.05$). This category may have drawn confusion with participants due to its broad nature. There were no significant drivers indicated by participants buying from farmer-owned cooperatives. UPick or gleaning can be predicted by community involvement ($p<0.01$) and political efficacy ($p<0.01$), but also by being male ($p<0.05$). In contrast, individuals are predisposed to farming only slightly by community involvement ($p<0.10$), but also are influenced by gender and employment. Males with part-time jobs or less are more likely to farm. This trend is reflective of the larger population of farmers who work part-time jobs in order to maintain their farming business.

Table 9 determines what variables affect the frequency of civic agricultural activity involvement. How often participants engage in civic agriculture can be predicted by community

involvement (p<0.05), political activity (p<0.05-0.10), male gender (p<0.05), education (p<0.10), and religiosity (p<0.10). The impact of religion has yet to be explored as a variable affecting civic agriculture involvement. The significance of religion in a participant's life is negatively correlated with civic agriculture involvement. This finding could be an important area of future study. Table 10 reveals duration of time a participant has been involved in civic agriculture can be indicated by community involvement (p<0.05), political activity (p<0.05-0.10), political efficacy (p<0.05), male gender (p<0.10), and education (p<0.01).

In order to further understand the relationship between civic engagement and community well-being espoused in civic community theory. The interactions between the independent variables were analyzed in OLS regression. Community involvement is a significant predictor of both community cohesion and sense of belonging (p<0.05). Community cohesion and sense of belonging are also significant indicators of political efficacy (p<0.05). Political activity is not predicted by community cohesion, sense of belonging, or community involvement.

Table 6. The effect of civic engagement on civic agriculture involvement (logistic regression)

	Civic Agriculture Involvement			
	(1)	(2)	(3)	(4)
Community involvement	**0.423*** **	**0.436** **	**0.442** **	**0.426** **
	(0.141)	(0.176)	(0.178)	(0.177)
Political activity	**0.581*** **	**0.287***	**0.290***	**0.291***
	(0.132)	(0.163)	(0.162)	(0.163)
Political efficacy	**0.358** **	**0.389***	**0.419** **	**0.372***
	(0.163)	(0.208)	(0.211)	(0.209)
Community Cohesion	-0.116		0.0626	0.000128
	(0.188)		(0.182)	(0.201)
Sense of belonging	0.0478	0.0935		0.0938

	(0.172)	(0.188)		(0.206)
Income		-0.103	-0.0863	-0.0823
		(0.123)	(0.124)	(0.126)
Female		**-0.641***	**-0.584***	**-0.606***
		(0.340)	(0.333)	(0.337)
Age		-0.00878	-0.00647	-0.00785
		(0.0113)	(0.0111)	(0.0113)
Employed		-0.549	-0.559	-0.543
		(0.359)	(0.357)	(0.362)
Education		**0.283*****	**0.261*****	**0.272*****
		(0.103)	(0.0998)	(0.103)
Hispanic		**-0.815***	**-0.759***	**-0.768***
		(0.421)	(0.426)	(0.425)
Religiosity		-0.112	-0.0960	-0.106
		(0.179)	(0.177)	(0.178)
Constant	-1.349***	-0.467	-0.557	-0.564
	(0.147)	(0.813)	(0.829)	(0.831)
Observations	344	246	246	241

Table 7. Civic Agriculture factor loadings and civic engagement (OLS)

	Civic Agriculture Involvement (factor loading)			
	(5)	(6)	(7)	(8)

Community involvement	**0.162*** **	**0.180** **	**0.197*** **	**0.186** **
	(0.0551)	(0.0743)	(0.0754)	(0.0760)
Political activity	**0.349*** **	**0.268*** **	**0.283*** **	**0.276*** **
	(0.0732)	(0.0804)	(0.0811)	(0.0822)
Political efficacy	**0.125** **	**0.162*** **	**0.177*** **	**0.165*** **
	(0.0521)	(0.0588)	(0.0606)	(0.0602)
Community cohesion	-0.0890		-0.0493	-0.0569
	(0.0761)		(0.0761)	(0.0890)
Sense of belonging	0.000878	-0.0410		-0.00780
	(0.0769)	(0.0833)		(0.0986)
Income		-0.0642	-0.0706	-0.0620
		(0.0476)	(0.0490)	(0.0503)
Female		-0.208	-0.220	-0.218
		(0.136)	(0.136)	(0.136)
Age		-0.00431	-0.00412	-0.00426
		(0.00399)	(0.00423)	(0.00416)
Employed		-0.226	-0.228	-0.232
		(0.162)	(0.159)	(0.164)
Education		0.0505	0.0469	0.0459
		(0.0386)	(0.0383)	(0.0389)
Hispanic		-0.105	-0.0947	-0.109
		(0.225)	(0.223)	(0.232)
Religiosity		-0.0285	-0.0404	-0.0342
		(0.0503)	(0.0507)	(0.0508)
Constant	0.0310	0.507	0.552	0.540
	(0.0539)	(0.428)	(0.450)	(0.451)
Observations	334	237	237	232
R-squared	0.186	0.201	0.216	0.206

Table 8. Type of civic agriculture and civic engagement per activity (logistic regression)

	Farmers Market	Comm. Support	School Farm	Grow Comm.	Eat Farm	Buy Local	Buy Coop.	Pick Food	Grow/Sell RGV
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Community involvement	**0.446****	**0.843***	**1.166*****	**1.021*****	**0.523****	**0.467****	0.126	**0.885*****	**0.534***
	(0.208)	(0.448)	(0.381)	(0.343)	(0.239)	(0.197)	(0.293)	(0.238)	(0.310)
Political activity	**0.654*****	0.593	**0.856*****	**0.706*****	**0.612*****	0.214	0.144	0.110	0.452
	(0.187)	(0.392)	(0.312)	(0.274)	(0.196)	(0.159)	(0.235)	(0.238)	(0.291)
Political efficacy	**0.441***	-0.124	**1.156****	0.436	0.429	0.238	0.0558	**0.864*****	0.397
	(0.239)	(0.486)	(0.469)	(0.427)	(0.293)	(0.209)	(0.271)	(0.273)	(0.345)
Community cohesion	0.0405	0.420	-0.564	0.0250	0.219	0.103	-0.307	-0.0906	-0.781
	(0.249)	(0.534)	(0.725)	(0.288)	(0.453)	(0.226)	(0.254)	(0.283)	(0.597)
Sense of belonging	-0.0329	-0.270	0.116	-0.359	-0.163	0.0813	-0.0697	-0.178	0.768
	(0.253)	(0.335)	(0.752)	(0.276)	(0.267)	(0.223)	(0.268)	(0.273)	(0.712)
Income	-0.153	-0.0888	0.121	-0.320	0.187	-0.101	-0.0915	-0.215	0.0896
	(0.148)	(0.252)	(0.232)	(0.222)	(0.175)	(0.133)	(0.198)	(0.244)	(0.159)
Female	-0.656	0.185	-1.292	**-1.007***	0.00454	**-0.630***	-0.122	**-1.480****	**-1.582****
	(0.404)	(0.881)	(1.055)	(0.578)	(0.574)	(0.365)	(0.500)	(0.578)	(0.787)
Age	-0.0149	-0.00216	-0.0282	**-0.0431****	-0.0235	-0.00543	0.0195	0.00409	0.00580
	(0.0129)	(0.0222)	(0.0382)	(0.0186)	(0.0157)	(0.0117)	(0.0161)	(0.0171)	(0.0134)
Employed	-0.636	-0.704	-0.561	0.0929	-0.971	-0.305	0.162	-0.0474	**-1.421***
	(0.460)	(0.738)	(1.144)	(0.541)	(0.634)	(0.400)	(0.526)	(0.533)	(0.740)
Education	**0.356*****	0.180	-0.552	-0.178	0.00198	**0.198***	-0.0328	-0.0696	0.111
	(0.118)	(0.272)	(0.339)	(0.166)	(0.155)	(0.108)	(0.158)	(0.166)	(0.319)
Hispanic	**-0.875***	0.258	-1.372	-0.496	-0.285	-0.391	-0.462	-0.598	-0.522
	(0.489)	(0.833)	(1.609)	(0.701)	(0.708)	(0.462)	(0.661)	(0.768)	(0.807)
Religiosity	-0.0875	**-0.461***	0.109	-0.103	-0.156	-0.0574	-0.00942	-0.0436	**-0.618***
	(0.193)	(0.276)	(0.404)	(0.277)	(0.191)	(0.170)	(0.223)	(0.256)	(0.358)

