sustainability

MDPI

Article

So Close, Yet So Far: The Benefits and Limits of Rural–Urban Industry Linkages

Anders Van Sandt [1,*] and Craig Wesley Carpenter [2,3]

[1] Department of Agricultural and Applied Economics, University of Wyoming, Laramie, WY 82071, USA
[2] Department of Agricultural, Food and Resource Economics, Michigan State University East Lansing, East Lansing, MI 48824, USA; carpe224@msu.edu
[3] Department of Agricultural Economics, Texas A&M University, College Station, TX 77843, USA
* Correspondence: avansand@uwyo.edu; Tel.: +1-307-766-4204

Abstract: Rural–urban linkages have long been recognized as a potential rural economic development strategy. This article tests the potential effects of rural–urban linkages created through rural food manufacturing, tourism, and data processing centers on rural per capita income, employment, and population between 2009 and 2016. Using unique spatial interaction variables, we empirically estimate the Carlino–Mills conditional growth model for all rural counties in the contiguous US. Robustness checks reveal the limits of this economic development strategy by testing the model specification across different definitions of urban and rural places and varying spatial lags. Results suggest that both agritourism and data processing centers increase per capita incomes and employment through rural–urban linkages across distances, urbanicity, and rurality. The potential of beneficial rural–urban linkages associated with food manufacturing appears to be more situational, while creative class and outdoor recreation had small negative or insignificant rural-urban linkage effects on the three economic outcomes.

Keywords: rural–urban linkage; rural development; local food; Carlino–Mills; economic development; agritourism; data processing center; regional economics

check for updates

Citation: Van Sandt, A.; Carpenter, C.W. So Close, Yet So Far: The Benefits and Limits of Rural–Urban Industry Linkages. *Sustainability* **2022**, *14*, 2875. https://doi.org/10.3390/su14052875

Academic Editors: Stephan Weiler and Sarah A. Low

Received: 5 January 2022
Accepted: 21 February 2022
Published: 1 March 2022

1. Introduction

Rural counties in the United States lag urban counties in several measures, including poverty, per capita income growth, population growth, and job growth. This divide has prompted many economic development researchers and practitioners to seek out rural–urban linkages as a potentially mutually beneficial and sustainable strategy to narrow this divide. Rural–urban linkages include any economic activity where there is a transfer of goods or services between rural and urban communities. Some industries thought to be particularly effective in narrowing the rural–urban divide through these linkages include value-added agriculture, creative class occupations, tourism, and data processing [1–4]. However, little is known about the effectiveness and limits of the rural–urban linkages created by these industries in narrowing the rural–urban divide across heterogeneous rural communities and if the benefits of these linkages are sustained over time.

We explore panel data of the contiguous US counties using spatial lag of X regressions to assess the relative effectiveness of three different linkage industries on several measures of economic well-being between 2009 and 2016. Specifically, we apply the Carlino–Mills growth model [5] to estimate how urban proximity and the share of rural employment in food manufacturing, creative class occupations, tourism, and data processing affect the convergence to equilibrium per capita income, population, and employment in rural counties. To robustly test the limits of linkage affects across the rural–urban continuum, we estimate the simultaneous growth equations using multiple spatial weights matrices and multiple definitions of rurality and urbanicity.

Exploring rural–urban linkages to spur community economic development has been a well-established strategy to stimulate rural economies for decades [6]. As urban economies have continued to outpace their rural partners, research increasingly uses regional methods to address urban sprawl, environmental issues, and economic divergence. However, many antecedents approach the topic through case studies, which have potentially limited external validity due to their limited sample size. This article highlights an alternative approach that is thus relevant to both researchers and practitioners in the US and internationally.

This article fills a gap in the rural–urban economic linkage literature by empirically measuring the benefits and limits of economic linkages between rural and urban counties in the US. Specifically, we leverage the convergence literature and spatial econometrics to test the strength and significance of these linkages across five industries, using multiple levels of rurality and urbanicity, including distances from urban cores. In addition, our unique application of spatial interactions opens the door for future research to continue the exploration of geographic linkages between places. While we focus on the potential contributions of five industries, the model can easily be tweaked to consider the economic linkages generated by any industry using secondary data. Furthermore, while this article examines the US context, rural–urban linkages and industrial development are extensively studied in the international context. Thus, this article contributes to a large and diverse international literature [7–10].

The article proceeds by reviewing the literature on rural–urban linkages and the potential of the food manufacturing, creative class occupations, tourism, and data processing industries to stimulate these linkages. After considering different definitions of rural and urban, the methods section introduces the Carlino–Mills growth model, its empirical specification, and the data used to estimate the model. The results and discussion sections present findings and offer interpretations and comparisons of coefficient estimates across different measures, industries, and ruralities. Finally, the article concludes with a discussion of potential interpretations of the findings and opportunities for future research.

2. Literature Review

Rural–urban linkages refer to the goods, people, and money transfers between rural and urban places, and have long been a focus for economic development researchers and practitioners alike [6]. Urban places typically have higher incomes and more diverse market segments, making greater rural–urban market integration a potentially lucrative business and rural development strategy [11]. Indeed, urban-adjacent rural communities often have comparative advantages in the production of food, energy, tourism, and other rural goods and services desired by urban consumers. Thus, identifying how the economic flows generated by this interdependence affect the economic prosperity of rural places may better inform rural development policies and strategies.

Unfortunately, much of the research and understandings of rural–urban linkages have focused on the urban benefits, as these outcomes seem to have been more tangible or measurable by past researchers [11]. The potential for improved economic development and the rural-void in the literature have led multiple researchers to call for greater exploration into the rural benefits and limits of rural–urban linkages [12–14]. Pursuantly, this section reviews the potential for food manufacturing, creative class occupations, tourism, and data processing centers to catalyze improved rural economic outcomes within the rural–urban context.

There are many examples of empirical models used to measure the influence of rural community attributes on rural measures of economic growth. One of the most frequently employed models is the conditional convergence growth model developed by Carlino and Mills (1987) [5], used to identify factors leading to US county population and employment growth over time. Deller et al. (2001) [15] used the basic framework of this model and added a per capita income equation to the simultaneous equations to assess the role of natural amenities on rural economic growth. Others, such as Rupasingha et al. (2005) [16] and Carpenter and Loveridge (2019) [17], concentrated on the influence of exogenous variables growth within the Carlino and Mills framework while controlling for spatial dependence. With this conditional convergence framework in mind, we consider the previous evidence of the potential benefits and limits for rural economies from rural–urban linkages created by the aforementioned industries.

2.1. Food Manufacturing

Agriculture has long been a primary industry of rural economies in the US, but changes in agricultural production and global competition have put a financial strain on many agricultural businesses and the communities that principally rely on them. In response, the U.S. Department of Agriculture (2015) [18] identified local and regional food systems as one of its four pillars for enhanced rural development, highlighting its potential to improve rural economic outcomes. Simultaneously, urban centers are becoming increasingly interested in local food procurement and production through food policy plans [19,20]. However, in a review of multiple case studies, Jablonski (2016) [11] accentuates that most of the strong local food systems are located near metropolitan areas where there are greater concentrations of farmers markets and a higher willingness to pay for local agricultural goods. Furthermore, while urban benefits are increasingly understood, there is little to no empirical research that measures the economic flows from urban to rural places or the limitations of these flows. For example, do all rural places experience equal benefits from food-based rural–urban linkages?

2.2. Tourism and the Creative Class

Gartner (2005) [21] discusses the growing importance of tourism for rural communities and the growing types of tourism in those areas. While attribute-specific sites once dominated rural tourism, an increasing number of rural communities are tapping into their heritage, culture, and the potential to become gateway communities to popular tourism regions. Weiler and Seidl (2004) [22] measured a significant increase in employment in a region after a nearby National Monument is designated as a National Park and note the output multiplier is somewhere between 1.3 and 1.4 for retail goods and services. In addition, Gartner (2005) [21] notes that many of these outdoor recreation gateway communities, such as Jackson Hole, WY, are becoming destinations in their own right, and underlines the importance of viewing tourism as a “collection of related industries.” Given the diversity of tourism industries, it may be best to measure rural tourism activity through multiple industry specifications. In addition to outdoor recreation, we also explore the potential for rural–urban linkages created by the creative class and agritourism industries.

Florida (2002) [23] describes an evolving economy where creativity is now the predominant driver of regional economic growth. Places rich in amenities attract creative people who then spur economic growth through new ideas, technology, and enhanced quality of life, creating a virtuous cycle of economic development and growth. McGranahan et al. (2011) [4] empirically tested this theory and found that higher shares of creative class occupations increase employment growth for both metropolitan and nonmetropolitan counties. However, one key element of Florida’s (2002) [23] proposition is the cyclical idea that creative industries attract more creative people, sustaining the development of new ideas and technologies that support continued economic development. In addition to this inflow of creative people into these communities, these creative places also likely benefit from increased tourism brought on by the entertainment and arts occupations within the creative class. Given these flows of people into creative places, we seek to test the impact of rural–urban linkages on rural economies from the creative class. In other words, are the economic benefits associated with the creative class dependent on a place’s proximity to urban areas or are these flows of creative people and tourists free of urban influence?

For communities with limited natural amenities, diversifying farms and ranches into agritourism enterprises may stimulate the local economy. Agritourism can be any recreational or educational activity on working farms or ranches. Some popular examples are wineries, dude ranches, corn mazes, and Christmas Tree farms, showing the diversity of activities across agricultural production types and seasons. Van Sandt and Thilmany (2020) [24] disentangle the types of agritourism travelers and note different willingness-to-pay values for secondary and primary agritourists across agritourism activities and regions in the Western U.S., demonstrating a wide set of economic opportunities for agricultural communities across regions and ruralities. Furthermore, Thilmany et al. (2007) [25] found that out-of-state agritourists spent about 2.3 times more in total expenditures during their visit to Colorado agritourism sites compared to in-state agritourists. This suggests that urban visitors looking to get away from familiar settings may stimulate rural economies more than local visitors, on an individual basis. Across the literature, travel infrastructure, including interstates as well as scenic byways, is identified as critical for rural tourism opportunities [21,26,27].

