The Role of Community Capital in Rural Renewal

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Abstract

The community capitals framework was developed as a way of evaluating community development efforts by taking stock of existing assets and examining how various types of capital are invested within a community. For rural communities with narrow prospects for dramatic, high-dollar development opportunities, the framework provides a promising alternative strategy, allowing communities to focus instead on the smaller, incremental approaches that can slow down economic decline and potentially lead toward sustainable renewal. In this paper, we use a wide assortment of publicly available data sources to quantify each type of capital across a study area of 1,442 counties in 17 states. We then employ a set of OLS regression models to estimate the relationship between community capital levels and county job creation rates from 2010 to 2019. Our results highlight a number of findings with implications for how rural counties may adjust their approach toward community development.

Keywords: *community development, asset-based development, entrepreneurship, community capitals*

1. Introduction

Despite rural living often being portrayed as picturesque with a thriving community life (Shucksmith, 2018), many rural communities are experiencing decline across the United States due to compounding factors such as a decreasing population, decaying infrastructure, and a shift in agrarian economic structure (Nelson et al., 2021; Tweten, 2008). Rural counties face a myriad of challenges related to food, education, employment, and healthcare access when compared to urban or urban-adjacent counties (Anderson et al., 2015; Cromartie et al., 2011; Moore, 2016). Although global trends lean toward urbanization and industrial development (Lui and Li, 2017; Li et al., 2019), it is crucial for policymakers to recognize the significance of rural areas in terms of agricultural production, national culture, natural resources, and tourism.

However, despite the challenges faced by declining rural counties, it is crucial to recognize that these communities may already possess valuable assets that can contribute to their own economic revitalization, even if they are currently unaware of this potential. Highlighting the assets and deficits of these communities could provide the encouragement needed to accentuate the opportunities and reverse the trends that have long plagued rural communities. By understanding how different types of "community capital" (Emery and Flora, 2006) interact with local economic outcomes, rural counties—particularly those reliant on agriculture—can explore ways to recognize and harness their existing assets to counteract decline.

The primary objective of this study was to quantitatively assess the various types of capital—namely, built, cultural, financial, human, natural, political, and social—across all counties within and adjacent to the Southern Great Plains. Additionally, we aimed to explore the correlation between capital levels and economic vitality, primarily measured through job growth. By focusing specifically on the Southern Great Plains region, we sought to mitigate potential biases arising from spatial heterogeneity in the underlying growth processes. This approach allowed us to distinguish the factors influencing ru-

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ral growth in the Great Plains from those in regions like New England or the Deep South. Consequently, this study offers a reproducible model for operationalizing the community capitals framework and presents a discussion on how these findings can be effectively communicated to support struggling rural communities.

2. Background & Motivation

Outmigration is a persistent challenge that impacts rural America, depleting the rural workforce and leaving rural communities vulnerable to sustained economic decline (Amcoff and Westholm, 2007; Li et al., 2019). The trend toward urbanization has expedited the economic degradation of rural communities (Rignall and Atia, 2017), leaving many rural areas poverty stricken, due to a lack of employment opportunities for the citizens who live there (Moore, 2016). What is more, as the population in these areas decreases, many rural communities face blight from decaying, dilapidated infrastructure, such as buildings and homes (Morton et al., 2004). The deterioration of such structures not only serve as an eye-sore to the community but can also lead to environmental problems, which can have a negative effect on a community's social and economic system (QutbAldeen, 2020) and overall assets, or capitals (Li et al., 2019). Such deficits force rural communities to respond to various economic, environmental, and social problems (Flora et al., 1992), which they are often ill equipped to address.

Nowhere are these trends more pronounced than in rural counties with a central economic emphasis on agriculture. According to the USDA Economic Research Service (ERS), reported approximately 20% of rural counties are farm-dependent counties. To be classified as a farm-dependent county, 25% or more of the county's earnings, or 16% or more of the employment averaged over 2010 to 2012, must emanate from farming enterprises (Economic Research Service, 2017). Over time, there has been a decline in farm-dependent counties in the U.S. (Jackson-Smith and Jensen, 2009); this reduction of the share of income from farming impacts federal farm and rural development projects and objectives (Dimitri et al., 2005; Whitener, 2005). Within farm-dependent counties, farming payments and business ventures have the most significant impacts within the rural economy (Drabenstott, 2015). Additionally, farm-dependent communities face challenges in relation to population decline, income, and employment (Jackson-Smith and Jensen, 2009). Population loss due to outmigration from off farm job opportunities and farm consolidation has a negative impact on farming enterprises and government subsidies, which in turn, can affect rural farm-dependent counties by limiting profit opportunities (Ahearn, 1988; Chowdhury, 2008; McGranahan and Ghelfi, 2004). In fact, economic growth within a given county can be hindered by a high farm dependency due to trends that are impacting agriculture within rural America (Deller et al., 2003). Farm-dependent counties' economies and social structures are affected by changes made in the agricultural farm sector (Ahearn, 1988) through government policies and rural economic restructuring (Jackson-Smith and Jensen, 2009). Changes in the various sectors of the agricultural industry can be related to laws and regulations, compliance monitoring and assistance, and policies and guidance determined by the U.S. Environmental Protection Agency, U.S. Department of Agriculture, and the U.S. Food and Drug Administration. Labor scarcity in the farming sector impacts a farm's ability to produce outputs and be profitable leading to higher cost of products at retail (Devadoss and Luckstead, 2011).

It is important to acknowledge that the perception of rural places as struggling is, to some extent, influenced by the definitions established by public policy. The administrative rules for delineating metropolitan areas are such that thriving counties—even if rural in character—are reclassified as part of a metropolitan area by either attaining a population threshold or becoming sufficiently integrated with a larger metropolitan area's commuter zone. Consequently, the remaining rural counties that are not reclassified are left to be perceived as lagging behind by default (Isserman, 2005; Goetz et al., 2018). Although this reality does not minimize the decline and challenges that rural communities face, it lends some perspective as to why.