Constant	-0.882	**-4.246****	-0.309	1.188	-1.830*	-1.129	**-2.490***	-0.926	-3.401
	(0.845)	(1.997)	(2.686)	(1.180)	(1.112)	(0.808)	(1.328)	(1.121)	(2.111)
Observations	241	241	241	241	241	241	241	241	241

Table 9. Frequency of civic agriculture activities and civic engagement (ordered logistic regression)

	Frequency of Civic Agriculture Activities			
	(18)	(19)	(20)	(21)
Community involvement	**0.304****	**0.398****	**0.410****	**0.397****
	(0.134)	(0.177)	(0.175)	(0.179)
Political activity	**0.580*****	**0.293***	**0.307****	**0.301***
	(0.143)	(0.159)	(0.155)	(0.156)
Political efficacy	0.128	0.167	0.215	0.163
	(0.162)	(0.182)	(0.184)	(0.184)
Community cohesion	-0.129		0.0362	-0.0399
	(0.192)		(0.182)	(0.200)
Sense of belonging	0.0557	0.0549		0.0818
	(0.164)	(0.162)		(0.178)
Income		-0.0817	-0.0958	-0.0732
		(0.117)	(0.120)	(0.120)
Female		**-0.708****	**-0.691****	**-0.712****
		(0.328)	(0.324)	(0.331)
Age		0.00373	0.00431	0.00388
		(0.0104)	(0.0102)	(0.0105)
Employed		-0.391	-0.394	-0.400
		(0.355)	(0.348)	(0.360)
Educ		**0.178***	0.167	**0.167***

		(0.0997)	(0.102)	(0.0992)
Hispanic		-0.670	-0.613	-0.664
		(0.439)	(0.445)	(0.447)
Religiosity		**-0.329***	**-0.330***	**-0.340***
		(0.184)	(0.182)	(0.186)
Constant cut1	1.491***	0.964	0.921	0.927
	(0.148)	(0.831)	(0.844)	(0.876)
Constant cut2	1.615***	1.073	1.028	1.036
	(0.156)	(0.831)	(0.844)	(0.876)
Constant cut3	2.010***	1.521*	1.436*	1.457
	(0.182)	(0.847)	(0.856)	(0.889)
Constant cut4	2.495***	2.164**	2.052**	2.107**
	(0.209)	(0.855)	(0.860)	(0.895)
Constant cut5	3.271***	3.295***	3.063***	3.246***
	(0.270)	(0.914)	(0.911)	(0.951)
Observations	344	246	246	241

Table 10. Length of civic agriculture involvement and civic engagement (ordered logistic regression)

	Length of Civic Agriculture Involvement			
	(22)	(23)	(24)	(25)
Community involvement	**0.357****	**0.379****	**0.374****	**0.368****
	(0.140)	(0.181)	(0.181)	(0.182)
Political activity	**0.628*****	**0.322****	**0.280***	**0.322****
	(0.119)	(0.146)	(0.145)	(0.146)

Political efficacy	0.268	**0.453****	**0.502****	**0.444****
	(0.179)	(0.210)	(0.214)	(0.210)
Sense of belonging	-0.00191	-0.0287		-0.0370
	(0.160)	(0.148)		(0.172)
Income		-0.135	-0.0923	-0.120
		(0.119)	(0.118)	(0.122)
Female		**-0.542***	-0.461	**-0.525***
		(0.322)	(0.320)	(0.319)
age		0.00701	0.00894	0.00694
		(0.0109)	(0.0106)	(0.0108)
Employed		-0.315	-0.395	-0.332
		(0.339)	(0.336)	(0.343)
Education		**0.344*****	**0.281*****	**0.334*****
		(0.108)	(0.107)	(0.108)
Hispanic		-0.457	-0.550	-0.454
		(0.386)	(0.395)	(0.394)
Religiosity		-0.129	-0.116	-0.134
		(0.187)	(0.179)	(0.185)
Constant cut1	1.417***	1.932**	1.774**	1.915**
	(0.148)	(0.784)	(0.783)	(0.805)
Constant cut2	1.624***	2.218***	2.024**	2.174***
	(0.155)	(0.796)	(0.792)	(0.815)
Constant cut3	1.856***	2.509***	2.306***	2.466***
	(0.163)	(0.794)	(0.790)	(0.812)
Constant cut4	2.155***	2.896***	2.681***	2.856***
	(0.181)	(0.820)	(0.812)	(0.836)
Constant cut5	2.312***	3.076***	2.855***	3.037***
	(0.193)	(0.837)	(0.826)	(0.853)
Constant cut6	3.191***	4.126***	3.855***	4.088***

	(0.288)	(0.891)	(0.876)	(0.904)
Constant cut7	4.475***	5.505***	5.075***	5.469***
	(0.489)	(1.092)	(1.051)	(1.105)
Observations	344	246	246	241

Discussion

Civic agriculture participant demographics

In contrast to previous studies, conducted in majority non-Hispanic white populations finding participants of civic agriculture are generally white, wealthy, female, college-educated and are located in the Northeast or West Coast near a metropolitan area (Lass, 2001; Cone and Myhre, 2000; Ostrom, 2008; Schnell, 2010; Civijanović et al., 2020; Wolf and Berrenson, 2003; Alkon and McCullen, 2011; Byker et al. 2012; O'Hara and Low, 2016; Godette et al., 2015; Martinez et al. 2010; Thilmany et al. 2008; Feldmann and Hamm, 2015), our findings display that income, race, and age do not have a significant correlation with civic agriculture involvement. However, consistent with previous findings, education and gender do play a role in pre-determining civic agriculture involvement. Although, depending on the type of agricultural activity, the pre-determinants to involvement shift.

Gender and education are not consistent predictors across the nine civic agricultural activities measured. Female is negatively correlated with four out of the nine civic agriculture activities measured – community gardens, buying local food, UPick, and gardening. Age is consistent between the two groups with no noticeable differences. Education is only correlated with two out of the nine civic agriculture activities – farmers markets and buying local food. Consequently, it is important to distinguish how different types of civic agriculture involvement

attract different groups of people and should not be measured as one homogenous group. This finding supports literature determining demographic factors to be inconsistent predictors of civic agricultural involvement (Guptill et al., 2018; Thilmany et al., 2008; Galt et al., 2019; Galt et al., 2017; Sadler, Gilliland, and Arku, 2013).

Some authors have suggested ideological and emotional considerations should also be considered as potentially stronger indicators than demographics to explain the inconsistencies in these relationships (Lombardi et al., 2015; Beagan et al., 2015; Zoll, 2018). This study began to explore this finding by utilizing control variables of religiosity, political views, and political affiliation. These variables did not have a significant effect on civic agriculture involvement. However, the level of religiosity is negatively correlated with the frequency of civic agriculture activity. Therefore, further study should identify other ideological and emotional considerations in addition to the variables tested in this study.