2.3. Data Processing

As historically extraction-based rural economies lose industries to shifting demand and global competition, many rural areas without comparative advantages in either agriculture or natural amenities are faced with few economic alternatives. The birth of the technology and information age has led some of these limited-growth rural economies to realize a new economic opportunity: data centers. Urban places are generating massive demand for data centers to support burgeoning technology and information-based industries, including the millions of households who are increasingly integrating technology into everyday life. Due to their large footprint and high energy consumption, data centers prioritize low land and construction costs as well as cheap and redundant electricity [28]. Data centers also tend to locate near urban markets and travel infrastructure to take advantage of skilled labor or the possible need to quickly bring in specialized technicians. These preferences lead to urban-proximate rural areas having a potential comparative advantage in hosting data centers, which may then improve rural economic outcomes. However, unlike many local food manufacturing and tourism businesses, these data centers require massive capital investments, which likely come from firms outside of the rural community.

3. Materials and Methods

This section first defines rural places before briefly reviewing the well-established Carlino–Mills growth model. We then introduce the three simultaneous equations' empirical specifications including unique spatial interactions to isolate and measure the strength and significance of the three industries' rural–urban linkages. The section ends with a detailed description of the data used in estimating the specified models.

3.1. Defining Rural

"Rural" is more of a concept than a specific definition. Most researchers agree it is used to describe a place's population, population density, landscape, commuting patterns, and proximity to urban centers, but the interplay between these multiple characterizations leads to an ambiguous definition of rural [29]. Waldorf and Kim (2018) [30] develop what they call a continuous measure of rurality, but their unweighted averaging of four normalized variables to develop their continuous index leads to a dimensionality problem similar to that of other rurality measures. Rather than develop our own definition of "rural" to compete with the existing literature, we adopted the well-used United States Department of Agriculture (USDA) Economic Research Service's classification scheme of metropolitan and nonmetropolitan county categories. These Rural Urban Continuum Codes (RUCCs) were last updated in 2013, near the midpoint of our temporal range, making it an ideal classification of rural places for our analysis. Table 1 details RUCC metropolitan and nonmetropolitan county definitions.

Table 1. Rural Urban Continuum Codes (RUCCs)—2013.

RUCC	Description
	Metropolitan Counties
1	Counties in metro areas of 1 million population or more
2	Counties in metro areas of 250,000 to 1 million population
3	Counties in metro areas of fewer than 250,000 population
	Nonmetropolitan Counties
4	Urban population of 20,000 or more, adjacent to a metro area
5	Urban population of 20,000 or more, not adjacent to a metro area
6	Urban population of 2500 to 19,999, adjacent to a metro area
7	Urban population of 2500 to 19,999, not adjacent to a metro area
8	Completely rural or less than 2500 urban population, adjacent to a metro area
9	Completely rural or less than 2500 urban population, not adjacent to a metro area

Note: see https://www.ers.usda.gov/ (accessed on 1 November 2021) for a downloadable county delineation of these codes.

Despite the nine classifications of metropolitan and nonmetropolitan places, problems still exist with accurately defining rural and urban places. For example, Western US counties are much larger geographically compared to Eastern US counties. This leads to multiple issues, including large differences in population density and what it means to be adjacent to a metropolitan area. That is, "non-adjacent" counties in the Eastern US are likely much closer to urban areas than are those in the Western US simply due to the county size disparities from east to west. While counties' administrative boundaries are mostly arbitrary in determining commuting patterns and economic dependencies [31], counties also represent the smallest geographic unit for which public data is available to research the concept of rural–urban linkages. For these reasons, we tested the empirical specification to follow at multiple levels of the RUCCs.

3.2. Conditional Growth Model

The economic contributions of rural–urban linkages may take multiple forms. Improved interdependence of rural and urban areas may create flows of people and goods that may be measured by per capita income, employment, or population growth. In addition to multiple potential outcomes, we face a causality problem. That is, do industry shares in rural places change because of economic outcomes, or do economic outcomes follow linking industries' activity? In order to disentangle the effects of linking industries on multiple potential economic outcomes, we adopted the partial lagged adjustment model developed by Carlino and Mills (1987) [5]. More precisely, we implemented Deller et al.'s (2001) [15] adaptation, which argues that in addition to population and employment, per capita income acts as one of the adjustments toward equilibrium. Deller et al. model this adjustment toward equilibrium by estimating three simultaneous equations that describe the growth rates in population ($\boldsymbol{p}$), employment ($\boldsymbol{e}$), and per capita income ($\boldsymbol{y}$) as functions of their initial values and county-level conditions.

Specifically, Deller et al.'s three simultaneous equations may be written as follows:

$$\Delta ln(y_{it}) = \beta_{10} + ln(y_{i,t-1})\beta_{11} + ln(p_{i,\,t-1})\beta_{12} + ln(e_{i,t-1})\beta_{13} + \boldsymbol{x}_{i,t-1}\delta_1 + \boldsymbol{z}_i\gamma_1 + \varepsilon_{1it} \quad (1)$$

$$\Delta ln(p_{it}) = \beta_{20} + ln(y_{i,t-1})\beta_{21} + ln(p_{i,\,t-1})\beta_{22} + ln(e_{i,t-1})\beta_{23} + \boldsymbol{x}_{i,t-1}\delta_2 + \boldsymbol{z}_i\gamma_2 + \varepsilon_{2it} \quad (2)$$

$$\Delta ln(e_{it}) = \beta_{30} + ln(y_{i,t-1})\beta_{31} + ln(p_{i,\,t-1})\beta_{32} + ln(e_{i,t-1})\beta_{33} + \boldsymbol{x}_{i,t-1}\delta_3 + \boldsymbol{z}_i\gamma_3 + \varepsilon_{3it} \quad (3)$$

where the Carlino–Mills speed of adjustment coefficients are embedded in the parameters $\boldsymbol{\beta}$, $\boldsymbol{\delta}$, and $\boldsymbol{\gamma}$. Control variables include county characteristics, $\boldsymbol{x}_i$, region fixed effects, $\boldsymbol{z}_i$, as well as a random error term, ε_i. The three simultaneous dependent variables are expressed as the change in the natural log of the variable in time t while the initial values and county-level characteristics, $\boldsymbol{x}$, are lagged by one period. While this model could be estimated with panel data with a lag period of one year, the purpose of the lag is to reduce simultaneity and endogeneity. Thus, we employed an eight-year lag where the dependent variable is the average change between 2009 and 2016 in either $\boldsymbol{y}$, $\boldsymbol{p}$, or $\boldsymbol{e}$ (e.g., $\Delta \ln(y_{i,t}) = \frac{\ln(y_{i,t}) - \ln(y_{i,0})}{t}$), and the independent variables are 2009 values. Carpenter and Loveridge (2019) [17] and Deller et al. (2001) [15] used a neat 10-year lag; however, we used more recent data (2009–2016), and attempted to reduce noise from the financial crisis in 2008 and data issues starting after 2016. (The US Census Bureau's County Business Patterns (discussed in the Methods subsection *Data*) underwent greater noise infusion starting in 2017, leading to unreliable estimates of employment and establishments. See also [32]). Deller et al. showed that higher initial ($t-1$) values lead to slower growth as places converge to their equilibrium levels of $\boldsymbol{y}$, $\boldsymbol{p}$, and $\boldsymbol{e}$.

Deller et al.'s (2001) [15] adaptation of Carlino–Mills growth model provides the fundamental framework to explore how county-level conditions influence a rural county's convergence, or divergence, to equilibrium values of per capita income, population, and employment. Just as Deller et al. observe the role of amenities (or Carpenter and Loveridge (2019) [17] observe the role of Latino-owned businesses) on convergence, we explored the role of employment shares of potential rural–urban linkage industries on convergence. These county-level initial conditions reside within $\boldsymbol{X}_{t-1}$ along with other economic conditions, place-based factors and policy-related variables.

3.3. Spatial Modeling

The spatial lag of X (SLX) model was adopted to explore the influence of our five industry employment shares on rural counties' speed of convergence to equilibrium. SLX is preferred over alternatives as we are not interested in the autoregressive effects of neighbors' economic outcomes. Rather, we are interested in the mechanism of urban neighbor's employment shares on the rural economic outcomes. Without a clear theory motivation for autoregressive interactions in our model, we thus followed [33,34] to avoid potentially introducing endogeneity concerns in our estimates.

To capture these effects, we first created an inverse distance spatial weight matrix, $\boldsymbol{W}$, that relates each county in the contiguous US to one another. As the name implies, the inverse distance weight matrix gives greater weight to closer neighbors than to farther neighbors. However, we are not simply interested in all types of neighbors, but just rural–urban neighbor relationship. Thus, we interacted the inverse distance weight matrix $\boldsymbol{W}$ with a vector, $\boldsymbol{u}$, that takes a one if the county is defined as metropolitan in the RUCCs ($\boldsymbol{W}$ is an (nxn) weights matrix while $\boldsymbol{u}$ is an $(nx1)$ vector indicating urban observations where n is the number of observations (counties)). The $\boldsymbol{u}$ vector acts as a switch, causing the new $\boldsymbol{W} \times \boldsymbol{u}$ vector to only express each county's distance to urban areas, or its spatial urban influence. This same "switch" was used by Partridge et al. (2008) [35] to measure the effect of urban agglomeration on rural population growth.