2.1. Study Region

We focus our study on the Southern Great Plains (SGP), a region which encompasses the states of Kansas, Oklahoma, and Texas. In the SGP, around 60% of the population resides near urban areas, which leaves many rural people and communities across these states facing challenges related to

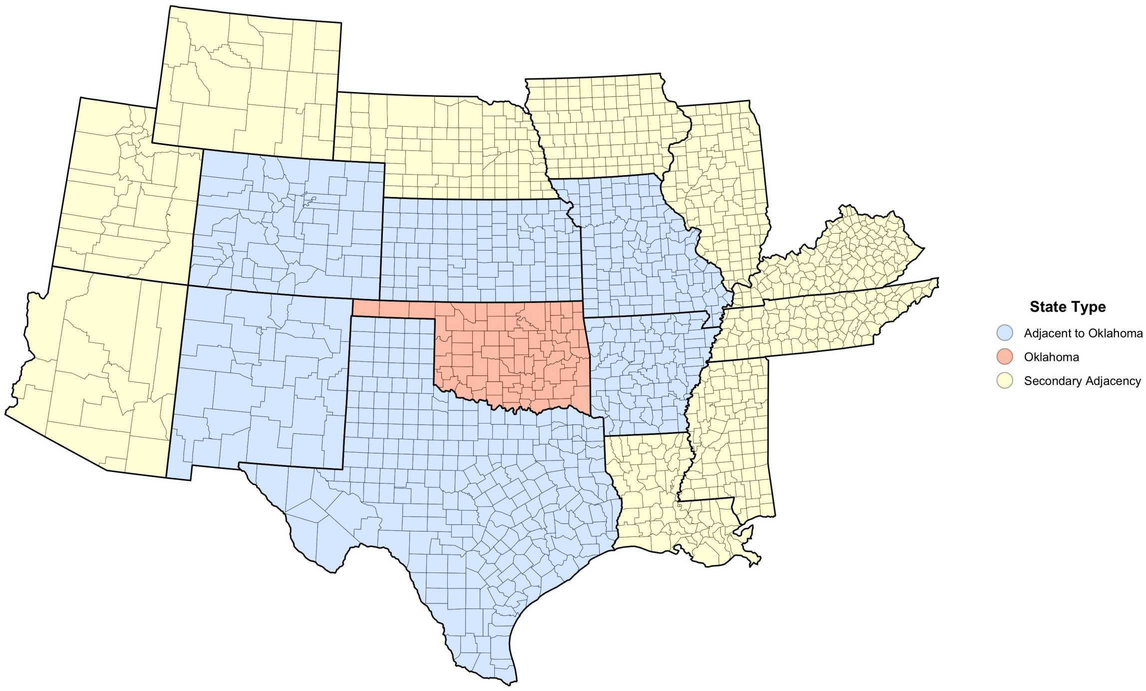

Figure 1: *Study Universe*

economic growth and community vitality (Kloesel et al., 2018). To pinpoint a specific geographic area of focus, we started with Oklahoma, which is located at the heart of the SGP, and identified all states within two levels of adjacency outward from Oklahoma (see Figure 1). This approach allowed for a more heterogenous representation of data and insights into rural conditions within the region.

As agricultural production plays a critical role in the livelihoods of the SGP (Caruthers, 2017), some parts of our analysis focus exclusively on what the ERS refers to as farm-dependent counties. The ERS defines farm-dependent counties as places where either annual farm earnings account for a substantial portion of the local economy (Economic Research Service, 2017). Farm consolidation and decline in farming employment can affect these counties' abilities to sustain economic growth (Deller et al., 2003; Jackson-Smith and Jensen, 2009). Of the 507 farm-dependent counties in the U.S., 133 are in the core SGP states (Kansas, Oklahoma, and Texas), and 274 are in our wider study area.

2.2. Rural Context: Challenges and Triumphs

The rural population in the United States has declined over the past century, with only about one in five Americans currently residing in rural areas (US Census Bureau, 2016). Rural communities face challenges such as limited job opportunities, a lack of modern conveniences, and the loss of traditional rural lifestyles (De Guzman et al., 2020; Nelson et al., 2021). Moreover, rural areas have been impacted by the brain drain phenomenon, as young working-age individuals leave in search of better employment opportunities elsewhere (Sherman and Sage, 2011). This outmigration of youth has resulted in population decline and economic stressors, affecting housing conditions and leading to blight and abandonment (Skobba et al., 2019). Technological advancements in agriculture and the natural resources sector have also contributed to the loss of employment opportunities in rural communities (Mayer et al., 2017).

Despite these difficulties, rural areas maintain strong community bonds and attachment, fostering familiarity, community involvement, and a sense of pride (Belanche et al., 2021; Edwards, 2012). Additionally, rural areas have become increasingly diverse, with racial and ethnic minorities establishing settlements that contribute to a shift in cultural norms and values (Lichter, 2012; Tienda and Mitchell, 2006). In facing their challenges, rural communities have demonstrated resilience by employing innovative approaches to overcome social and cultural isolation (Monier, 2011). Our analysis attempts to measure how well these approaches corresponded with empirical measures of economic growth.