Critics of civic agriculture identify demographics as a leading concern in the movement towards localizing food systems. Scholars bear concerns that civic agriculture activities are inaccessible and exclusive to specific subsets of the population based on race, class, and location (Guthman 2003 and 2008; Allen, 2010; Alkon and McCullen, 2011; Godette et al., 2015). Our findings reveal that it may be a more complex combination of demographic characteristics that predetermine individuals to civic agriculture participation. Race and income may not play as large a role as predicted in more diverse populations. However, other indicators, such as gender and education may serve as demographic barriers.

Sense of belonging and community cohesion

In contrast to variables utilized in civic community theory to measure community cohesion, civic agriculture literature has generally gone beyond direct measures of community well-being – such as crime, poverty, social welfare scores and inequality measures – to measure the more intangible variables of social capital, sense of community, community satisfaction, and community efficacy (Besser, 2009; Pole and Gray, 2013; Obach and Tobin, 2014; Carolan, 2017). Carolan (2017) and Obach and Tobin (2014) found participants of civic agriculture had higher levels of community efficacy than conventional shoppers. Pole and Gray (2013) found CSA members had a higher integration into the community the longer they participated in the CSA, but a weak sense of belonging amongst members. Besser's (2009) findings revealed social capital to be positively correlated with the number of small farms in an area. In contrast with these studies, results do not demonstrate that participation in civic agriculture is related to community cohesion metrics. Similar to Pole and Gray (2013), findings indicate that sense of belonging is tied more closely with community involvement than civic agriculture participation.

In general, civic agriculture activities are espoused to connect individuals in a community and potentially positively affect overall community well-being. Studies show that participants can gain a larger sense of community from buying their food directly from farmers (Onozaka et al., 2010; Low et al., 2015). Moreover, community-oriented farms, gardens, and markets contribute to a feeling of transcendence to the larger community, where participants can imagine a greater community efficacy and ownership of community issues, providing civic opportunities that had not been evident before (Poulson, 2017; Flora et al., 2012; Bingen et al., 2010; Bingen et al., 2011; Cox et al., 2008; Chung et al., 2005; Schugerensky, 2003; Sharp et al., 2002). However, our results do not support any of the above findings regarding the relationship between

community cohesion and a sense of belonging and civic agriculture. Respondents did not identify levels of community efficacy, sense of belonging or community satisfaction with civic agriculture participation. Rather, civic agriculture activity is driven by community involvement, political activity and political efficacy. This could potentially be explained by the demographic characteristics of the sample.

Due to the high concentration of Hispanic populations in the Lower Rio Grande Valley, certain factors of Hispanic culture must be taken into account. Based on Marín and Marin's (1991) publication on research with Hispanic populations, the culturally specific values of familialism and allocentrocism are important to understand. Familialism has been counted as one of the most important values of Hispanics (Moore, 1970). It is also been shown to be central to the Hispanic sub-group of Mexican-Americans (Alvirez and Bean, 1976). Marín and Marin (1991) define familialism as a "cultural value that involves an individual's strong identification with an attachment to their nuclear and extended families, and strong feelings of loyalty, reciprocity, and solidarity among members of the same family" (11).

Allocentricism, or collectivism, is another trait associated with Hispanic communities. It is defined as essentially emphasizing "the needs, objectives and points of view of an ingroup" ((Marín and Marín, 1991, 9). These two values may explain the strong sense of belonging and community cohesion displayed across both populations of food purchasers in this study. In future studies, measures of community cohesion and sense of belonging should be utilized to determine if these findings differ in non-Hispanic communities.

Political activity, political efficacy, community involvement

Different from community cohesion and sense of belonging variables, civic engagement indicators of political activity, political efficacy, and community involvement were highly correlated with civic agriculture participation. Across the five civic agriculture variables, there is a consistently significant relationship between the variables. These findings support the argument that civic agriculture is related to civic engagement (Carolan, 2017; Obach and Tobin, 2014). Although some civic agriculture activities may have a more significant relationship to civic engagement variables than others. Farmers markets and farm to school programs show significant relationships for all three variables. Community gardens and farm to table restaurants are significantly influenced by community involvement and political activity. CSAs, farming, and buying local are significantly influenced by community involvement. UPick shows to be driven significantly by community involvement and political efficacy.

These findings support all previous literature concerning the relationship between civic agriculture and civic engagement. Carolan (2017) found civic agriculture participants were more active citizens in their community and participation in these activities may strengthen beliefs in civic engagement. Clark and Record (2017) similarly found that levels of civic and political engagement are higher in farmers with locally-facing farms versus farms selling to markets to external communities. Both Pole and Gray (2013) and Obach and Tobin (2014) found higher levels of volunteerism in CSA members. Obach and Tobin (2014) found CSA members were also more civically engaged than the general population.

Towards Food Democracy

This opportunity for community involvement generates an avenue for individuals to practice civic engagement. Participation in civic agriculture can serve as a form of exercising one's right as a citizen to engage in community issues. In fact, this is a requirement for successful civic agricultural endeavors (Lyson, 2005). It takes an active attitude of responsibility towards the community to create equitable agro-food systems. Lang (1999) captured this concept with the notion of "food democracy," which entails citizens taking an active role in food procurement. Hassanein (2003) proposes food democracy as a step towards social, economic, and ecological justice. Nonetheless, he notes that citizen participation and engagement are requirements to this solution. The shift away from passive dependency toward active participation can empower individuals and communities (Kingsley et al., 2019; Levkoe, 2006; Cumbers, 2018; Renting et al., 2012). In the LRGV, where civic engagement is comparably low to the rest of the United States, civic agriculture activities can serve as an important instrument in facilitating civic engagement, while also addressing issues of food insecurity, food-related illnesses, and food access. Local government funds would be well-spent in investing in local food systems as a means of community development.

Whether it is shopping at a farmers market, volunteering at a CSA, or working in a community garden, there are a variety of opportunities for community members to take back the power of food provisioning. In an area where the power of food procurement has been usurped by colonizers for over a century, it is especially important to return the control, or sovereignty, of food production to residents of the LRGV. Rather than being the historically underpaid labor to produce the food for the rest of the country, LRGV residents should be encouraged to reverse history and engage in the opportunity to determine their own land use and food choices.

Changing the relationship from solely customers to producers or active consumers, allows individuals to reclaim the opportunity to shape their community (Bródy and deWilde, 2020; Hasanov et al., 2019; Crossan et al., 2016).

To take back power and physical space, these marginalized groups are able to find their place and voice in communities through the cultivation, in areas such as community gardens (Baker, 2004; Saldivar-Tanaka and Kransy, 2004). Efforts to re-orient the agricultural market to local needs offer consumers the opportunity to increase awareness around community issues and become active to address them (Cox et al., 2008; Schugerensky, 2003, McIvor and Hale, 2015). Recognizing the ownership of place, networks, and self can empower people to look beyond the formal governing body as the responsible figure for community well-being and turn to collective, community action to problem solve (Baker, 2004; DuPuis and Gillon, 2009; Dunlap et al., 2019).

Limitations and Future Research

Despite an in-depth analysis of the relationship between civic agriculture and civic engagement, this study does not comment on causation. Findings take literature a step further in more thoroughly eliminating third factor variables and determining the significance of the relationships with different civic agriculture activities. However, results cannot comment on the cause of this relationship. It is yet to be determined whether participants are pre-disposed to civic agriculture activities by civic engagement or vice versa. It can be assumed that the relationship is complicated and intertwined. Nonetheless, it can be confirmed that the relationship does exist. Carolan (2017) studied this question with longitudinal research methods in order to address this question. A greater abundance of longitudinal studies should be carried out to address issues of causation and spuriousness. In future studies, it is recommended that voter-turnout be utilized as

a variable of civic engagement as a direct measure. It was not employed in this study due to a focus on utilizing prior survey questions from civic agriculture studies.