Since we had thus far only interacted $\boldsymbol{W}$ with a binary variable, we could interact this switch with each of the employment shares of the three industries of interest:

$$\sum_{k=1}^{K} \left((\boldsymbol{W} \times \boldsymbol{u})' \times \boldsymbol{EmpShare}_k \right) \varphi_k \tag{4}$$

Including this term summing across K industries gives the estimated parameters a practical interpretation for understanding rural–urban linkages. That is, after controlling for each county's non-interacted employment share ($\boldsymbol{\alpha}_\mathrm{k}$) in Equation (5), $\boldsymbol{\varphi}_k$ represents the marginal change in speed of convergence to equilibrium due to economic activity k's proximity to an urban area. As an example, inserting Equation (4) into the first simultaneous equation leads to the full SLX model specification:

$$\begin{gathered} \Delta ln(y_{it}) = \beta_{10} + ln(y_{i,t-1})\beta_{11} + ln(p_{i,\, t-1})\beta_{12} + ln(e_{i,t-1})\beta_{13} + \\ \sum_{k=1}^{K} [(\boldsymbol{w}_i{}'\boldsymbol{u} \times EmpShare_{i,t-1,k})\varphi_{1k} + EmpShare_{i,t-1,k}\alpha_{1k}] + \boldsymbol{c}_{i,t-1}\boldsymbol{\theta}_1 + \boldsymbol{z}_i\gamma_1 + \varepsilon_{1it} \end{gathered} \tag{5}$$

Notice, the county-level characteristics, $\boldsymbol{X}$, have now been split into the employment share terms, with φ_{1k} representing the rural–urban spillovers from K industries, α_{1k} representing the own-county effects of K industries, and θ_1 the remaining county-level characteristics, $\boldsymbol{C}$.

Given the preceding specification and interpretation of $\boldsymbol{\varphi}$, we developed the following hypotheses:

Hypotheses 1 (H1). *Greater employment shares in food manufacturing, creative class, agritourism outdoor recreation, and data processing lead to greater economic growth (i.e., faster convergence).*

Hypotheses 2 (H2). *Rural areas with closer proximity to urban areas experience greater economic growth (i.e., faster convergence) from employment shares in food manufacturing, creative class, agritourism outdoor recreation, and data processing.*

Hypotheses 3 (H3). *Rural places closer to urban areas experience greater benefits (i.e., faster convergence) from rural–urban linking industries.*

Hypotheses 4 (H4). *Larger urban centers generate greater rural–urban linkage benefits (i.e., faster convergence) for rural counties.*

Our primary interest is in the second, third, and fourth hypotheses, which test the existence, distance sensitivity, and size sensitivity of the three industries' potential rural–urban linkage effect on per capita income, population, and employment. In effect, these hypotheses challenge the "distance is dead" conjecture presented by Glaeser and Kohlhase (2003) [36]. This notion was diminished by Partridge et al. (2008) [35], who found significant influences on rural population growth from urban agglomeration, but we are not aware of any studies that investigate the role of rural economic activity within this context.

3.4. Data

We used data from 2009 to 2016 to calculate the average growth rate for the three dependent variables and 2009 data for all initial conditions. Employment data came from WholeData, a data series that estimates suppressed employment values from the US Census' County Business Patterns (CBP) [37]. Carpenter et al. (2021) [32] showed that WholeData has less measurement error and thereby generally reduces regression coefficient bias over common alternatives. Table 2 presents the summary statistics for nonmetropolitan counties in 2009 and data sources for the dependent and independent variables. Since we are exclusively interested in how rural counties interact with urban, we restricted our sample to only include counties with an RUCC of five or greater. This excluded all metropolitan counties as well as counties with an urban population of 20,000 or more that are adjacent to a metropolitan area to avoid peri-urban zones.

Table 2. Summary statistics (2009 nonmetropolitan counties: RUCC $\geq$ 5).

Variable	Obs.	Mean	Std. Dev.	Source
	Dependent Variables			
Per Capita Income	1718	USD 30,938.51	USD 6923.19	ACS
Population	1718	8103.20	6725.39	ACS
Employment	1718	18,358.58	15,050.22	ACS
	Independent Variables			
Food Manuf. Emp. Share	1718	0.018	0.049	WholeData
Agritourism Emp. Share	1718	0.007	0.017	NASS
Creative Class Emp. Share †	1718	0.158	0.041	ERS
Outdoor Recreation Emp. Share	1718	0.004	0.015	WholeData
Data Center Emp. Share	1718	0.001	0.004	WholeData

Table 2. *Cont.*

Variable	Obs.	Mean	Std. Dev.	Source
Share with Bachelors	1718	0.108	0.043	ACS
Share of Seniors	1718	0.003	0.005	ACS
Transportation Exp. Per Capita (USD 1000's) *	1718	0.562	1.888	CNT
Interstate Density $^{\Psi}$	1718	0.011	0.019	ArcGIS
Share Work Out of County	1718	0.264	0.149	ACS
Median Home Value (USD 100,000's)	1718	1.105	0.576	ACS
Corporate Tax Rate	1718	0.001	0.003	The Tax Foundation

† These employment values are derived from the same parent datasets as WholeData—the Census and ACS. * Calculated at the state level. $^{\Psi}$ Miles of Interstate per 10,000 square miles. Abbreviations: ACS: American Community Survey; CNT: The Center for Neighborhood Technology; ERS: Economic Research Service; NASS: National Agricultural Statistics Survey (specifically, Census of Agriculture).

The independent variables for structural growth models are subject to some debate, so we drew many of the independent variables in Table 2 from previous work, including [5,15,17,38,39]. Some variables unique to this analysis were meant to act as controls to better estimate the effect of the spatially interacted employment shares for the three industries of interest. For example, some establishments, particularly larger establishments such as data processing centers, may consider a state's corporate tax rate when locating.

While we did not account for cost of living due to lack of consistently available data in 2009–2016, we did include the median home value to proxy for housing costs—an increasingly large share of household budgets. The model also includes region fixed effects for the nine US Census divisions that may account for some regionally dependent costs and other aspects of regional variation. (The reference group for the regional fixed effects is the Mountain division. The other eight Census Divisions are Pacific, West North Central, West South Central, East North Central, East South Central, New England, Middle Atlantic, and South Atlantic).

The industry and occupation compositions of the selected industries of interest are summarized in Table 3. These industries were selected based on a review of the literature; however, there are some potential issues with these industry definitions that should be explored in future research. First, food manufacturing is a large subsector that includes many types of food manufacturing beyond the local foods systems that much of the literature highlights as potential drivers of rural–urban linkages. Second, agritourism employment is agricultural labor that is not well represented in the County Business Patterns data. Since only agritourism establishments are available in the Census of Agriculture, we assumed a crude estimate of three employees per agritourism establishment (estimated from [40–42]) and added total county agritourism employment to overall employment before calculating the other industries' employment shares. While the creative class occupation estimates come from the Economic Research Service, they are based upon the same parent datasets as those of WholeData, namely, the Census and American Community Survey (ACS). Finally, a more refined selection of food manufacturers would provide more nuanced results for community economic development practitioners, particularly those interested in specific local foods systems. (As a caveat to future researchers, Carpenter et al. (2021) [32] show that measurement error can increase substantially US regional economic data above the 3-digit level, making a more refined analysis difficult with public data).

Table 3. Industry Compositions.

Industry	Composition (North American Industry Classification System)
Food Manufacturing	Food Manufacturing (NAICS 311)
Agritourism	Recreational or educational activities on a working farm or ranch
Creative Class	ERS occupation categories: management; business and financial operations; computer and mathematical; architecture and engineering; life, physical, and social science; legal; education, training, and library; arts, design, entertainment, sports, and media; sales and related occupations
Outdoor Recreation	Nature Parks and Other Similar Institutions (NAICS 71219) Skiing Facilities (NAICS 71392) Marinas (NAICS 71393) All Other Amusement and Recreation Industries (NAICS 71399) RV Parks and Recreational Camps (NAICS 7212) Sporting Goods Stores (NAICS 45111)
Data Processing	Data Processing, Hosting, and Related Services (NAICS 5182)

4. Results

Our spatial regressions focused on spatial lag of X (SLX) regressions (see [33,34] for discussions of the advantages of the spatial lag of X model over alternatives that may also account for spatial autocorrelation. Many of the concerns related to increasing endogeneity are particularly relevant in the context of this article) but first estimated a base model with ordinary least squares using a nontruncated inverse distance weight matrix. All models were estimated using White's robust standard errors to account for heteroskedasticity in the data. Without knowing the form rural–urban linkages take across industries, we adopted a naïve approach and first estimated the base models with the spatially interacted employment shares' squared and cubed values. All these higher-order quadratic terms were insignificant, except for food manufacturing. Thus, all higher-order quadratic terms were dropped, except those for food manufacturing, to reduce structural multicollinearity. Exploring different quadratic forms of rural–urban linkages across industries should be explored by future research along with the practical mechanisms driving these functional forms.

The estimated models reflect how rural industries' geographic relationship with urban areas influences rural economic growth. After reviewing the coefficient estimates for the variables of interest in the base model, we tested the robustness of the model by (1) truncating the inverse distance weighting matrix to a 100-, 300-, and 500-mile spatial radius, (2) restricting the spatial interactions to only include the largest urban areas (RUCC of 1), and (3) restricting the sample to only include more rural places.

4.1. Base Model

Table 4 displays the results of the three simultaneous growth equations with a non-truncated spatial weight matrix relating rural counties with an RUCC greater than four to metropolitan counties.

At first glance, the models reflect previous findings that a higher initial value of Y, E, or P leads to slower convergence. Higher shares of residents with bachelor's degrees speed up convergence to equilibrium levels of per capita income and employment but is insignificant in the population convergence equation. The share of residents commuting to work in adjacent counties is associated with higher employment growth in rural counties, but slower population growth, showing a potential tradeoff of employment leakages over time.

Table 4. OLS estimates for growth models (base model).