2.3. The Community Capitals Framework (CCF)

The Community Capitals Framework (CCF) provides an excellent structure for this study (Emery and Flora, 2006). The CCF provides a holistic view of the community development process in action by identifying community assets, observing how they interact, and diagnosing community deficiencies (Fernando and Goreham, 2018). The CCF consists of seven types of capital: built capital, cultural capital, financial capital, human capital, natural capital, political capital, and social capital. Capitals are roughly defined as assets from which a particular community can build. Through the lens of the CCF, researchers can examine the unique concerns and challenges various communities face (Beaven, 2016) and identify specific capitals that will facilitate a community's development process (Emery and Flora, 2006; Gutierrez-Montes et al., 2009). As illustrated in Figure 2, communities with a healthy balance (or overlap) of each type of capital will typically have stronger, more resilient local economies.

Crucially, although there is a general understanding of the definitions or descriptions associated with each type of capital, there remains a lack of consensus regarding their empirical operationalization.[1] One contribution of this study is to demonstrate a replicable approach for using publicly available data to construct index measures that approximates the quantity of each type of capital within a county. The analysis should help to bridge the gap between the theoretical understanding of the CCF and an empirical test of the framework.

3. Data & Methods

To identify the role of community capitals in rural renewal, our analysis involved two distinct stages. First, we assembled a dataset of attributes for over 1,400 counties, using an eclectic assortment of variables and data sources to empirically measure the stock of community capitals for counties in (and extending two counties beyond) the SGP. Second, we employed ordinary least squares (OLS) regression to model the relationship between community capital and job growth from 2010 to 2019. Each stage is discussed in greater detail below.

3.1. Quantifying Community Capitals

Previous studies in the community capitals literature have attempted to empirically quantify each of the community capitals, either as coded variables from qualitative data (Pigg et al., 2013) or by collecting secondary data to use as proxy variables for each type of capital (Jordaan et al., 2018; Mueller et al., 2020). This study improves on this work by casting a much wider net in the variable selection process, using multiple variables and data sources to measure each capital. Our study also encompasses an expansive geographic territory, covering 1,442 counties across 17 states (see Figure 1), which improves generalizability and allows for richer comparisons between states and regions.[2]

For each of the seven types of capital, we used a minimum of two unique variables from at least two distinct data sources (see Table 1). As an example, we used four unique variables to quantify built capital—linear mileage of roads and railways, median age of housing stock, household broadband availability, and primary and commercial airports—which were collected from three different administrative sources, including the American Community Survey, Bureau of Transportation, and Census TIGER lines files. Further, we used a diverse set of variables to help ensure that each capital index was not skewed by a single attribute. For instance, human capital is a rich construct with a wide variety of characteristics that comprise it; as such, an index which only measures high school test scores would paint a very incomplete picture. Some counties struggle with school quality but may nonetheless

[1] This paper does not detail the comparative strengths and theoretical underpinning of each type of capital used in the CCF. However, the seminal CCF article by Emery and Flora (2006) (pp. 20-21) includes a detailed description of each type of capital, including theory-driven explanations and real-world examples. Our analysis builds from this work.

[2] Our study area starts with Oklahoma and includes two levels of adjacency: all of the states adjacent to Oklahoma and all of the states adjacent to those states adjacent to Oklahoma. Oklahoma and its counties are used as the key areas for comparison in the analysis, serving as an instructive example of how a data-rich analysis of the community capitals framework can be used to evaluate the strengths and weaknesses of a given rural region or community.

Table 1: *Description and Source of Model Variables*

Capital	Variable Description	Variable Source	"Better" Direction
Built	Linear Mileage of Roads and Railways in County	Census TIGER; BTS County Transportation Profiles	Higher
Built	Median Age of Housing Stock	ACS	Lower
Built	Household Broadband Availability	ACS	Higher
Built	Primary and Commercial Airports	BTS County Transportation Profiles	Higher
Cultural	Number of Arts Venues, Museums, and Historical Sites	Data Axle	Higher
Cultural	Percentages of Non-White and Non-Native English-Speaking Populations	ACS	Higher
Cultural	Percent of Family Units	ACS	Higher
Financial	Number of Financial Institutions	FDIC	Higher
Financial	CRA Small Business Loan Originations	FFIEC	Higher
Human	Average High School Test Scores	Stanford Education Data Archive	Higher
Human	Percent With Bachelors or Higher	ACS	Higher
Human	Percent of Adults Medically Uninsured	CDC BRFSS	Lower
Natural	Irrigated Agricultural Land Acres	USDA-NASS	Higher
Natural	Natural Amenities Scale	USDA ERS	Higher
Political	Civic Engagement Index	Social Capital Atlas	Higher
Political	Census Response Rate	Census	Higher
Social	Social Capital Index*	PSU/NERCRD	Higher
Social	Economic Connectedness Index	Social Capital Atlas	Higher
Social	Social Cohesiveness Index	Social Capital Atlas	Higher

be home to high quality jobs and a well-educated workforce. Using a wider range of data helps us to triangulate our indices, providing a balanced and nuanced measure for each type of capital.

The indices were generated by calculating the z-score for each variable and taking the average of all z-scores across each type of capital. Some of the variables used in our indices are derived from an existing composite measure, such as the social capital index from Penn State University (Rupasingha et al., 2006) or the civic engagement index (Chetty et al., 2022) generated from social network insights. Rather than attempt to reinvent the wheel, we relied on these indices to help us quantify social or political capital for every county in our study area.