Conclusion

A future of more civically engaged communities that reflect the voices of their residents must be connected to the foundation of equitable food systems. There is a strong relationship between civic engagement and civic agriculture that cannot be explained by demographic factors. Local food systems offer an important avenue for generating and funneling civic engagement. Communities can benefit from building local control of food systems through physical, social, and economic well-being. Although civic agriculture has often been written-off by critics for catering to a privileged demographic, this study proves that in a Hispanic community, civic agriculture participation is not based on race, ethnicity, income, or age. In fact, gender and education are not consistent predictors of involvement either. Civic agriculture can benefit all members of a community by facilitating further involvement and political activity. It is proven that higher levels of political efficacy are present in civic agriculture participants. Engaging areas marred by a past of settler-agriculture with locally-controlled food systems can serve as a means of empowerment, augmenting participation in local democracy and increasing the diversity of voices in power to more equitably reflect the community.

CHAPTER III

THE CASE FOR CIVIC AGRICULTURE IN THE LOWER RIO GRANDE VALLEY

Introduction

Why do LRGV residents have some of the worst health outcomes in the country when they produce 240% of fruit consumption dietary needs 185% for vegetables? (Kasper, forthcoming). Why is it that in an area rich with agriculture production, the poverty rate has remained painfully high over the past 100 years? Poverty, health, and education outcomes are continuously concerning compared Texas and the National averages (see Table 11). The agricultural system explains a large piece of this history and it is the foundational solution to cultivating positive change at the roots of these structural problems in the Lower Rio Grande Valley (LRGV). In creating a stable, consistent, local source of food, counties can increase their number of businesses, the money will remain in the local economies, there will be more availability of fresh fruits and vegetables, and an opportunity for increasing the civic engagement of residents.

Table 11. LRGV Well-Being Indicators

	Median Household Income	Persons in Poverty (%)	Persons without Healthcare (%)	Bachelor's degree or higher (%)	Foreign born persons (%)	Unemployment Rate	Persons who voted in 2018 (%)
LRGV AVG	$33,692	31.5%	27.8%	14%	24.4%	8.2	23.7%
Texas AVG	$59,570	14.9%	20%	29.3%	17%	3	
National AVG	$60,293	11.8%	10%	31.5%	13.5%	3.6	53.4%

The Case for Local Food

Local food systems in the United States have grown significantly in the past few decades. The establishment of farmers markets, community supported agriculture programs (CSAs), farm to table restaurants, and more direct marketing arrangements have exploded in popularity across the country (see Figure 1). The 2017 Census of Agriculture reveals over six percent of farms are selling directly to consumers, totally $2.8 billion in agricultural sales (King and White, 2019). Another $9 billion of local food was sold indirectly through local markets and food hubs, representing 2.3 percent of fold sold in 2017 (ibid.). In total, data indicates that local food sales totaled $6.1 billion in 2012. Interest in local foods is on the rise amongst consumers concerned about their health when reports of the harms of pesticides and herbicides are becoming more frequent, and also those looking for more flavorful food, or looking to connect with their community in an increasingly globalized world. The 2019 Food Marketing Institute's U.S. Grocery Shopper Trends report cites thirty-three of grocery store shoppers deem the availability of locally grown products as "very important" in their primary grocery store.

In 2011, the Food Marketing Institute's U.S. Grocery Shopper Trends found that the most important reason grocery shoppers bought local food is because of freshness and taste. Across local food studies, fresh, organic and nutritious produce tends to be the driving factor for individuals to participate in local food systems (Cone, 2000; Ostrom, 2008; Colasanti et al., 2010). However, supporting local farms and care for the environment also trend towards the top three motivations (ibid.).

In an overview of the trends in local food systems in the United States, Low et al. (2015) discuss the overarching impact of local food systems on the U.S. agricultural landscape and economy. The authors found there to be an economic ripple effect in communities where food is purchased locally. Moreover, a USDA ERS (2011) report found that fruit and vegetable farms selling into local and regional markets employ 13 full-time workers per $1 million in revenue earned, compared to the three full-time workers per $1 million in revenue earned by fruit and vegetable farmers selling elsewhere (Low and Vogel, 2011). Local food production creates skilled, higher paying employment opportunities, which could indirectly increase household spending (Shideler et al., 2018; Rossi et al., 2017; Bauman et al., 2019). In proportion to conventional agriculture, local food production has a greater impact on the local economy (ibid.). In a case study of Hardwick, Vermont, also known as "the town that food saved," Olson (2019) found that the increase in small agriculture related-businesses coincided with a decrease in poverty rates and unemployment.

Brief Agricultural History of the Lower Rio Grande Valley

It was at the hands of Anglo developers that the newly annexed area between the Nueces and Rio Grande River, what we know as the LRGV, became known as the "Magic Valley." Bowman (2016) claims the colonization of the LRGV by land developers was a conscious and

successful effort. The railway and irrigation provided important infrastructure and the climate offered unique growing opportunities, but the social segregation of Anglos from those who identified as ethnically indigenous or Mexican, created the key piece in developing an agricultural colony: cheap labor. A vision by Anglo ranchers and wealthy landowners to develop the region bore the first major connection to the rest of the country (Bowman, 2016). The following extension of the St. Louis, Brownsville, Mexico Railway into the region in 1904 brought with it the first wave of Anglo-immigrants to the RGV. Hoping to capitalize, Anglo landowners began to divide and sell their parcels to interested immigrants. Irrigation increased rapidly across the counties to lay the infrastructure for an incoming agricultural boom. Hidalgo County had a 663 percent increase in irrigated lands, while Cameron County experienced a 104 percent increase during the 1910s. (Bowman, 2016; Schmidly, 2002). Between 1920 and 1930, farmers cleared 95 percent of the original native brush of the LRGV. Consequently, the LRGV was branded as the "Magic Valley," advertised as producing the world's best citrus.

At the expense of the now roaring agricultural expansion in the LRGV, native inhabitants were rapidly losing land. Bowman (2016) recounts that, "Mexican Americans lost more than 187,000 acres and Hidalgo and Cameron counties alone" (Johnson, 2004, 32). Maril (1989) reports that much of the land claimed by Anglo settlers was given to Mexican landowners as heirs of the Espiritu Santo Grant to José Salvador de la Garza in 1782. He notes that the majority of the original 260,000 acres was taken in the form of land grabbing by Anglo settlers. However, not only were they losing their land, they were losing their source of food. As farmers continued to buy up and develop land for commodity agriculture, the export economy grew stronger in the region. Maril (1989) writes that "one half of this [citrus] sector is owned by investors from outside the Valley" and "the majority of the Valley's agricultural products are not processed

locally" but rather shipped out for the higher paid processing jobs (13, 59). Costs of land rose as land promoters became more successful in selling land to Mid-Western farmers hoping to make a larger profit. Access to resources subsequently became more expensive and the social setting became more difficult for Mexican Americans to succeed.

Maril (1989) writes that the LRGV of Texas is rich in resources but contains the poorest populations in the United States because the economy was developed on the premise of poverty for the resident laborers and wealth for landowners to maintain the source of cheap labor. The agricultural and manufacturing industrial sectors were established to strengthen the disparity between the rich and poor. The majority of the Valley's resources are exported to the rest of the United States at a lower price at the cost of the economic, social, and physical well-being of the residents of the Lower Rio Grande Valley.

The money made by the agricultural colonizers left the LRGV and did not circulate to benefit the residents. Educational systems and healthcare systems were controlled by the settlers for the benefit of the settlers, not the residents (Bowman, 2016; Maril, 1989). These systems continue today, with the majority of food produced in the LRGV being exported to the rest of the country while fast food restaurants dominate the landscape and diabetes, obesity, and other food-related illnesses plague residents at alarming rates. According to a report by Texas A&M's (TAMU) Working on Wellness Program, approximately 52 percent of the census tracts in the four-county region qualify as food deserts (TAMU, 2018). On top of that, obesity and unemployment rates are abnormally high. On average between the four counties, the diabetes rate is 12 percent of the population and the obesity rate is 36 percent of the population (Center for Disease Control [CDC], 2016). Due to the conglomeration of the aforementioned factors, it is not surprising that the most cited indicator of civic engagement is so low. Voter turnout in the

LRGV is painfully low, with only 23.7 percent of the population voting in the 2018 elections (Texas Secretary of State, n.d.). All of these socio-economic indicators play a role in determining and reinforcing the type of food available to residents and their political activity. This history of agricultural colonization shapes the current food and healthcare system observed today, which perpetuate poverty and oppression.