	Per Capita Income	**Employment**	**Population**
Constant	0.31 ***	−0.23 ***	0.15 ***
	(0.04)	(0.05)	(0.02)
Food Manuf. × WU	0.40 ***	0.40 *	−0.05
	(0.15)	(0.22)	(0.09)
Agritourism × WU	2.50 ***	2.17 **	−0.73 ***
	(0.81)	(0.92)	(0.28)
Creative Class × WU	−0.09 **	−0.13 **	0.02
	(0.04)	(0.05)	(0.02)
Outdoor Rec. × WU	−0.45	−0.05	−0.61 **
	(0.39)	(0.90)	(0.31)
Data Center × WU	2.03 **	−1.80	−0.46
	(1.01)	(2.32)	(0.73)
Food Manuf. Emp. Share	−0.03	−0.02	−0.02
	(0.03)	(0.04)	(0.02)
Agritourism Emp. Shr.	−0.70 ***	−0.60 ***	0.12
	(0.20)	(0.22)	(0.08)
Creative Class Emp. Shr.	−0.02	0.02	−0.01
	(0.02)	(0.02)	(0.01)
Outdoor Rec. Emp. Shr.	0.08	−0.07	0.09
	(0.09)	(0.24)	(0.08)
Data Center Emp. Shr.	−0.58 **	0.31	0.10
	(0.26)	(0.59)	(0.21)
(Food Manuf. × WU)^2	−7.12 **	−4.76	2.45
	(3.17)	(3.77)	(1.59)
(Food Manuf. × WU)^3	37.71	11.76	−13.85
	(24.26)	(26.24)	(11.07)
ln(Per Capita Inc.)	−0.02 ***	0.01 ***	−0.01 ***
	(0.00)	(0.00)	(0.00)
ln(Employment)	0.01 ***	−0.06 ***	0.02 ***
	(0.00)	(0.00)	(0.00)
ln(Population)	−0.01 ***	0.06 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)
% Bachelors	0.06 ***	0.04 **	−0.02
	(0.02)	(0.02)	(0.01)
% Seniors	0.61 ***	0.75 ***	0.00
	(0.21)	(0.22)	(0.17)
Trans. Exp. Per Capita	−0.00	−0.00	0.00
	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02 *	0.01	−0.02
	(0.01)	(0.02)	(0.01)
% Work out of County	−0.00	0.01 ***	−0.00 **
	(0.00)	(0.00)	(0.00)
Median Home Value	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.34 ***	−0.93 ***	−0.43 ***
	(0.12)	(0.20)	(0.16)
Observations	1718	1718	1718
R-squared	0.20	0.23	0.21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Across the five industries in each of the three equations, higher agritourism and data center employment shares are associated with lower per capita income growth, and agritourism with lower employment growth, but all other industries across the three equations are insignificant. Turning to the spatial interactions, food manufacturing and data centers increase per capita income growth with closer proximity to urban places. Higher shares of agritourism employment in closer proximity to urban places increase per capita income as well as employment growth but are also associated with lower population growth. Higher shares of creative class occupations are associated with lower growth rates of per capita income and employment the closer the rural community is to an urban area, and outdoor recreation is only associated with lower population growth. Some of these negative effects of the tourism industries may be due to the "get away effect" where urbanites seek destinations wholly different from their urban residences, meaning they may place higher values on more distant locations. We originally included accommodation as a catchall tourism industry, but found significant negative spatial interaction effects. Ensuing robustness checks will help clarify the results in the base model. The coefficients for data processing employment shares are not significant in any of the three equations.

4.2. Spatial Limits

The base model's spatial weight matrix measures the spatial influence of all urban areas in the sample on the rural county, but while further urban areas have less influence, this naïve assumption that all urban areas matter is unlikely to be true. To test this, we truncated the spatial weight matrix at 100, 300, and 500 miles, and re-estimated the models. For brevity, we include the full model results in the Appendix A (Table A1) and only focus on comparing the industry spatial interaction coefficients in Table 5.

Table 5. Comparisons of growth models across spatial radii distances †.

Spatial Radius of W	100 mile	300 mile	500 mile	Indefinite (Base)
Per Capita Income				
Food Manuf. × WU	2.02 *	0.95	1.09 **	0.40 ***
	(1.14)	(0.61)	(0.55)	(0.15)
Agritourism × WU	1.20	2.14	2.75 **	2.50 ***
	(1.12)	(1.38)	(1.16)	(0.81)
Creative Class × WU	−0.12	−0.12 *	−0.13 **	−0.09 **
	(0.08)	(0.07)	(0.06)	(0.04)
Outdoor Rec. × WU	−0.67	−0.76	−0.39	−0.45
	(1.61)	(1.16)	(0.81)	(0.39)
Data Center × WU	2.39	4.16 *	4.56 ***	2.03 **
	(1.48)	(2.15)	(1.70)	(1.01)
Employment				
Food Manuf. × WU	−0.15	0.39	0.42	0.40 *
	(1.53)	(0.89)	(0.74)	(0.22)
Agritourism × WU	2.00	2.10	2.66 **	2.17 **
	(1.38)	(1.46)	(1.22)	(0.92)
Creative Class × WU	−0.17 *	−0.15 *	−0.18 ***	−0.13 **
	(0.10)	(0.08)	(0.07)	(0.05)
Outdoor Rec. × WU	0.17	−0.01	1.28	−0.05
	(2.56)	(1.97)	(1.69)	(0.90)
Data Center × WU	5.45	3.17	0.28	−1.80
	(3.85)	(5.02)	(5.25)	(2.32)
Population				
Food Manuf. × WU	0.47	−0.02	−0.22	−0.05
	(0.58)	(0.36)	(0.30)	(0.09)
Agritourism × WU	−0.68	−0.82 *	−0.76 **	−0.73 ***
	(0.53)	(0.48)	(0.38)	(0.28)
Creative Class × WU	0.03	0.04	0.03	0.02
	(0.04)	(0.03)	(0.02)	(0.02)
Outdoor Rec. × WU	−2.75 ***	−2.12 ***	−1.41 **	−0.61 **
	(0.99)	(0.67)	(0.55)	(0.31)
Data Center × WU	0.61	−0.13	−0.61	−0.46
	(0.89)	(1.23)	(1.21)	(0.73)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses. † Full results in Appendix A.

The base model indicates that higher employment shares in food manufacturing, agritourism, and data centers increase growth in per capita income when in closer proximity to urban areas. When we limit W to only include urban areas within 100 miles, the positive effect from the rural–urban linkage in food manufacturing increases multiple times over while becoming insignificant for agritourism and data centers. This indicates that communities with high food manufacturing employment shares experience an additional rural–urban linkage benefit from being near urban areas. When the spatial radius is expanded to 300 mi., this benefit becomes insignificant, but it is once again significant at 500 mi. The reader will note this is the only industry where this occurs, and it is also the only industry that benefited from including higher-order quadratic expressions. This may indicate that there are multiple types of rural–urban linkages within food manufacturing that should be further explored.

Higher employment shares in agritourism generate positive benefits from rural–urban linkages in the form of per capita income and employment growth, but only for the 500 mi. and indefinite spatial radii. It appears there may be a getaway effect where urban consumers may desire agritourism destinations, like dude ranches, far away from the urban sprawl. In contrast, the rural–urban linkage benefits from data center employment on per capita income growth are likely due to cheaper land away from urban corridors.

The interaction between urban proximity and creative class employment shares shows lower growth rates in per capita income and employment. In fact, the results do not seem to change much across distance measures. As McGranahan et al. (2011) [4] found larger positive economic effects associated with the creative class when it was coupled with high rates of entrepreneurship, the present result may be due to this missing piece. While outdoor recreation employment shares are associated with lower population growth rates, the decreasing negative effect as the spatial radius grows suggests people may prefer to live in an urban area and travel to outdoor recreation rather than live in the rural community.

4.3. Urban Opportunities

Limiting rural–urban interactions to only include urban places with metro areas with more than a million people (U_1) sheds further light on the benefits of urban proximity. Comparing to the base model, Table 6 shows greater income and employment growth from food manufacturing and agritourism industries, and greater income growth from data centers, located near the largest of urban areas. That is, the larger the city, the more economic opportunities and the greater the potential benefits from rural–urban linkages on income and employment. However, it appears that larger urban areas also increase the negative effect of agritourism and outdoor recreation employment on population growth, showing that the impact of a large urban center need not be positive.

Table 6. Comparing OLS estimates for base and urban models †.

	Per Capita Income		**Employment**		**Population**	
	RUCC = 1	**RUCC ≤ 3 (Base)**	**RUCC = 1**	**RUCC ≤ 3 (Base)**	**RUCC = 1**	**RUCC ≤ 3 (Base)**
Food Manuf. × WU	1.17 ***	0.40 ***	1.33 **	0.40 *	−0.08	−0.05
	(0.38)	(0.15)	(0.60)	(0.22)	(0.26)	(0.09)
Agritourism × WU	6.07 **	2.50 ***	5.85 **	2.17 **	−2.02 **	−0.73 ***
	(2.96)	(0.81)	(2.85)	(0.92)	(0.90)	(0.28)
Creative Class × WU	−0.21	−0.09 **	−0.29 *	−0.13 **	0.07	0.02
	(0.13)	(0.04)	(0.16)	(0.05)	(0.06)	(0.02)
Outdoor Rec. × WU	−1.05	−0.45	−2.57	−0.05	−2.07 **	−0.61 **
	(1.13)	(0.39)	(2.75)	(0.90)	(0.97)	(0.31)
Data Center × WU	2.78 *	2.03 **	0.98	−1.80	−0.38	−0.46
	(1.60)	(1.01)	(5.76)	(2.32)	(1.32)	(0.73)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses. † Full results in Appendix A.

4.4. Rural Limits

Table 7 compares the base model to four increasingly rural subsets of US counties to explore how varying degrees of rurality influence the effect of rural–urban linkages across the industries and economic growth measures. While we treat these higher RUCC values as "increasingly rural," the reader should note the classification is not a perfect continuum due to the difficulty of defining rural at the county level. As rurality increases, the benefits from agritourism rural–urban linkages increase for both income and employment growth, while staying relatively constant (and negative) for population growth. The positive linkage effects of data centers on income growth also increase with rurality down to the most rural of places. However, not all industries are associated with more positive outcomes from rural–urban linkages as their communities become more rural. The positive effect on income from rural–urban linkages associated with food manufacturing disappears with greater rurality, and the creative class is associated with larger negative effects on income and employment with increasing rurality. Data centers follow a similar pattern as that of the creative class for employment growth.