3.2. *Modeling Community Capitals and Economic Growth*

After generating an index value for each type of capital, the second stage of the analysis used a multivariate regression analysis which examined the relationship between each type of community capital and the level of economic vitality in each county. We used the following equation:

$$\begin{aligned} Y_i =& \beta_1 BC_i + \beta_2 CC_i + \beta_3 FC_i + \beta_4 HC_i + \\ & \beta_5 NC_i + \beta_6 PC_i + \beta_7 SC_i + \phi_i + \epsilon_i \end{aligned}$$

where Y_i is the percent change in jobs between 2010 and 2019 for county i, BC_i is the observed value for the built capital index in county i (each of the other terms ending in "C" represent the remaining six types of capital, measured as the index value for county i), and ϵ_i represents a stochastic error term. In its simplest form, our OLS model regresses job growth on each community capital index measure, but alternate forms of the model include an additional vector of control variables that account for heterogeneity among different types and sizes of county.[3] All models include state fixed effects ϕ_i to

[3]There are a number of variables—e.g., percent nonwhite, percent with a bachelor's or higher—that seem like obvious choices for control variables but were ultimately not included in our analysis. Because we used ethnicity and educational attainment variables to build the cultural and human capital indices (respectively), additional ethnicity or educational attainment measures would be highly correlated. One variable that was not correlated with existing indices was the dependency ratio (i.e., the share of county population under 18 or over 65). Its addition improves the specification of the model without introducing potential multicollinearity.

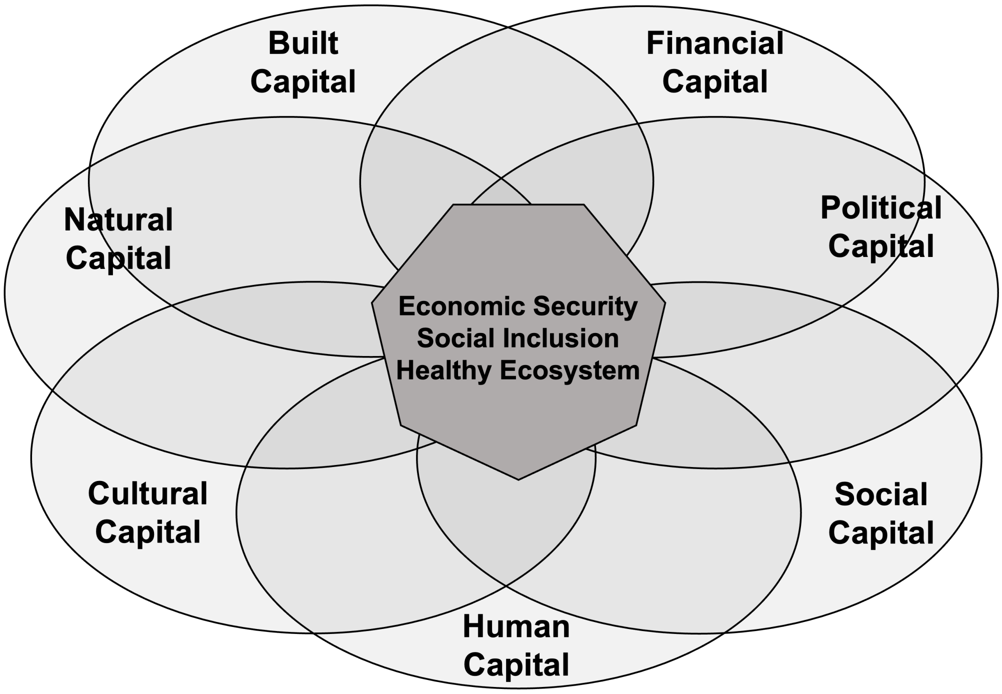

Figure 2: *The CCF as Originally Visualized by Emery and Flora (2006)*

control for political and cultural differences across state lines.[4] Our initial models include all counties in the study area, but we also repeat the model for smaller subsets of counties, including both a rural-only and farm-dependent subset.[5]

Because economic growth is a multi-faceted concept, we explored two additional models in which percent change in population and percent change in per-capita income are used as outcome variables.[6] Combined, this trio of outcome variables—employment growth, population growth, and income growth—loosely resembles the empirical design of (Deller and Lledo, 2007), which itself is a variation on the Carlino-Mills (1987) model of the determinants of county growth. It was expected that different types of capital would interact differently with each outcome measure.

4. Results

Our community capital index measures are illustrated in Figure 3, which shows how each county fared relative to one another across the seven capital types.

We then used these index values as the key variables of interest in our OLS models. The results of our analysis are relatively straightforward to interpret: because each community capital index value is represented as a z-score, the interpretation of each OLS coefficient is that a one standard deviation increase in the given index value is associated with a given percentage point increase or decrease in 2010-2019 job growth. Table 2 shows the results of our base model.

Model 1 (the leftmost column) in Table 2 shows the results of the model with only the seven community capital indices specified (along with the state fixed effects).[7] The results show financial, natural,

[4] See full fixed effects results in the appendix, Table A1.

[5] The OLS models in this study do not explicitly account for potential spatial dependency within the data. A spatial econometric model is an avenue for future research, as some variables exhibit spatial autocorrelation.

[6] See Figure A1 in the Appendix for a map illustrating each outcome variable across all counties in the study area.

[7] Although there are 1,442 counties in the 17-state study area, data were not available for some of the smallest, most remote rural counties (such as Wheeler County, NE with a population of 818 or Loving, TX with a population of only 64).