Civic Empowerment through Local Food

In order to bring back the power of self-determination that comes with access to and availability of local, healthy food options, re-developing local food systems is pivotal. In his argument toward building local food systems as an avenue towards economic and civic community development, Thomas Lyson describes the concept of "civic agriculture," in which small to medium sized agricultural production enterprises have symbiotic success with communities economic and civic development. These are forms of agriculture that occur on a local level by and for the local community. Examples include farmers markets, community supported agriculture (CSAs), urban farms, community gardens, agricultural producing cooperatives, roadside stands, farm to table restaurants and more.

Local farms are a form of local business embedded in the local economy, rooted in place, and attune to local, community issues due to the socio-political nature of food production (DeLind, 2002; Lyson, 2005). They have also demonstrated a proven positive effect on local community economies. Studies have shown farmers markets to be spaces for both business incubation and business stimulation for neighboring areas (O'Hara and Coleman, 2017; Cameron, 2007; Gillespie et al., 2007; Hinrichs et al., 2004; Feenstra et al., 2003; Lev et al. 2003; Abel et al. 1999; Swenson, 2009). Community gardens have been shown to increase

property values and community safety (Allen et al., 2008; Sullivan 2004; Altunkasa, 2004; Irwin, 2002; Kuo 2001).

Participation in civic agriculture can serve as a form of exercising one's right as a citizen to engage in community issues. Lang (1999) captured this concept with the notion of "food democracy," which entails citizens taking an active role in food procurement. Hassanein (2003) proposes food democracy as a step towards social, economic, and ecological justice. The shift away from passive dependency toward active participation can empower individuals and communities (Kingsley et al., 2019; Levkoe, 2006; Cumbers, 2018; Renting et al., 2012). In fact, this is a requirement for successful civic agricultural endeavors (Lyson, 2005). It takes an active attitude of responsibility towards the community to create equitable agro-food systems. Therefore, indicators of civic engagement and processes toward equitable food access can go hand in hand with building local, community-based food systems.

Civic participation in agricultural systems has been shown to expand the civic imagination of participants and consider issues and opportunities in the community that had not been evident before (Cox et al., 2008; Schugerensky, 2003). Civic agriculture creates an opportunity for community involvement that connects to the larger community well-being (Niewolny et al. 2012; Allen et al., 2008). Whether it is shopping at a farmers market, volunteering at a CSA, or working in a community garden, there are a variety of opportunities for community members to take back the power of food provisioning. Changing the relationship from solely customers to producers or active consumers, allows individuals to reclaim the opportunity to shape their community (Bródy and deWilde, 2020; Hasanov et al., 2019; Crossan et al., 2016).

To take back power and physical space, marginalized groups are to able find their place and voice in communities through the cultivation of gardens (Baker, 2004; Saldivar-Tanaka and Kransy, 2004). Efforts to re-orient the agricultural market to local needs offer consumers the opportunity to increase awareness around community issues and become active to address them (Cox et al., 2008; Schugerensky, 2003; McIvor and Hale, 2015). Recognizing the ownership of place, networks, and self can empower people to look beyond the formal governing body as the responsible figure for community well-being and turn to collective, community action to problem solve (Baker, 2004; DuPuis and Gillon, 2009; Dunlap et al., 2019). Moreover, some civic agriculture participants consider their involvement as a gesture of activism to reject the industrialized food system (Schnell, 2010; Macias, 2008).

Not only do network connections form to create social integration, but they also create empowerment through knowledge-sharing by collective and individual learning. Gardeners learn new skills, farmers learn to engage their community, volunteers learn to organize, and a broader sense of political awareness is brought to the attention of all involved (Trauger et al., 2010; Kingsley et al., 2019; Prost, 2019; Liu et al, 2017). Schmit et al. (2017) revealed an increased flow of intellectual capital to rural areas through the networks of local food systems. This original knowledge creates a more robust network and individual resiliency, in which a community is more equipped to address certain problems with newfound social capital (Furman et al, 2014). In that notion of place, the physical space of a farm or garden can become a missing public space where community members have an opportunity to meet, work together, and socialize (Trauger et al., 2010; Firth et al., 2011; Liu et al., 2017).

Civic Agriculture and Civic Engagement in the Rio Grande Valley

The social and economic implications of civic agriculture continue to be demonstrated over time. More recently, studies have explored the direct relationship between civic agriculture and civic engagement. Both Carolan (2017) and Obach and Tobin (2014) found that residents who bought local food also had higher levels of civic engagement and community involvement than those solely involved in local food systems. Carolan (2017) found that civic engagement strengthened over time in participants involved in local food systems. These findings are a direct illustration of the effects of food democracy, bringing power back to residents to actively participate in their communities by means of food systems.

In the Rio Grande Valley, only 3 percent of farms are reporting as selling direct-to-consumer despite the fact that on average between the four counties, 35 percent of producers are new and beginning producers and the majority of farms are small with yearly under $2,500 (USDA NASS, 2017; USDA NASS, 2019). There is a great opportunity to increase direct-to-consumer sales of food production if supported by local government. Not only is there already the number of farms to produce locally, but there is also an increasing need for food supply. In the LRGV alone, the population is projected to increase 50-100% from 2010 to 2050 with the most rapid growth rates in the state of Texas (Potter, 2014).

Currently, there are roughly eleven farmers markets across the Lower Rio Grande Valley that operate on a weekly to monthly basis (Growing Growers, McAllen, UTRGV Edinburg, Harlingen, Brownsville, Rancho Viejo, Raymondville, Pharr Food Bank, South Padre Island, Bryan House, Tres Lagos, Wild August). It is estimated that there are only six community supported agriculture programs in the area and six community garden plots. There are only two farmer-owned cooperatives and no local food hubs or public facilities for shared agricultural use.

With a population of almost 2 million people, spanning almost 5,000 square miles, there is a very low level of community agriculture activities occurring. This may be due to a lack of government support for setting aside space for urban farms and community gardens or encouraging farmers markets on public property.

The low level of voter turnout in the LRGV demonstrates the pattern of low levels of civic engagement in areas with high foreign-born populations and strong migration patterns (Coffe', 2009; Bell, 2009; Jobes 1999; Terriquez, 2012; Perlmann, 2005). This connection between civic agriculture and civic engagement can serve as an avenue to increasingly integrate the community into civic action through a means that is socially bonding and culturally significant: food.

Policy Recommendations

Our findings indicate a strong indicate that there is a strong relationship between civic agriculture activities and community involvement, political efficacy, and political activity. Cultivating farmers markets, community gardens, and farm to school programs can strengthen these ideals in residents and potentially increase civic engagement. Consequently, there is much room for local government to pursue economic and social development through supporting the growth of local food systems in the LRGV. Based on other areas of the country, academic research, and personal experiences of farmers in the LRGV, below is a compiled list of recommendations for local government.[1]

[1] https://foodsystems.extension.org/local-food-system-policy/

Farmers Markets

Farmers Markets allow shoppers the opportunity to meet the producers face-to-face, ask questions about the products, build relationships with farmers and other shoppers, and learn about other community events. They have also been shown to benefit the local economy. Not only do farmers markets put money in the hands of local businesses to pursue and grow their business – farmers – but they have also been shown to increase the business of neighboring stores near the market on market days (Lev et al., 2003). The market itself acts as a multiplier effect. It brings people to downtown areas that they would not have frequented previously, tangentially stimulating the local economy.