Table 7. Comparisons of growth models across ruralities †.

Rurality	RUCC ≥ 5 (Base)	RUCC ≥ 6	RUCC ≥ 7	RUCC ≥ 8	RUCC ≥ 9
Per Capita Income					
Food Manuf. × WU	0.40 ***	0.37 **	0.35	0.49	0.31
	(0.15)	(0.16)	(0.27)	(0.30)	(0.39)
Agritourism × WU	2.50 ***	2.52 ***	2.89 ***	3.30 ***	3.49 ***
	(0.81)	(0.82)	(0.88)	(0.72)	(0.79)
Creative Class × WU	−0.09 **	−0.09 **	−0.10 *	−0.15 **	−0.21 **
	(0.04)	(0.04)	(0.06)	(0.07)	(0.09)
Outdoor Rec. × WU	−0.45	−0.86	−0.80	−1.83	−0.18
	(0.39)	(0.73)	(0.94)	(1.67)	(2.19)
Data Center × WU	2.03 **	2.32 **	2.74	4.50 ***	4.99 ***
	(1.01)	(1.08)	(1.85)	(1.25)	(1.05)
Employment					
Food Manuf. × WU	0.40 *	0.36	0.47	0.90 **	0.37
	(0.22)	(0.23)	(0.35)	(0.40)	(0.51)
Agritourism × WU	2.17 **	2.24 **	2.70 ***	2.84 ***	3.07 ***
	(0.92)	(0.89)	(0.85)	(0.65)	(0.62)
Creative Class × WU	−0.13 **	−0.16 ***	−0.18 ***	−0.21 ***	−0.28 ***
	(0.05)	(0.06)	(0.06)	(0.07)	(0.09)
Outdoor Rec. × WU	−0.05	1.19	1.17	−2.03	1.12
	(0.90)	(1.57)	(1.89)	(2.40)	(2.03)
Data Center × WU	−1.80	−1.47	−4.32 *	−7.07 ***	−7.32 ***
	(2.32)	(2.56)	(2.61)	(1.89)	(1.94)
Population					
Food Manuf. × WU	−0.05	−0.03	−0.06	0.11	−0.05
	(0.09)	(0.10)	(0.13)	(0.20)	(0.31)
Agritourism × WU	−0.73 ***	−0.76 ***	−0.75 **	−0.76 **	−0.64 *
	(0.28)	(0.28)	(0.30)	(0.33)	(0.39)
Creative Class × WU	0.02	0.02	0.03	0.02	0.01
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)
Outdoor Rec. × WU	−0.61 **	−0.55	−0.65	−1.31	−0.30
	(0.31)	(0.58)	(0.68)	(1.25)	(1.30)
Data Center × WU	−0.46	−0.11	−1.26	−1.47	−2.62
	(0.73)	(0.81)	(1.56)	(1.39)	(1.76)
Observations	1717	1628	1045	624	405

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses. † Full results in Appendix A.

5. Discussion and Conclusions

In this article, we seek to test the strength and limits of rural–urban linkages of five industries by measuring their impacts on rural per capita income, employment, and population. We define these industry rural–urban linkages as a function of industry employment share, urban proximity, and a set of exogenous variables, and use a county-level SLX Carlino–Mills conditional convergence model of growth to determine their economic influences. Due to the fuzzy definition of "rural" and the general lack of empirical evidence of economic flows from urban to rural communities, we test the base model results across five levels of rurality using the USDA's Rural Urban Continuum Code, two levels of urbanicity, and four spatial radii (i.e., distances within inverse distance weighting matrix).

Results suggest that between 2009 and 2016, rural–urban linkages developed through agritourism and data centers had the most potential to increase rural per capita income and employment for rural communities. The magnitude of the rural–urban linkage effects on the three economic outcome measures generally increased with greater urbanicity, but only agritourism and data processing exhibited any increasing benefits with greater rurality. While there are circumstances where food manufacturing seems to generate significant and positive rural–urban linkage effects, the outdoor recreation and creative class industries revealed small negative effects or no significant impact on income, employment, and population growth. The robust results for increases in per capita income from agritourism rural–urban linkages (and food manufacturing within 100 mi. of an urban center) may be the result of the USDA's push for improved local food systems as a rural development strategy. Internationally, there are related efforts to enhance local food systems and agrotourism [7]. This article provides research and develops an approach potentially applicable to their other context, as well. Regardless of the policy context, it appears that rural–urban linkages resulting from agritourism and data centers may be a substantial rural economic development tool to improve per capita income levels in rural counties. This result is useful both to researchers and to economic development practitioners more generally.

While this research is novel in its approach and alludes to important insight on rural economic development strategies, this article has several limitations that could be areas for future research (given data). First, while Deller et al.'s (2001) [15] adaptation of Carlino–Mills growth model is useful for examining trends in key indicators of economic growth and hence is a sensible approach for this article (the first two examine this topic), economic development professionals and researchers are often interested in distributional changes in income or other more specific measures such as property tax growth, fiscal stability, and housing. Second, regarding food manufacturing, more information may be disentangled from these results if different industry codes within food manufacturing are specified or if local food systems are better defined in the models. The negative effect of creative class and outdoor recreation rural–urban linkages may be driven by a getaway effect and be addressed by using banded spatial radii that exclude counties in closer proximity to urban centers. In addition, different tourism industries within the NAICS accommodation or recreation codes could be explored to identify the marginal effects of different types of tourism on rural economic outcomes. Third, data centers should be further explored with different specifications and robustness checks before confidently accepting its null finding in stimulating rural economic development. Finally, the results herein should be further explored in the international rural–urban context to determine the extent to which they are externally valid. It may be that the results are supported in higher-income countries, but less so in low-income countries.

Author Contributions: Conceptualization, A.V.S.; methodology, A.V.S. and C.W.C.; formal analysis, A.V.S.; resources, A.V.S. and C.W.C.; data curation, A.V.S.; writing—original draft preparation, A.V.S.; writing—review and editing, A.V.S. and C.W.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: All datasets used in this publication may be obtained by the corresponding author via email or through the data sources publicly available online (Table 2).

Acknowledgments: We would like to thank Stephan Weiler for the generosity he has displayed to his students and the regional economics discipline throughout the years. We are forever thankful for his support, friendship, and mentorship.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Full results for Table 5: Per Capita Income.

	Base	**100 mile**	**200 mile**	**300 mile**	**400 mile**	**500 mile**
Constant	0.31 ***	0.29 ***	0.29 ***	0.30 ***	0.30 ***	0.30 ***
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Food Manuf. × WU	0.40 ***	2.02 *	0.98	0.95	1.03 *	1.09 **
	(0.15)	(1.14)	(0.67)	(0.61)	(0.57)	(0.55)
Agritourism × WU	2.50 ***	1.20	0.87	2.14	2.39 *	2.75 **
	(0.81)	(1.12)	(0.73)	(1.38)	(1.36)	(1.16)
Creative Class × WU	−0.09 **	−0.12	−0.07	−0.12 *	−0.12 *	−0.13 **
	(0.04)	(0.08)	(0.06)	(0.07)	(0.07)	(0.06)
Outdoor Rec. × WU	−0.45	−0.67	−1.21	−0.76	−0.46	−0.39
	(0.39)	(1.61)	(1.11)	(1.16)	(0.93)	(0.81)
Data Center × WU	2.03 **	2.39	2.84 *	4.16 *	4.64 **	4.56 ***
	(1.01)	(1.48)	(1.64)	(2.15)	(2.12)	(1.70)
Food Manuf. Emp. Share	−0.03	−0.00	−0.01	−0.01	−0.01	−0.01
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Agritourism Emp. Shr.	−0.70 ***	−0.03	−0.03	−0.07	−0.09 *	−0.13 ***
	(0.20)	(0.08)	(0.08)	(0.05)	(0.05)	(0.04)
Creative Class Emp. Shr.	−0.02	−0.04 **	−0.04 **	−0.04 **	−0.04 **	−0.04 **
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Outdoor Rec. Emp. Shr.	0.08	−0.02	−0.02	−0.02	−0.02	−0.02
	(0.09)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Data Center Emp. Shr.	−0.58 **	−0.06	−0.07	−0.10 *	−0.13 **	−0.15 **
	(0.26)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
(Food Manuf. × WU)^2	−7.12 **	−152.46	−60.86	−58.30	−61.58 *	−64.44 **
	(3.17)	(108.80)	(48.07)	(38.51)	(33.63)	(31.16)
(Food Manuf. × WU)^3	37.71	2554.73	931.87	850.99	857.19 *	874.38 **
	(24.26)	(2038.26)	(820.37)	(576.62)	(475.05)	(425.02)
ln(Per Capita Inc.)	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Employment)	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Population)	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
% Bachelors	0.06 ***	0.05 **	0.05 **	0.05 **	0.05 **	0.05 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
% Seniors	0.61 ***	0.57 ***	0.57 ***	0.59 ***	0.60 ***	0.62 ***
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Trans. Exp. Per Capita	−0.00	−0.00	−0.00	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02 *	−0.02	−0.02	−0.02	−0.02	−0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
% Work out of County	−0.00	−0.00	−0.00	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.34 ***	−0.36 ***	−0.35 ***	−0.36 ***	−0.35 ***	−0.35 ***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Observations	1718	1718	1718	1718	1718	1718
R-squared	0.20	0.18	0.18	0.18	0.19	0.20

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A2. Full results for Table 5: Employment.