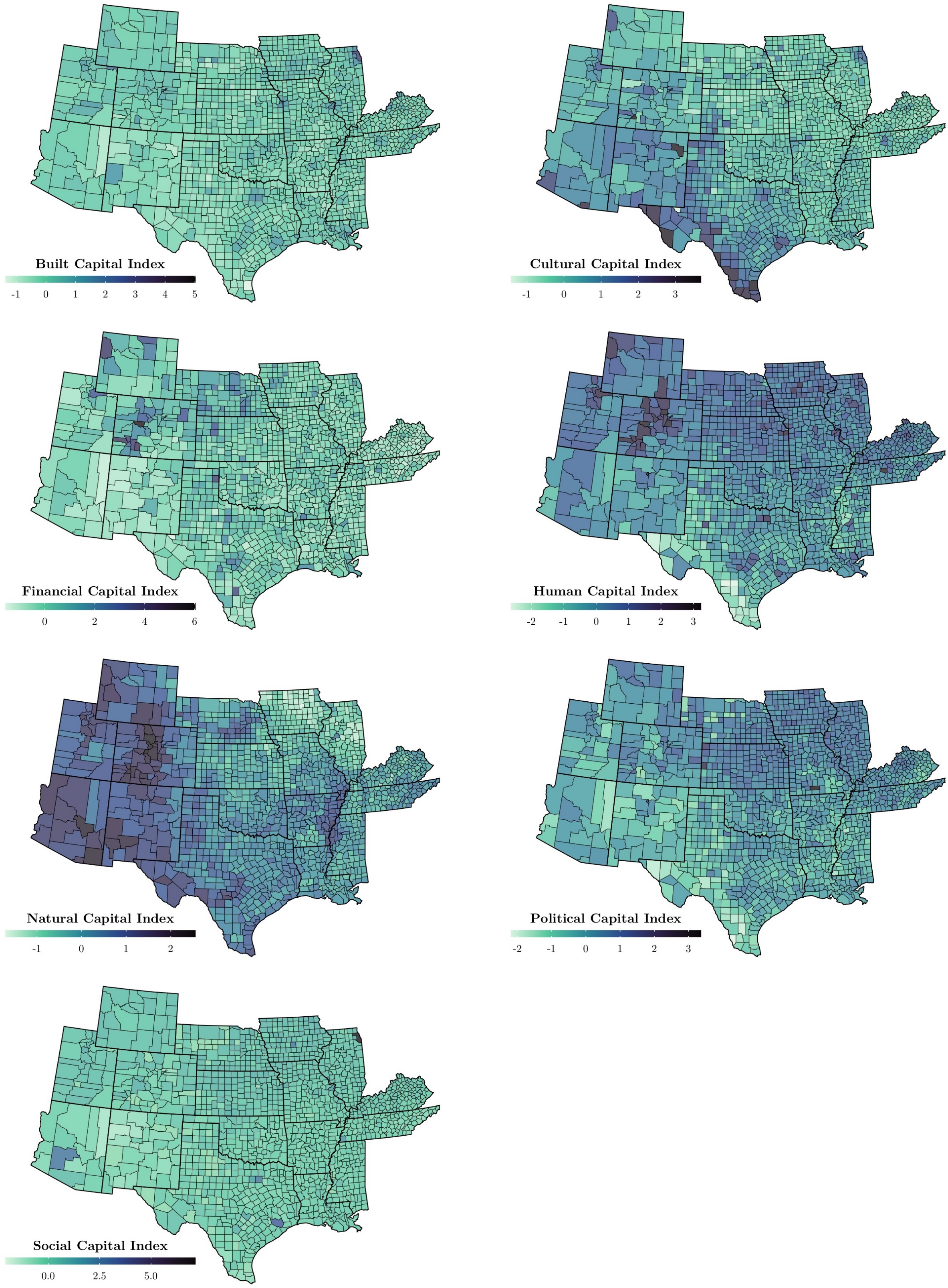

Figure 3: *Map of Capital Index Values by County*

***Table 2:** Base Model Results*

	Dependent variable: % Change in Jobs (2010–19)		
	(1)	(2)	(3)
Built Capital	0.050***	0.034***	0.026**
	(0.010)	(0.010)	(0.011)
Cultural Capital	0.067***	0.062***	0.058***
	(0.007)	(0.007)	(0.008)
Financial Capital	0.006	0.011*	0.013**
	(0.006)	(0.006)	(0.006)
Human Capital	0.061***	0.054***	0.050***
	(0.007)	(0.007)	(0.008)
Natural Capital	-0.009	-0.009	-0.009
	(0.008)	(0.008)	(0.008)
Political Capital	0.010	0.004	0.002
	(0.008)	(0.009)	(0.009)
Social Capital	-0.026***	-0.020**	-0.020**
	(0.009)	(0.009)	(0.009)
Non-Metropolitan		-0.039***	-0.034***
		(0.008)	(0.009)
Farm Dependent		-0.007	0.001
		(0.009)	(0.010)
Population (Log)			0.007
			(0.004)
Dependency Ratio			-0.113
			(0.113)
Observations	1,388	1,388	1,388
R^2	0.335	0.346	0.348
State Fixed Effects	Yes	Yes	Yes
Note:	*p<0.1; **p<0.05; ***p<0.01		

and political capital all with statistically insignificant coefficients, suggesting no meaningful relationship with 2010-2019 job growth. Built capital, cultural capital, and human capital all have a positive and statistically significant coefficient, indicating that higher stocks of each capital are associated with higher rates of job growth in the previous decade. Among these, cultural and human capital played the largest role in said relationship, with a one-standard-deviation increase in human capital or cultural capital being associated with an approximately three-percentage-point increase in jobs in the 2010s. Social capital stood out in the analysis as the lone type of capital with a statistically significant and negative coefficient, indicating that higher stocks of social capital were negatively associated with job growth in the study area.

The second and third columns show two additional model specifications. Each specification represented a slight increase to the R^2 of the base model, but even our strongest models only explained around 35% of variation in the outcome. Model 2 adds binary variables to control for whether an observed county is outside of a metropolitan statistical area and to differentiate those counties that were in farm-dependent counties. Model 3 adds a continuous measure of population (given as a natural logarithm of 2015 county population) to account for the differential effects of population size and the dependency ratio (the share of county population under 18 or over 65) to account for age. The latter three variables lacked statistical significance, with neither county-level farm dependency, population, or the dependency ratio being associated with any meaningful differences in the rate of 2010-2019 job growth. However, the coefficient for the nonmetropolitan binary variable was negative and statistically significant, suggesting that, even after controlling for differences in the stock of each type of capital, nonmetropolitan areas experienced lower rates of job growth relative to their metropolitan peers. Across all three models in Table 2, the only variable to gain statistical significance was the financial capital index, suggesting that the additional controls were necessary to accurately explain the (positive) relationship in financial capital and job growth.