In an early comprehensive literature review of studies of farmers markets, Abel et al. (1999) concluded that the benefits of farmers markets to communities, consumers, and farmers are many. The atmosphere, freshness, variety, and opportunity to support local farmers were listed across a multitude of studies as benefits of farmers markets to consumers. For farmers, the opportunity to meet customers face to face, explain the product, build repertoire as a business, socialize with the community and have a consistent form of income were listed across studies as benefits. For the community, the economic impact, social place of gathering, availability of fresh food, and opportunities for civic engagement are said to enhance communities across states.

Wittman et al.'s (2012) study of farmers markets in Canadian provinces revealed that farmers markets were the number one source of local food for residents outside of their grocery store. Participants of the study identified what they believed were important aspects of farmers markets, which included, "business and skill development for vendors, market employment and volunteerism, and the provision of a place for communities to gather and socialize" (45). Although markets vary based on the community and farmers, across North America, they serve

as an important public space to develop small businesses and social ties among community members.

City, town and county governments in the Rio Grande Valley can capitalize on these social and economic benefits by promoting the establishments of farmers markets on public owned land, such as parks, libraries, and public schools. This can reduce the cost for farmers to purchase a stand at the market and make it more accessible to the public. Additionally, local government can provide EBT machines so that vendors can accept WIC and SNAP as payment to existing and future farmers markets. Programs such as "Double Up Food Bucks" Texas allow customers with a Lone Star Snap Card to double their local vegetable purchase at farmers markets.[2] The money spent on veggies at the market is matched to increase access to fresh produce for residents in need and also to generate more business revenue for local farmers. There are Double Up Food Bucks programs in areas surrounding Dallas, Austin, Houston, and El Paso. However, there are currently no programs in the Rio Grande Valley, where it is evident that residents are in significant need of fresh produce.

Community Gardens

Growing in popularity across the United States, community gardens offer residents a space to purposefully grow food for consumption among other community members. Studies have shown that the presence of community gardens can increase property values, augment community confidence and safety, and increase the availability of fresh produce in lower-income and racially diverse areas (Allen et al., 2008; Sullivan 2004; Altunkasa, 2004; Irwin, 2002; Kuo 2001). Liu et al. (2017) found that involvement in community gardens for residents of both the U.K. and

[2] https://www.doubleuptexas.org

China had immense impacts on individuals' sense of community. They found the time spent in the garden with community members created relationships and a sense of ownership in a shared public space. It is the everyday practices in the "space and time" of individual's daily lives, which shape one's understanding of community (336). Our study on civic agriculture and civic engagement in the LRGV reveals that community gardens are driven by community involvement and political activity. Participants of community gardens in the LRGV are generally older and male. Relationships built in community gardens can continue to spur on these individual ideals.

One important piece in sustaining community gardens is for local government to provide long-term lease or contract options for community gardens on city-owned land. It is difficult for gardens to become established in areas if they are not guaranteed to continue to exist. It is an investment by individuals and the community to manage and cultivate these areas. Community gardens should receive funding support through local government, such as city park and recreation staff, to insure a constant funding source. In conjunction with funding, it is important that a staff member can coordinate garden management. Without leadership in a garden, it can easily fall apart. Government can partner with an organization to create a system that continuously places a community leader at the helm of the garden with the support of government staff.

Another avenue towards successful community gardens is through the school system. Educators can utilize public funds to build community gardens on public school property to teach students the importance of growing food and also for students to take home and supplement family meals, increasing access to fresh fruits and vegetables. Many states have created policies to encourage the use of community gardens that can be referenced by local government as a

template for garden implementation.[3] For example, a California code allows municipal bodies to dedicate "land and facilities" for "recreational community gardening." In Illinois, a code includes community gardens in the description of nutrition programs funded by the Federal Community Services Block Grant program, which is administered by the state. [3]

Farm to School

Low et al. (2015) also found that according to the USDA Farm to School Census, 4,322 school districts have established farm to school programs across the United States. In Europe, farm-to-school programs have been found to increase opportunity for suppliers and contribute profit to the overall economy (Sonnino, 2013). Farm to school programs increase business for local farms, provide consistent customers, educate kids about their local farms, and provide health-focused foods to school children. Local government can increase the amount of local food purchased in school systems by encouraging public school food service directors to utilize the USDA's "geographic preference" option. This allows public schools to add specifications into their Invitation for Bids (IFBs) or Request for Proposals (RFPs), such as within 100 miles or produced within the state, that can preference local farmers over national suppliers. [4] Moreover, some states, such as Texas receive school lunch programming funds from the United States. Department of Defense. This can limit the allocation of funds to local vendors. Therefore, schools can also buy food from local farms as an educational tool. This food can be labeled as local and accompany a small lunch curriculum concerning the importance of agriculture, seasonality, and supporting the local community.

[3] https://www.ncsl.org/research/agriculture-and-rural-development/community-gardens-state-statutes-and-programs.aspx

[4] https://fns-prod.azureedge.net/sites/default/files/f2s/GeoPreference.pdf

Zoning for Local Food Systems

Zoning laws can play an unfortunate role in preventing the growth of local food systems. Urban gardens, farms and markets need appropriate zoning in order to operate in areas that are in appropriate proximity to customers and residents. Rezoning agricultural areas to residential or commercial prevents the preservation of green space and access to land for farming in urban areas. It is important that local government is aware of the issues zoning and create and plan accordingly. Certain urban areas should be designated as food production or preserved agricultural sites to maintain green space an opportunity for future use.

Food Policy Councils

To create, maintain, and monitor these above recommendations, it is advised that a food policy council comprised of a local official, residents, local experts, and organizations is created. Neighboring cities, such as Laredo and San Antonio have both established food policy councils for this purpose. These councils can be housed within the local government as a means of economic and social development. They prioritize the development of local food systems and organize all local food policy in one organization. They also provide an important connection to residents and allow a forum for local concerns to be heard, addressed, and resolved on a consistent basis. John's Hopkins Center for a Livable Future has created a network of food policy councils and a database of resources to assist in the creation of food policy councils.[5]

Conclusion

In the Lower Rio Grande Valley there is ample opportunity for local government to aid the development of local food systems. Research in the LRGV has proven that there is a strong

[5] http://www.foodpolicynetworks.org

relationship between local food system activities and civic engagement of the populace. Other studies have proven the economic and social development is inherent in the implementation of local food systems. Consequently, in the LRGV especially, where poverty rates are high, access to fresh food is low, and food-related illnesses are endemic, the cultivation of farmers markets, community gardens, and farm to school programs can be direct solutions to issues facing local residents. These changes can be implemented through appropriate zoning decisions and through the oversight of food policy councils. Following the example of other cities surrounding the LRGV, local government can implement strategies to become successful groundbreakers in the area of local food systems. As historical leaders of agriculture in Texas, it is only fitting that the LRGV plays a significant role in creating sustainable food systems for its citizens.

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APPENDIX

Civic Agriculture Survey (ENG)

Start of Block: Default Question Block

Q0_1
Good [AFTERNOON/EVENING], my name is _____. I am a student calling from the Center for Survey Research and Policy Analysis at the University of Texas Rio Grande Valley. We are conducting a survey to understand the involvement of the residents of the Rio Grande Valley in local agricultural activities and its effects on community engagement in our communities.

With your permission, I would like to ask you a few questions. Your responses and opinions are very important as it will help us understand agricultural community activities in the Rio Grande Valley and their impacts on our communities. You were selected at random to participate in this survey. Your participation is voluntary -- you may decline to answer any of the questions or end the survey at any time. All information you provide will be anonymous. This survey will take about 10-15 minutes.
You must be 18 years of age or older to participate in this survey.
There are no expected risks to you for helping us with this study. There are also no expected direct benefits to you.