	Base	**100 mile**	**200 mile**	**300 mile**	**400 mile**	**500 mile**
Constant	−0.23 ***	−0.24 ***	−0.24 ***	−0.24 ***	−0.24 ***	−0.24 ***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Food Manuf. × WU	0.40 *	−0.15	0.22	0.39	0.47	0.42
	(0.22)	(1.53)	(1.08)	(0.89)	(0.77)	(0.74)
Agritourism × WU	2.17 **	2.00	1.18	2.10	2.28	2.66 **
	(0.92)	(1.38)	(0.97)	(1.46)	(1.42)	(1.22)
Creative Class × WU	−0.13 **	−0.17 *	−0.12	−0.15 *	−0.17 **	−0.18 ***
	(0.05)	(0.10)	(0.08)	(0.08)	(0.08)	(0.07)
Outdoor Rec. × WU	−0.05	0.17	0.15	−0.01	0.67	1.28
	(0.90)	(2.56)	(1.96)	(1.97)	(1.79)	(1.69)
Data Center × WU	−1.80	5.45	4.53	3.17	1.37	0.28
	(2.32)	(3.85)	(4.11)	(5.02)	(5.60)	(5.25)
Food Manuf. Emp. Share	−0.02	0.02	0.02	0.01	0.01	0.01
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Table A2. *Cont.*

	Base	100 mile	200 mile	300 mile	400 mile	500 mile
Agritourism Emp. Shr.	−0.60 ***	−0.03	−0.03	−0.06	−0.08	−0.12 **
	(0.22)	(0.08)	(0.08)	(0.06)	(0.05)	(0.05)
Creative Class Emp. Shr.	0.02	−0.01	−0.01	−0.01	−0.01	−0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Outdoor Rec. Emp. Shr.	−0.07	−0.08	−0.08	−0.09	−0.09	−0.10
	(0.24)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Data Center Emp. Shr.	0.31	−0.18 **	−0.19 **	−0.20 **	−0.19 *	−0.17
	(0.59)	(0.08)	(0.08)	(0.09)	(0.11)	(0.12)
(Food Manuf. × WU)^2	−4.76	26.77	−0.46	9.00	11.18	6.84
	(3.77)	(159.53)	(85.92)	(60.76)	(48.38)	(45.65)
(Food Manuf. × WU)^3	11.76	−452.89	−186.43	−445.33	−486.00	−352.23
	(26.24)	(3092.66)	(1519.93)	(973.45)	(729.47)	(670.34)
ln(Per Capita Inc.)	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Employment)	−0.06 ***	−0.06 ***	−0.06 ***	−0.06 ***	−0.06 ***	−0.06 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Population)	0.06 ***	0.06 ***	0.06 ***	0.06 ***	0.06 ***	0.06 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
% Bachelors	0.04 **	0.03	0.03	0.04	0.04	0.04 *
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
% Seniors	0.75 ***	0.71 ***	0.71 ***	0.73 ***	0.73 ***	0.75 ***
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Trans. Exp. Per Capita	−0.00	−0.00	−0.00	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	0.01	0.02	0.02	0.02	0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
% Work out of County	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.93 ***	−0.94 ***	−0.94 ***	−0.94 ***	−0.94 ***	−0.93 ***
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
Observations	1718	1718	1718	1718	1718	1718
R-squared	0.23	0.22	0.22	0.22	0.23	0.23

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A3. Full results for Table 5: Population.

	Base	100 mile	200 mile	300 mile	400 mile	500 mile
Constant	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Food Manuf. × WU	−0.05	0.47	0.05	−0.02	−0.13	−0.22
	(0.09)	(0.58)	(0.40)	(0.36)	(0.32)	(0.30)
Agritourism × WU	−0.73 ***	−0.68	−0.57	−0.82 *	−0.65	−0.76 **
	(0.28)	(0.53)	(0.43)	(0.48)	(0.46)	(0.38)
Creative Class × WU	0.02	0.03	0.03	0.04	0.03	0.03
	(0.02)	(0.04)	(0.03)	(0.03)	(0.03)	(0.02)
Outdoor Rec. × WU	−0.61 **	−2.75 ***	−2.26 ***	−2.12 ***	−1.61 ***	−1.41 **
	(0.31)	(0.99)	(0.80)	(0.67)	(0.58)	(0.55)
Data Center × WU	−0.46	0.61	−0.12	−0.13	−0.50	−0.61
	(0.73)	(0.89)	(1.20)	(1.23)	(1.34)	(1.21)
Food Manuf. Emp. Share	−0.02	−0.01 **	−0.01 *	−0.01	−0.01	−0.01
	(0.02)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Agritourism Emp. Shr.	0.12	−0.07 ***	−0.07 **	−0.06 **	−0.06 **	−0.05 *
	(0.08)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Creative Class Emp. Shr.	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Outdoor Rec. Emp. Shr.	0.09	−0.05 **	−0.05 **	−0.05 **	−0.05 **	−0.04 **
	(0.08)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Data Center Emp. Shr.	0.10	−0.03	−0.03	−0.03	−0.02	−0.01
	(0.21)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
(Food Manuf. × WU)^2	2.45	−34.23	7.86	17.48	26.40	30.58 *
	(1.59)	(68.41)	(34.43)	(25.20)	(19.99)	(18.38)
(Food Manuf. × WU)^3	−13.85	624.69	−202.90	−362.38	−486.46 *	−519.21 **
	(11.07)	(1370.45)	(628.04)	(400.79)	(294.65)	(263.40)
ln(Per Capita Inc.)	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Employment)	0.02 ***	0.02 ***	0.02 ***	0.02 ***	0.02 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Population)	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table A3. *Cont.*

	Base	100 mile	200 mile	300 mile	400 mile	500 mile
% Bachelors	−0.02	−0.01	−0.01	−0.01	−0.01	−0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
% Seniors	0.00	0.02	0.01	0.00	0.00	−0.00
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Trans. Exp. Per Capita	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02	−0.02	−0.02	−0.02	−0.02	−0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
% Work out of County	−0.00 **	−0.00 **	−0.00 **	−0.00 **	−0.00 **	−0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.43 ***	−0.44 ***	−0.44 ***	−0.44 ***	−0.44 ***	−0.44 ***
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Observations	1718	1718	1718	1718	1718	1718
R-squared	0.21	0.21	0.21	0.21	0.21	0.21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A4. Full results of Table 6.

	Per Capita Income			Employment			Population		
	U1	U2	Base	U1	U2	Base	U1	U2	Base
Constant	0.31 ***	0.31 ***	0.31 ***	−0.23 ***	−0.23 ***	−0.23 ***	0.15 ***	0.15 ***	0.15 ***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.02)	(0.02)	(0.02)
Food Manuf. × WU	1.17 ***	0.59 ***	0.40 ***	1.33 **	0.56 *	0.40 *	−0.08	−0.08	−0.05
	(0.38)	(0.20)	(0.15)	(0.60)	(0.30)	(0.22)	(0.26)	(0.13)	(0.09)
Agritourism × WU	6.07 **	3.28 ***	2.50 ***	5.85 **	3.10 ***	2.17 **	−2.02 **	−1.01 ***	−0.73 ***
	(2.96)	(1.16)	(0.81)	(2.85)	(1.20)	(0.92)	(0.90)	(0.37)	(0.28)
Creative Class × WU	−0.21	−0.13 **	−0.09 **	−0.29 *	−0.16 **	−0.13 **	0.07	0.04	0.02
	(0.13)	(0.06)	(0.04)	(0.16)	(0.07)	(0.05)	(0.06)	(0.03)	(0.02)
Outdoor Rec. × WU	−1.05	−0.67	−0.45	−2.57	−0.48	−0.05	−2.07 **	−1.08 **	−0.61 **
	(1.13)	(0.59)	(0.39)	(2.75)	(1.31)	(0.90)	(0.97)	(0.45)	(0.31)
Data Center × WU	2.78 *	2.45 *	2.03 **	0.98	−1.36	−1.80	−0.38	−0.46	−0.46
	(1.60)	(1.29)	(1.01)	(5.76)	(3.78)	(2.32)	(1.32)	(0.99)	(0.73)
Food Manuf. Emp. Share	−0.03	−0.03	−0.03	−0.02	−0.01	−0.02	−0.02	−0.01	−0.02
	(0.03)	(0.02)	(0.03)	(0.05)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)
Agritourism Emp. Shr.	−0.61 **	−0.64 ***	−0.70 ***	−0.58 **	−0.60 ***	−0.60 ***	0.12	0.11	0.12
	(0.25)	(0.19)	(0.20)	(0.24)	(0.20)	(0.22)	(0.09)	(0.07)	(0.08)
Creative Class Emp. Shr.	−0.02	−0.02	−0.02	0.02	0.02	0.02	−0.02	−0.02	−0.01
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Outdoor Rec. Emp. Shr.	0.07	0.09	0.08	0.13	−0.01	−0.07	0.12	0.12	0.09
	(0.10)	(0.10)	(0.09)	(0.24)	(0.23)	(0.24)	(0.08)	(0.07)	(0.08)
Data Center Emp. Shr.	−0.31 *	−0.49 **	−0.58 **	−0.26	0.08	0.31	0.01	0.06	0.10
	(0.16)	(0.23)	(0.26)	(0.54)	(0.66)	(0.59)	(0.14)	(0.20)	(0.21)
$(\text{Food Manuf.} \times \text{WU})^2$	−59.15 ***	−14.62 **	−7.12 **	−57.56 **	−11.14	−4.76	11.06	4.54	2.45
	(18.75)	(5.95)	(3.17)	(26.96)	(7.71)	(3.77)	(11.33)	(3.24)	(1.59)
$(\text{Food Manuf.} \times \text{WU})^3$	885.58 **	110.32 *	37.71	708.03	50.39	11.76	−134.34	−35.05	−13.85
	(357.67)	(62.05)	(24.26)	(488.77)	(75.84)	(26.24)	(199.59)	(31.42)	(11.07)
ln(Per Capita Inc.)	−0.02 ***	−0.02 ***	−0.02 ***	0.01 ***	0.01 ***	0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Employment)	0.01 ***	0.01 ***	0.01 ***	−0.06 ***	−0.06 ***	−0.06 ***	0.02 ***	0.02 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Population)	−0.02 ***	−0.01 ***	−0.01 ***	0.06 ***	0.06 ***	0.06 ***	−0.02 ***	−0.02 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
% Bachelors	0.05 ***	0.05 ***	0.06 ***	0.04 *	0.04 **	0.04 **	−0.02	−0.02	−0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
% Seniors	0.56 **	0.60 ***	0.61 ***	0.71 ***	0.74 ***	0.75 ***	0.02	0.01	0.00
	(0.22)	(0.21)	(0.21)	(0.22)	(0.22)	(0.22)	(0.17)	(0.17)	(0.17)
Trans. Exp. Per Capita	−0.00	−0.00	−0.00	−0.00	−0.00	−0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02 *	−0.02 *	−0.02 *	0.01	0.01	0.01	−0.02	−0.02	−0.02
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
% Work out of County	−0.00	−0.00	−0.00	0.01 ***	0.01 ***	0.01 ***	−0.00 **	−0.00 **	−0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.34 ***	−0.35 ***	−0.34 ***	−0.94 ***	−0.94 ***	−0.93 ***	−0.44 ***	−0.43 ***	−0.43 ***
	(0.12)	(0.12)	(0.12)	(0.20)	(0.20)	(0.20)	(0.16)	(0.16)	(0.16)
Observations	1718	1718	1718	1718	1718	1718	1718	1718	1718
R-squared	0.20	0.20	0.20	0.23	0.23	0.23	0.21	0.21	0.21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A5. Full results for Table 7: Per Capita Income.