The next set of regressions (see Table 3) are estimates from subsets of the original 1,442 counties in the study area. Each model mirrors the fully-specified base model (Table 2, Model 3) but only uses counties that are part of a given subset: Model 1 included counties inside metropolitan statistical areas, Model 2 included counties outside of metropolitan statistical areas, and Model 3 included counties deemed as farm-dependent counties. The results for Model 1 were largely consistent with those of the base model except the coefficient for natural capital gains statistical significance and was strongly negative. For Model 2 (non-metropolitan counties), built and human capital lost statistical significance, and the coefficient for social capital flipped from negative to positive. Finally, the results in Model 3 were the weakest with only two types of capital—cultural capital and human capital—having a positive and statistically significant association with job growth in farm-dependent counties.

A final set of regressions (see Table 4) introduces our additional measures of economic growth. The specification of Model 1 is identical to that of the fully-specified base model (Table 2, Model 3). The specification of Models 2 and 3 are identical to Model 1, except the outcome variable is replaced

Table 3: *Base Model, Rural and Farming Subsets*

	Dependent variable: % Change in Jobs (2010–19)		
	Metropolitan (1)	Nonmetropolitan (2)	Farm Dependent (3)
Built Capital	0.037**	0.019	0.023
	(0.018)	(0.014)	(0.023)
Cultural Capital	0.087***	0.047***	0.055***
	(0.020)	(0.008)	(0.016)
Financial Capital	0.030*	0.012**	0.004
	(0.017)	(0.006)	(0.009)
Human Capital	0.097***	0.013	0.058***
	(0.016)	(0.009)	(0.018)
Natural Capital	-0.044**	0.003	0.001
	(0.017)	(0.008)	(0.013)
Political Capital	-0.044	0.005	-0.009
	(0.027)	(0.009)	(0.015)
Social Capital	-0.042***	0.055***	0.0003
	(0.014)	(0.019)	(0.031)
Observations	417	971	247
R^2	0.397	0.228	0.236
State Fixed Effects	Yes	Yes	Yes
Demographic Controls	Yes	Yes	Yes
Note:	*p<0.1; **p<0.05; ***p<0.01		

by percent change in population and per-capital income (2010–19) respectively. Looking at each type of capital individually, there are a number of differences when focusing on alternate outcome measures:

- *Built Capital*: not statistically associated with changes in population or income.
- *Cultural Capital*: positive statistical association with population and income growth (similar to the base model).
- *Financial Capital*: not statistically associated with changes in population, but positively associated with changes in income.
- *Human Capital*: positive statistical association with population and income growth (similar to the base model).
- *Natural Capital*: a negative but weak statistical association with changes in population, but not statistically associated with changes in income.
- *Political Capital*: a positive but weak statistical association with changes in population, but not statistically associated with changes in income.
- *Social Capital*: negative statistical association with population growth and positive statistical association with income growth.

The implications of these results (and those in the previous tables) are discussed in the following section.

5. Discussion & Conclusions

The results of our model highlight several insights about the relationship between community capitals and economic vitality in rural counties, which we discuss below. Our most notable finding stems from estimates of the relationship between social capital and economic growth. Although the other types of capital were either positively associated with (or at least statistically unrelated to) job growth, we observed that counties with stronger social capital had worse employment outcomes, on average (see Table 3). This runs counterintuitive to the general understanding of social capital as a contributor to community vitality. However, there are a few different explanations for this finding, chief among them is the impossibility of measuring every facet of social capital. We used existing indices from reputable scholars (Chetty et al., 2022; Rupasingha et al., 2006). Each of these indices attempts to capture a different aspect of social capital. The Chetty et al. (2022) index used harvested social media data to quantify the level of online connectedness observed among county residents, and Rupas-

Table 4: *Base Model, Additional Outcomes*

	Dependent variable (all % change variables from 2010–19):		
	% Change Employment	% Change Population	% Change Income
	(1)	(2)	(3)
Built Capital	0.026**	0.002	0.0002
	(0.011)	(0.005)	(0.010)
Cultural Capital	0.058***	0.028***	0.041***
	(0.008)	(0.004)	(0.007)
Financial Capital	0.013**	-0.004	0.017***
	(0.006)	(0.003)	(0.005)
Human Capital	0.050***	0.052***	0.019***
	(0.008)	(0.004)	(0.007)
Natural Capital	-0.009	-0.006*	0.007
	(0.008)	(0.004)	(0.007)
Political Capital	0.002	0.008*	-0.013
	(0.009)	(0.004)	(0.008)
Social Capital	-0.020**	-0.026***	0.021**
	(0.009)	(0.005)	(0.008)
Non-Metropolitan	-0.034***	-0.022***	-0.009
	(0.009)	(0.004)	(0.008)
Farm Dependent	0.001	-0.005	-0.023***
	(0.010)	(0.005)	(0.009)
Population (Natural Log)	0.007	0.013***	-0.013***
	(0.004)	(0.002)	(0.004)
Dependency Ratio	-0.113	-0.023	-0.162
	(0.113)	(0.054)	(0.100)
Observations	1,388	1,388	1,388
R^2	0.348	0.581	0.198
State Fixed Effects	Yes	Yes	Yes
Note:	*p<0.1; **p<0.05; ***p<0.01		

ingha et al. (2006) used more traditional measures, such as the churches and bowling alleys, as suggested by Putnam (2000) in his early writings on social capital. Ultimately, although these two measures provide a robust representation of the concept, neither index can fully capture the type of social capital that is associated with entrepreneurship and economic growth.