Before I begin, I would like to provide you with contact information in case you have questions about the research or about your rights as a participant in this survey. I am a student working with Dr. Natasha Altema-McNeely, Dr. Dongkyu Kim, and Dr. Mi-son Kim at the Center for Survey Research and Policy Analysis at the University of Texas Rio Grande Valley. They can be reached at 956-665-3318 or csr@utrgv.edu. If you have questions about your rights as a participant, you can call the University's Institutional Review Board at 956-665-2093. Can we begin the survey?

○ Agreed to take survey (1)

Q1_1
Are you 18 years of age or older?

[**Do not read**: "No" ==> End of Survey]

○ Yes (1)

○ No (2)

Q0_2 SURVEY NUMBER [This should be inserted before the phone call in the following format
Initials_Land or Cell_ID (e.g., DK_0127_1_512)

_____

Q1_2 Which county or town do you currently live in?

[**Do not read**: "I am not currently living in the Rio Grande Valley" ==> End of Survey]

- ○ Cameron (7)
- ○ Hidalgo (8)
- ○ Starr (9)
- ○ City or Town (10) _____
- ○ I am not currently living in the Rio Grande Valley (11)

Q2 Are you involved in any community-based, local agricultural activities? Examples of these activities include attending farmers markets, participating in a CSA (community supported agriculture), farm to school programs, eating at a farm to table restaurant, buying food from local farmers, participating in a local food cooperative, growing food and selling it to residents in the Rio Grande Valley, growing food in a community garden, etc.

- ○ Yes (1)
- ○ No ==> Q3 (2)
- ○ [Do Not Read] Don't Know (3)
- ○ [Do Not Read] Prefer not to answer (4)

Skip To: Q3_1 If Are you involved in any community-based, local agricultural activities? Examples of these activit... = No ==> Q3

Q2_1 I am going to read a list of community-based, local agricultural activities. Have you participated in any of the following activities? Please answer Yes or No.

	Yes (1)	No (2)	[Do Not Read] Don't Know (3)	[Do Not Read] Prefer not to answer (4)
Attending farmers' markets (Not the flea market/pulga) (1)	○	○	○	○
CSA (Community Supported Agriculture) programs (2)	○	○	○	○
Farm to school programs (3)	○	○	○	○
Growing food in a community or school garden (4)	○	○	○	○
Eating at a farm to table restaurant (5)	○	○	○	○
Buying food from local farmers (6)	○	○	○	○
Participating in or buying food from a farmer-owned cooperative (7)	○	○	○	○
Picking food from a farm for your household consumption (U-pick or gleaning) (8)	○	○	○	○

Growing Food and selling to Rio Grande Valley residents (9)	○	○	○	○
Other (fill in) (10)	○	○	○	○

Q2_2 Please describe the activities you checked in one to two sentences.

_____

Q2_3 How often have you participated in these activities in the past 2 months?

- ○ Multiple times a week (1)
- ○ Once a week (2)
- ○ Once every other week (3)
- ○ Once a month (4)
- ○ None (5)
- ○ [Do Not Read] Don't know (6)
- ○ [Do Not Read] Prefer not to answer (7)

Q2_4 When was the first time you participated in these activities?

- ○ In the past year (1)
- ○ About a year ago (2)
- ○ About three years ago (3)
- ○ About 4 years ago (4)
- ○ Over 5 years ago (5)
- ○ Over 10 years ago (6)
- ○ Over 20 years ago (7)
- ○ [Do Not Read] Don't know (8)
- ○ [Do Not Read] Prefer not to answer (9)

Q3_1 In the past two weeks, have you bought a food item tagged "local" or "from Texas" from your food store?

- ○ Yes (1)
- ○ No (2)
- ○ [Do Not Read] Don't know (3)
- ○ [Do Not Read] Prefer not to answer (4)

Skip To: Q4 If In the past two weeks, have you bought a food item tagged "local" or "from Texas" from your food... = No

Q3_2 I am going to read from a list of reasons why you would purchase local food from the Rio Grande Valley instead of food imported from other geographic areas. As I read each one, please

tell me if you think this is very important, somewhat important, neutrally important, somewhat unimportant, or least important.

	Very Important (1)	Somewhat Important (2)	Neutral (3)	Somewhat Unimportant (4)	Least Important (5)	[Don't read] Don't know (6)	[Don't read] Prefer not to answer (7)
To support local farms and the local economy (1)	○	○	○	○	○	○	○
To get higher quality, better tasting food (2)	○	○	○	○	○	○	○
Because it is healthier (3)	○	○	○	○	○	○	○
Because it is better for the environment (4)	○	○	○	○	○	○	○
For the price (5)	○	○	○	○	○	○	○
Other (fill in): (6)	○	○	○	○	○	○	○

Q4 Next. I am going to read several statements about how you generally b about your community. Please indicate whether you Strongly agree, Agree, Neither agree nor disagree, Disagree or Strongly disagree with these proposals.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	[Don't read] Don't know (6)	[Don't read] [PREFER NOT TO ANSWER] (7)
This community would be a good place for future generations to raise their families (1)	○	○	○	○	○	○	○
The future of this community looks bright (2)	○	○	○	○	○	○	○
This community has more things going for it than other communities in this area (3)	○	○	○	○	○	○	○
I want to live in this community more than any other community (4)	○	○	○	○	○	○	○

Q5 Overall, how would you rate your community as a place to live?

- ○ Poor (1)
- ○ Fair (2)
- ○ Good (3)
- ○ Very Good (4)
- ○ Excellent (5)
- ○ [Do Not Read] Don't know (6)
- ○ [Do Not Read] Prefer not to answer (7)

Q6 Overall, how much impact do you think people like you can have in making your community a better place to live?

- ○ No impact at all (1)
- ○ A small impact (2)
- ○ A neutral impact (3)
- ○ A moderate impact (4)
- ○ A big impact (5)
- ○ [Do Not Read] Don't Know (6)
- ○ [Do Not Read] Prefer Not to Answer (7)

Q7 In the past 12 months, have you done any volunteer activities through or for an organization? Please include any activities that you may do infrequently, or any activities that you may not think of as volunteer work, such as activities done for schools or youth organizations.

- ○ Yes (1)
- ○ No (2)
- ○ [Do Not Read] Don't Know (3)
- ○ [Do Not Read] Prefer Not to Answer (4)

Q8 Next. I am going to read a list of groups or organizations. Over the past 12 months, have you been involved with the following groups? Please answer Yes or No

	Yes (1)	No (2)	[Don't read] Don't know (3)	[Don't read] Prefer not to answer (4)
Religious organizations (1)	○	○	○	○
Neighborhood organizations (2)	○	○	○	○
City or town organizations (3)	○	○	○	○
Work or school related organizations (4)	○	○	○	○
Labor unions (5)	○	○	○	○
Political groups (6)	○	○	○	○
Other (fill in): (7)	○	○	○	○
I'm not involved in any groups or organizations (=> Q9) (8)	○	○	○	○

Skip To: Q9 If Next. I am going to read a list of groups or organizations. Over the past 12 months, have you bee... = I'm not involved in any groups or organizations (=> Q9) [Yes]

Q8_2 To what degree do you think the groups you checked in the previous question provide a sense of community and belonging?

- ○ No sense of community at all (1)
- ○ A little sense of community (2)
- ○ Moderate sense of community (3)
- ○ Quite strong sense of community (4)
- ○ Very strong sense of community (5)
- ○ [Do Not Read] Don't know (6)
- ○ [Do Not Read] Prefer not to answer (7)

Q9 Next. I am going to read a list civic or political activities. Over the past 12 months, have you participated in any of the following activities? Please answer Yes or No.