	Base (R5)	R6	R7	R8	R9
Constant	0.31 ***	0.32 ***	0.33 ***	0.36 ***	0.52 ***
	(0.04)	(0.04)	(0.06)	(0.07)	(0.08)
Food Manuf. × WU	0.40 ***	0.37 **	0.35	0.49	0.31
	(0.15)	(0.16)	(0.27)	(0.30)	(0.39)
Agritourism × WU	2.50 ***	2.52 ***	2.89 ***	3.30 ***	3.49 ***
	(0.81)	(0.82)	(0.88)	(0.72)	(0.79)
Creative Class × WU	−0.09 **	−0.09 **	−0.10 *	−0.15 **	−0.21 **
	(0.04)	(0.04)	(0.06)	(0.07)	(0.09)
Outdoor Rec. × WU	−0.45	−0.86	−0.80	−1.83	−0.18
	(0.39)	(0.73)	(0.94)	(1.67)	(2.19)
Data Center × WU	2.03 **	2.32 **	2.74	4.50 ***	4.99 ***
	(1.01)	(1.08)	(1.85)	(1.25)	(1.05)
Food Manuf. Emp. Share	−0.03	−0.03	0.00	−0.00	0.17 **
	(0.03)	(0.03)	(0.05)	(0.05)	(0.09)
Agritourism Emp. Shr.	−0.70 ***	−0.71 ***	−0.83 ***	−0.90 ***	−0.92 ***
	(0.20)	(0.20)	(0.22)	(0.19)	(0.21)
Creative Class Emp. Shr.	−0.02	−0.02	−0.01	0.01	−0.01
	(0.02)	(0.02)	(0.02)	(0.03)	(0.04)
Outdoor Rec. Emp. Shr.	0.08	0.18	0.15	0.31	−0.14
	(0.09)	(0.17)	(0.22)	(0.38)	(0.52)
Data Center Emp. Shr.	−0.58 **	−0.66 **	−0.76	−1.11 ***	−1.25 ***
	(0.26)	(0.29)	(0.53)	(0.35)	(0.31)
(Food Manuf. × WU)^2	−7.12 **	−6.23 *	−6.65	−12.06 **	−23.58 ***
	(3.17)	(3.29)	(4.37)	(5.67)	(6.36)
(Food Manuf. × WU)^3	37.71	32.60	22.57	57.57 *	116.19 ***
	(24.26)	(24.59)	(27.93)	(33.74)	(36.95)
ln(Per Capita Inc.)	−0.02 ***	−0.03 ***	−0.03 ***	−0.03 ***	−0.04 ***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
ln(Employment)	0.01 ***	0.01 ***	0.01 ***	0.01 **	0.02 **
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
ln(Population)	−0.01 ***	−0.01 ***	−0.02 ***	−0.02 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
% Bachelors	0.06 ***	0.06 ***	0.07 ***	0.06 *	0.09 **
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
% Seniors	0.61 ***	0.61 ***	0.66 ***	0.54 **	0.48 **
	(0.21)	(0.22)	(0.23)	(0.24)	(0.23)
Trans. Exp. Per Capita	−0.00	−0.00	−0.00	−0.00 *	−0.00 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02 *	−0.03 *	−0.04 *	−0.02	−0.01
	(0.01)	(0.01)	(0.02)	(0.03)	(0.04)
% Work out of County	−0.00	−0.00	−0.00	−0.00	−0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.34 ***	−0.35 ***	−0.43 **	16.27 ***	20.07 ***
	(0.12)	(0.13)	(0.17)	(2.79)	(3.27)
Observations	1718	1629	1046	625	406
R-squared	0.20	0.21	0.22	0.29	0.40

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A6. Full results for Table 7: Employment.

	Base (R5)	R6	R7	R8	R9
Constant	−0.23 ***	−0.24 ***	−0.25 ***	−0.30 ***	−0.23 **
	(0.05)	(0.05)	(0.06)	(0.08)	(0.10)
Food Manuf. × WU	0.40 *	0.36	0.47	0.90 **	0.37
	(0.22)	(0.23)	(0.35)	(0.40)	(0.51)
Agritourism × WU	2.17 **	2.24 **	2.70 ***	2.84 ***	3.07 ***
	(0.92)	(0.89)	(0.85)	(0.65)	(0.62)
Creative Class × WU	−0.13 **	−0.16 ***	−0.18 ***	−0.21 ***	−0.28 ***
	(0.05)	(0.06)	(0.06)	(0.07)	(0.09)
Outdoor Rec. × WU	−0.05	1.19	1.17	−2.03	1.12
	(0.90)	(1.57)	(1.89)	(2.40)	(2.03)
Data Center × WU	−1.80	−1.47	−4.32 *	−7.07 ***	−7.32 ***
	(2.32)	(2.56)	(2.61)	(1.89)	(1.94)
Food Manuf. Emp. Share	−0.02	−0.02	0.00	−0.11 *	0.16
	(0.04)	(0.04)	(0.07)	(0.07)	(0.15)
Agritourism Emp. Shr.	−0.60 ***	−0.62 ***	−0.77 ***	−0.75 ***	−0.80 ***
	(0.22)	(0.22)	(0.21)	(0.18)	(0.18)
Creative Class Emp. Shr.	0.02	0.03	0.06 **	0.08 **	0.06
	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)
Outdoor Rec. Emp. Shr.	−0.07	−0.43	−0.45	0.32	−0.50
	(0.24)	(0.39)	(0.46)	(0.60)	(0.47)

Table A6. *Cont.*

	Base (R5)	R6	R7	R8	R9
Data Center Emp. Shr.	0.31	0.18	0.99	1.66 ***	1.67 ***
	(0.59)	(0.68)	(0.78)	(0.59)	(0.60)
(Food Manuf. × WU)^2	−4.76	−3.61	−6.80	−11.26	−23.92 **
	(3.77)	(4.00)	(5.33)	(7.80)	(9.71)
(Food Manuf. × WU)^3	11.76	3.99	16.20	50.67	117.54 **
	(26.24)	(27.56)	(33.43)	(45.52)	(54.50)
ln(Per Capita Inc.)	0.01 ***	0.01 ***	0.02 ***	0.02 ***	0.02 **
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
ln(Employment)	−0.06 ***	−0.06 ***	−0.06 ***	−0.06 ***	−0.07 ***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
ln(Population)	0.06 ***	0.06 ***	0.06 ***	0.06 ***	0.07 ***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
% Bachelors	0.04 **	0.03	0.02	−0.00	0.01
	(0.02)	(0.02)	(0.02)	(0.03)	(0.04)
% Seniors	0.75 ***	0.75 ***	0.62 ***	0.44	0.08
	(0.22)	(0.22)	(0.24)	(0.28)	(0.31)
Trans. Exp. Per Capita	−0.00	−0.00	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	0.01	0.01	−0.04	−0.04	0.00
	(0.02)	(0.02)	(0.03)	(0.04)	(0.09)
% Work out of County	0.01 ***	0.01 ***	0.01 **	0.01 *	0.01
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.02 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Corporate Tax Rate	−0.93 ***	−0.99 ***	−0.95 ***	12.24 ***	17.78 ***
	(0.20)	(0.21)	(0.24)	(2.93)	(3.71)
Observations	1718	1629	1046	625	406
R-squared	0.23	0.23	0.24	0.30	0.34

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

Table A7. Full results for Table 7: Population.