Returning to our findings of a negative coefficient for social capital, our model subset results differed substantially from the overall base model result. Relative to the coefficient of -0.02 found in the base model, we observed a more negative coefficient in metropolitan areas (-0.042) and a positive coefficient in nonmetropolitan areas (0.055). It is positive news for rural areas that such communities can continue cultivating their social capital without experiencing an associated penalty in job growth. Another variation in the social capital finding came from our ancillary outcome models (see Table 4), in which social capital was negatively associated with population growth (mirroring the base model of job growth) but was positively associated with per-capita income growth. Although it is unclear why strong levels of social capital are associated with higher incomes but not with higher job or population growth, the fact that they meaningfully differ from one another validates the nuanced approach regarding economic growth as a multifaceted phenomenon.

Another important finding is the types of capital that were not statistically significant in our analysis. Political capital is a multifaceted construct that is less amenable to empirical measurement. A critical component of political capital is communities' ability to cash in and leverage political support from politically connected entities outside of the community (Turner, 1999). This sort of phenomenon is nearly impossible to measure using publicly available data, which may explain why we did not observe any statistical association between political capital and economic growth.

Natural capital, on the other hand, is much easier to empirically quantify, as evidenced by the USDA ERS natural amenity index (McGranahan, 1999) and the many subsequent rural development studies that have since used it (see Brehm et al., 2004; Kim et al., 2005). Even so, natural capital was only significant in the model subset that restricted observations to metropolitan counties, suggesting it does not play a substantial role in rural economic renewal. One interpretation of this finding is that metropolitan areas with higher levels of natural capital are centered around economic industries—such as agriculture, resource extraction, and tourism—that typically do not experience much new job creation over time.

Lastly, it is important to discuss the goodness of fit for each model in the analysis. In comparison to our base model, which had an R^2value of 0.348, the subset of models focusing solely on metropolitan areas ($R^2 = 0.397$) showed a slightly improved fit, while the subset for non-metropolitan areas ($R^2 = 0.228$) exhibited a significantly poorer fit. These results suggest that, although our study area encompassed more than twice as many rural counties as metropolitan counties, our capital indices did a better job of explaining differences in metropolitan job growth. Additionally, a comparison of R^2 values in Table 4 indicates that community capitals offer an even better explanation for differences in county population growth ($R^2 = 0.581$), while their explanatory power in county-level income growth is relatively weak ($R^2 = 0.198$).

5.1. Implications for Policy & Practice (So What?)

To enhance community economic vitality and livelihood, it is crucial for community stakeholders to understand how different types of community capitals interact with various measures of economic growth. Counties need to take inventory of and celebrate the capitals that are positively impacting their communities while also acknowledging improvements can be made. The findings of this study can aid communities in establishing reasonable expectations for development goals as community organizations and leaders initiate constructive discussions and spearhead initiatives aimed at fostering economic renewal in rural and farm-dependent counties.

One clear implication of our analysis is that social capital is a much more valuable resource in rural communities than in metropolitan areas. Our counterintuitive findings may be attributed to the intensity of existing social ties and networks. Granovetter (1973) noted that tightly-knit communities with strong ties can be self-limiting due to lacking diversity in perspectives and ideas. In contrast, weak ties can serve as bridges across social networks, exposing individuals to unfamiliar worlds, providing new perspectives and broader support networks. Thus, communities with strong social cohesion may be less inclined to explore new opportunities and take risks in the larger economy, while those with weak social capital are better positioned to encounter novel information for economic development. This appears to be the case in metropolitan areas, but the opposite is true in non-metropolitan areas.

An unexpected finding of this analysis was the absence of statistically significant estimates for the farm-dependent county subset (Table 3, Model 3). Although this leaves us with limited practical implications specific to farm-dependent counties, the lack of statistical significance holds significance when compared to other model subsets. Notably, social capital showed a negative association with metropolitan job growth and a positive association with non-metropolitan job growth, but it did not demonstrate a statistically significant relationship with job growth in farm-dependent counties. This suggests that focusing on social capital may not be as critical in these areas. However, given the strong sense of localism and self-sufficiency often found in farm-dependent communities, it is crucial to encourage the preservation of these positive attributes, as their loss would be detrimental to these communities.

5.2. Practical Application(s) & Future Research

The implications of this study extend beyond public and community economic development practices, offering valuable insights for potential outreach (i.e., Extension) applications. Programming may be designed around instructing rural community members how to conduct an inventory of their community capitals, complementing the study's findings with qualitative measures to enhance local specificity of this study's quantitative analysis with their own qualitative measures. Findings should be shared with stakeholders across the Southern Great Plains region who are seeking to improve the livelihoods and wellbeing of rural citizens. With their presence in every county, strongly embedded organizations—such as Cooperative Extension or the Farm Bureau—are well-positioned to provide additional resources and raise awareness about the influence of community capitals on economic renewal in rural areas.

Future studies may expand on this research in three ways. First, the analysis could be expanded to include a longer timeframe and a wider spatial extent. A follow-on analysis may examine the relationship between community capitals and economic growth across the entire United States, or perhaps another country where the CCF is a viable framework for explaining economic growth. Second, the empirical realities of spatial dependence and autocorrelation can be a central priority in future work. Such work would account for spatial spillovers between counties and allow for locally-varying estimates of each coefficient in the model. Finally, research should be conducted within individual communities to determine the assets and deficiencies that exist. Specifically, researchers should use the variables addressed in this study as a starting point to assess the counties more thoroughly within their respective states and determine the resiliency of their rural communities.