	Yes (1)	No (2)	[Don't read] Don't know (3)	[Don't read] Prefer not to answer (4)
Signing a petition (1)	○	○	○	○
Attending a political meeting (2)	○	○	○	○
A community project (3)	○	○	○	○
Demonstrations, protests, boycotts, or marches (4)	○	○	○	○
Writing a letter to a legislator or policy maker (5)	○	○	○	○
Writing a letter to the editor of a newspaper (6)	○	○	○	○
Contributing money to a cause (7)	○	○	○	○
None of the above (8)	○	○	○	○

Q10 How interested are you in local politics?

- ○ Not interested at all (1)
- ○ Only slightly interested (2)
- ○ Neutral (3)
- ○ Somewhat interested (4)
- ○ Very interested (5)
- ○ [Do Not Read] Don't know (6)
- ○ [Do Not Read] Prefer not to answer (7)

Q11 Next. I am going to read several statements about your sense of belonging to the Rio Grande Valley. Please indicate whether you Strongly agree, Agree, Neither agree nor disagree, Disagree or Strongly disagree with these statements.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	[Don't read] Don't know (6)	Refuse to answer (7)
I feel a sense of belonging to the Rio Grande Valley (1)	○	○	○	○	○	○	○
I feel that I am a member of the Rio Grande Valley community (2)	○	○	○	○	○	○	○
I see myself as part of the Rio Grande Valley community (3)	○	○	○	○	○	○	○

Q12 Next. I am going to read several statements about your capability of understanding and participating in politics. Please indicate whether you Strongly agree, Agree, Neither agree nor disagree, Disagree or Strongly disagree with these statements.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	[Don't read] Don't know (6)	Refuse to answer (7)
I consider myself to be well qualified to participate in politics (1)	○	○	○	○	○	○	○
I feel that I have a pretty good understanding of the important political issues facing our country (2)	○	○	○	○	○	○	○
I feel that I could do as good a job in public office as most other people (3)	○	○	○	○	○	○	○
I think that I am better informed about politics and government than most people (4)	○	○	○	○	○	○	○

Q13 How would you describe your political views?

- ○ Very conservative (1)
- ○ Conservative (2)
- ○ Moderate (3)
- ○ Liberal (4)
- ○ Very liberal (5)
- ○ [Don't read] Don't know (6)
- ○ [Don't read] Prefer not to answer (7)

Q14 How would you describe your political affiliation?

- ○ Strong Democrat (1)
- ○ Tend to lean Democrat (2)
- ○ Independent (3)
- ○ Tend to lean Republican (4)
- ○ Strong Republican (5)
- ○ [Don't read] Don't know (6)
- ○ [Don't read] Prefer not to answer (7)

Q15 What is your present religion, if any?

- ○ Protestant (If yes, fill in denomination) (1) _____
- ○ Catholic (2)
- ○ Jewish (3)
- ○ Muslim (4)
- ○ Hindu (5)
- ○ Other (6)
- ○ No religion (7)
- ○ [Don't read] Don't know (8)
- ○ [Don't read] Prefer not to answer (9)

Q16 Next. I am going to read several statements about your religious views and practices. Please indicate whether you Strongly agree, Agree, Neither agree nor disagree, Disagree or Strongly disagree with these statements.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	[Don't read] Don't know (6)	Refuse to answer (7)
Religion is a very important part of my life (1)	○	○	○	○	○	○	○
I would describe myself as religious (2)	○	○	○	○	○	○	○
I would describe myself as spiritual (3)	○	○	○	○	○	○	○
Religion influences how I live my life (4)	○	○	○	○	○	○	○
Religion influences how decisions are made in my family (5)	○	○	○	○	○	○	○
My religions texts such as the Bible/Koran/Torah should be obeyed exactly as written (6)	○	○	○	○	○	○	○

Q17 In the past month, how often have you attended religious services, aside from weddings and funerals?

- ○ Never (1)
- ○ Once (2)
- ○ Twice (3)
- ○ Three times (4)
- ○ Once a week (5)
- ○ More than once a week (6)
- ○ [Don't read] Don't know (7)
- ○ [Don't read] Prefer not to answer (8)

Q18 What gender do you identify with?

- ○ Male (1)
- ○ Female (2)
- ○ Other (3) _____
- ○ [Don't Read] Don't Know (4)
- ○ [Don't read] Prefer not to answer (5)

Q19 What is your age?

_____

Q20 What is your race? [Make sure to read options]

- Non-Hispanic white (1)
- Hispanic white (2)
- Middle-Eastern (3)
- Black (4)
- American Indian or Alaska native (5)
- Asian (6)
- Native Hawaiian or other Pacific islander (7)
- Other (8) _____
- [Don't read] Prefer not to answer (9)

Q21 Are you, yourself, of Hispanic origin or descent, such as Mexican, Puerto Rican, Cuban or other Spanish background?

- ○ Yes (1)
- ○ No (2)
- ○ [Don't Read] Don't Know (3)
- ○ [Don't Read] Prefer not to read (4)

Q22 What is your occupation?

_____

Q23 I am going to read a range of income categories. Thinking about everyone that lives in your household, what is your total household income before taxes?

- ○ Under $20,000 (1)
- ○ $20,000-$40,000 (2)
- ○ $40,000-$60,000 (3)
- ○ $60,000-$80,000 (4)
- ○ $80,000-$100,000 (5)
- ○ $120,000-$160,000 (6)
- ○ $160,000-$200,000 (7)
- ○ $200,000 or over (8)
- ○ [Don't read] Don't know (9)
- ○ [Don't read] Prefer not to answer (10)

Q24 What is your employment status? (Please indicate all that apply)

- ☐ Full time (1)
- ☐ Part time (2)
- ☐ Not employed (3)
- ☐ Retired (4)
- ☐ On disability (5)
- ☐ Other (6)
- ☐ [Don't read] Prefer Not to Answer (7)

Q25 Including yourself, how many people live within your household?

_____

Q26 What is the highest level of education you have completed?

- ○ Less than 9th grade (1)
- ○ Some high school (2)
- ○ High school graduate (3)
- ○ Some college (4)
- ○ Trade/technical/vocational training (5)
- ○ College graduate (6)
- ○ Some postgraduate work (7)
- ○ Post graduate degree (8)
- ○ Other (9)
- ○ [Don't read] Prefer not to answer (10)

Q27 What is your zipcode?

_____

Q28 How long have you lived in the Rio Grande Valley?

_____

Q29 What country were you born in?

- ○ The United States (1)
- ○ Mexico (2)
- ○ Other (3)
- ○ [Don't read] Prefer not to answer (4)

Q30 What country were your parents born in?

- ☐ The United States (1)
- ☐ Mexico (2)
- ☐ Other (3)
- ☐ [Don't read] Prefer not to answer (4)

Q31 THIS COMPLETES THE SURVEY. THANK YOU FOR YOUR TIME.

- ○ Yes (1)
- ○ Incomplete (2)

End of Block: Default Question Block

BIOGRAPHICAL SKETCH

Allison P. Kaika graduated from Boston College in Boston, Massachusetts in 2018 with a B.A. in Environmental Studies: Food and Water Systems. Born in Charlotte, North Carolina amidst a suburban landscape, her connection to food was always a distant mystery that needed solving. After the generosity of a local farmer revealed the inequities of the food system, she went on to study food systems in college. She volunteered at a food justice NGO, served meals in the soup kitchen, and managed the college community garden. Allison went on to become president of Real Food Challenge at Boston College and work with admisitrators to source more local and equitable food in the dining halls. To figure out more about the broken food system, during the summers Allison worked on a farm and interned with a farm policy organization in Washington D.C. She conducted her honors senior thesis on small farmers barriers to social capital. She went on to study small farm viability at the University of Texas Rio Grande Valley where she volunteered with a local farmer cooperative, gardened with the community, and wrote grants for small agricultural businesses. She completed her Master of Science degree in Agricultural, Environmental, and Sustainability Sciences in July 2020. Allison can be contacted at akaika4@gmail.com.