5.3. Conclusion

The alarming trends facing rural areas—discussed in the early sections of this paper—are unlikely to disappear in the near future. However, rural areas are not helpless against the threat of decline. Through the insights gained from this study, rural communities can understand the distinctive role of each type of community capital in driving economic growth. Armed with this knowledge, they can assess local assets, tackle deficiencies, and take a proactive role in pursuing sustainable economic renewal.

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Appendix

Table A1: State Fixed Effect Coefficients from Fully Specified Base Model

	Dependent variable (All % Change 2010–19):		
	% Employment	% Population	% Income
	(1)	(2)	(3)
AR	-0.004	-0.021**	0.016
	(0.019)	(0.009)	(0.017)
AZ	0.044	0.027	0.008
	(0.035)	(0.017)	(0.031)
CO	0.003	0.009	0.042**
	(0.023)	(0.011)	(0.020)
IA	-0.027	-0.043***	0.044**
	(0.020)	(0.010)	(0.018)
IL	-0.070***	-0.073***	0.011
	(0.019)	(0.009)	(0.017)
KS	-0.032*	-0.051***	-0.044***
	(0.019)	(0.009)	(0.016)
KY	0.002	-0.014*	0.017
	(0.018)	(0.008)	(0.016)
LA	0.018	-0.010	-0.033*
	(0.020)	(0.010)	(0.018)
MO	0.008	-0.014*	0.013
	(0.017)	(0.008)	(0.015)
MS	0.050***	-0.002	0.012
	(0.019)	(0.009)	(0.017)
NE	-0.013	-0.025***	0.022
	(0.020)	(0.010)	(0.018)
NM	-0.040	-0.052***	-0.009
	(0.027)	(0.013)	(0.024)
TN	0.081***	0.030***	0.055***
	(0.018)	(0.009)	(0.016)
TX	0.089***	0.057***	0.043***
	(0.016)	(0.008)	(0.014)
UT	0.118***	0.072***	0.109***
	(0.028)	(0.013)	(0.025)
WY	-0.019	-0.019	-0.018
	(0.029)	(0.014)	(0.025)
Observations	1,388	1,388	1,388
R^2	0.353	0.581	0.198
Note:	*p<0.1; **p<0.05; ***p<0.01		

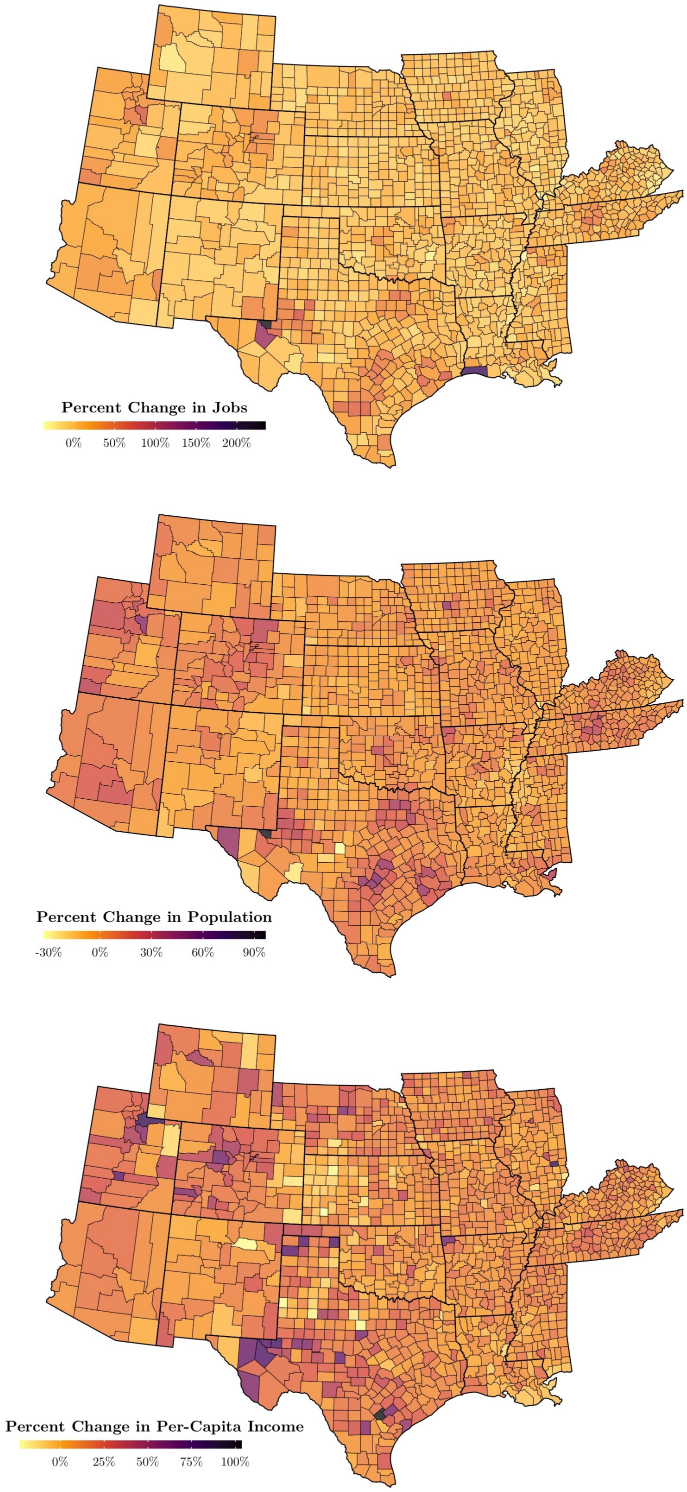

Figure A1: *Map of Outcome Variable Values by County*