	Base (R5)	R6	R7	R8	R9
Constant	0.15 ***	0.15 ***	0.15 ***	0.14 ***	0.11 **
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)
Food Manuf. × WU	−0.05	−0.03	−0.06	0.11	−0.05
	(0.09)	(0.10)	(0.13)	(0.20)	(0.31)
Agritourism × WU	−0.73 ***	−0.76 ***	−0.75 **	−0.76 **	−0.64 *
	(0.28)	(0.28)	(0.30)	(0.33)	(0.39)
Creative Class × WU	0.02	0.02	0.03	0.02	0.01
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)
Outdoor Rec. × WU	−0.61 **	−0.55	−0.65	−1.31	−0.30
	(0.31)	(0.58)	(0.68)	(1.25)	(1.30)
Data Center × WU	−0.46	−0.11	−1.26	−1.47	−2.62
	(0.73)	(0.81)	(1.56)	(1.39)	(1.76)
Food Manuf. Emp. Share	−0.02	−0.02	0.01	−0.04	0.03
	(0.02)	(0.02)	(0.02)	(0.03)	(0.08)
Agritourism Emp. Shr.	0.12	0.13	0.12	0.12	0.08
	(0.08)	(0.08)	(0.08)	(0.10)	(0.12)
Creative Class Emp. Shr.	−0.01	−0.01	−0.01	−0.00	−0.02
	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)
Outdoor Rec. Emp. Shr.	0.09	0.06	0.09	0.19	−0.09
	(0.08)	(0.15)	(0.17)	(0.29)	(0.30)
Data Center Emp. Shr.	0.10	−0.02	0.33	0.32	0.75
	(0.21)	(0.24)	(0.48)	(0.47)	(0.58)
(Food Manuf. × WU)^2	2.45	2.14	1.18	0.26	−1.42
	(1.59)	(1.71)	(2.16)	(4.06)	(5.10)
(Food Manuf. × WU)^3	−13.85	−13.09	−10.92	−3.46	1.86
	(11.07)	(11.82)	(13.64)	(25.26)	(30.43)
ln(Per Capita Inc.)	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 ***	−0.01 *
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ln(Employment)	0.02 ***	0.02 ***	0.02 ***	0.02 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
ln(Population)	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***	−0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
% Bachelors	−0.02	−0.02 *	−0.02	−0.03	−0.04
	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)
% Seniors	0.00	−0.04	−0.04	0.01	−0.03
	(0.17)	(0.17)	(0.19)	(0.22)	(0.25)
Trans. Exp. Per Capita	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interstate Density	−0.02	−0.01	−0.04 **	−0.05 **	−0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)
% Work out of County	−0.00 **	−0.00 **	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table A7. *Cont.*

	Base (R5)	R6	R7	R8	R9
Median Home Value	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 **
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Corporate Tax Rate	−0.43 ***	−0.44 ***	−0.42 **	−5.76 ***	−4.51 **
	(0.16)	(0.16)	(0.18)	(1.58)	(2.16)
Observations	1718	1629	1046	625	406
R-squared	0.21	0.20	0.22	0.21	0.20

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses.

References

1. Hinch, T.D. Urban Tourism: Perspectives on Sustainability. *J. Sustain. Tour.* **1996**, *4*, 95–110. [CrossRef]
2. Pearson, L.J.; Pearson, L.; Pearson, C.J. Sustainable urban agriculture: Stocktake and opportunities. *Int. J. Agric. Sustain.* **2011**, *8*, 7–19. [CrossRef]
3. Rasoolimanesh, S.M.; Ringle, C.M.; Jaafar, M.; Ramayah, T. Urban vs. rural destinations: Residents' perceptions, community participation and support for tourism development. *Tour. Manag.* **2017**, *60*, 147–158. [CrossRef]
4. McGranahan, D.A.; Wojan, T.R.; Lambert, D.M. The rural growth trifecta: Outdoor amenities, creative class and entrepreneurial context. *J. Econ. Geogr.* **2010**, *11*, 529–557. [CrossRef]
5. Carlino, G.A.; Mills, E.S. The Determinants of County Growth. *J. Reg. Sci.* **1987**, *27*, 39–54. [CrossRef]
6. Irwin, E.G.; Isserman, A.M.; Kilkenny, M.; Partridge, M.D. A Century of Research on Rural Development and Regional Issues. *Am. J. Agric. Econ.* **2010**, *92*, 522–553. [CrossRef]
7. Duvernoy, I.; Zambon, I.; Sateriano, A.; Salvati, L. Pictures from the other side of the fringe: Urban growth and peri-urban agriculture in a post-industrial city (Toulouse, France). *J. Rural Stud.* **2018**, *57*, 25–35. [CrossRef]
8. Fan, C.C.; Scott, A.J. Industrial Agglomeration and Development: A Survey of Spatial Economic Issues in East Asia and a Statistical Analysis of Chinese Regions. *Econ. Geogr.* **2009**, *79*, 295–319. [CrossRef]
9. Yang, Z.; Cai, J.; Sliuzas, R. Agro-tourism enterprises as a form of multi-functional urban agriculture for peri-urban development in China. *Habitat Int.* **2010**, *34*, 374–385. [CrossRef]
10. Zasada, I.; Loibl, W.; Berges, R.; Steinnocher, K.; Köstl, M.; Piorr, A.; Werner, A. Rural–Urban Regions: A Spatial Approach to Define Urban–Rural Relationships in Europe. In *Peri-Urban Futures: Scenarios and Models for Land Use Change in Europe*; Springer: Berlin/Heidelberg, Germany, 2013; pp. 45–68.
11. Jablonski, B.B. Rural Development through Strengthened Rural-Urban Linkages: The Case of US Local Food Systems. In *Economic Development in Rural Areas: Functional and Multifunctional Approaches*; Dannenberg, P., Kulke, E., Eds.; Routledge: New York, NY, USA, 2016; pp. 69–82.
12. Snoxell, S. An Overview of the Literature on Linkages Between Communities. In *Building, Connecting and Sharing Knowledge: A Dialogue on Linkages between Communities*; Aspen Institute: Aspen, CO, USA, 2005; Volume 3.
13. Porter, M.E.; Ketels, C.H.; Miller, K.; Bryden, R. *Competitiveness in Rural US Regions: Learning and Research Agenda*; Institute for Strategy and Competitiveness—Harvard Business School: Boston, MA, USA, 2004.
14. Holland, D.; Lewin, P.; Sorte, B.; Weber, B. The Declining Economic Interdependence of the Portland Metropolitan Core and Its Periphery. In *Toward One Oregon: Rural-Urban Interdependence and the Evolution of a State*; Hibbard, M., Seltzer, E., Weber, B., Emshoff, B., Eds.; Oregon State University Press: Corvallis, OR, USA, 2011; pp. 79–99.
15. Deller, S.C.; Tsai, T.H.; Marcouiller, D.W.; English, D.B. The Role of Amenities and Quality of Life in Rural Economic Growth. *Am. J. Agric. Econ.* **2001**, *83*, 352–365. [CrossRef]
16. ERupasingha, A.; Goetz, S.J.; Freshwater, D. Social and institutional factors as determinants of economic growth: Evidence from the United States counties. *Pap. Reg. Sci.* **2005**, *81*, 139–155. [CrossRef]
17. Carpenter, C.W.; Loveridge, S. A spatial model of growth relationships and Latino-owned business. *Ann. Reg. Sci.* **2019**, *63*, 541–557. [CrossRef]
18. U.S. Department of Agriculture. News Release No. 0142.15. 2015. Available online: https://www.usda.gov/media/press-releases/2015/05/20/may-20-2015-secretary-vilsack-spoke-delegations-34-countries-part (accessed on 1 November 2021).
19. Jablonski, B.; Carolan, M.; Hale, J.; Thilmany, D.; Love, E.; Christensen, L.O.; Covey, T.; Bellows, L.L.; Cleary, R.; David, O.; et al. Connecting Urban Food Plans to the Countryside: Leveraging Denver's Food Vision to Explore Meaningful Rural–Urban Linkages. *Sustainability* **2019**, *11*, 2022. [CrossRef]
20. Van Sandt, A.; Carpenter, C.W. *A Note on the Locational Determinants of the Agricultural Supply Chain*; CES-WP-21-16; U.S. Census Bureau: Washington, DC, USA, 2021.
21. Gartner, W.C. A Perspective on Rural Tourism Development. *J. Reg. Anal. Policy* **2005**, *35*, 1–10.
22. Weiler, S.; Seidl, A. What's in a Name? Extracting Econometric Drivers to Assess the Impact of National Park Designation*. *J. Reg. Sci.* **2004**, *44*, 245–262. [CrossRef]
23. Florida, R. *The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life*; Basic Books: New York, NY, USA, 2002.

24. Van Sandt, A.; McFadden, D.T. Navigating the corn maze: Customizing travel cost models to value market segments in heterogeneous industries. *Tour. Econ.* **2020**, 1–21. [CrossRef]
25. Thilmany, D.; Sullins, M.; Ansteth, A. The 2006 Economic Contribution of Agritourism to Colorado: Estimates from a Survey of Colorado Tourists. Economic Development Report, No. 24. 2007. Available online: https://www.researchgate.net/publication/296463717_Economic_Contribution_of_Agritourism_to_Colorado (accessed on 2 November 2021).
26. Van Sandt, A.; Low, S.A.; Thilmany, D. Exploring Regional Patterns of Agritourism in the U.S.: What's Driving Clusters of Enterprises? *Agric. Resour. Econ. Rev.* **2018**, *47*, 592–609. [CrossRef]
27. Van Sandt, A.; Low, S.; Jablonski, B.; Weiler, S. Place-Based Factors and the Performance of Farm-Level Entrepreneurship: A Spatial Interaction Model of Agritourism in the U.S. *Rev. Reg. Stud.* **2019**, *49*, 428–453. [CrossRef]
28. Gigerich, L. Critical Factors: The Data Center Location Decision. Area Development. 2012. Available online: https://www.areadevelopment.com/siteSelection/April2012/data-center-location-decision-criteria-26255554.shtml/ (accessed on 1 November 2021).
29. Bell, M.M. The two-ness of rural life and the ends of rural scholarship. *J. Rural Stud.* **2007**, *23*, 402–415. [CrossRef]
30. Waldorf, B.; Kim, A. The Index of Relative Rurality (IRR): US County Data for 2000 and 2010. Purdue University Research Repository. 2018. Available online: https://purr.purdue.edu/publications/2960/about/1#citethis (accessed on 1 November 2021). [CrossRef]
31. Tolbert, C.M.; Sizer, M. *U.S. Commuting Zones and Labor Market Areas: A 1990 Update*; No. AGES-9614; United States Department of Agriculture (USDA): Washington, DC, USA, 1996.
32. Carpenter, C.W.; Van Sandt, A.; Loveridge, S. Measurement error in US regional economic data. *J. Reg. Sci.* **2021**, *62*, 57–80. [CrossRef]
33. Gibbons, S.; Overman, H.G. Mostly Pointless Spatial Econometrics? *J. Reg. Sci.* **2012**, *52*, 172–191. [CrossRef]
34. Vega, S.H.; Elhorst, J.P. The SLX Model. *J. Reg. Sci.* **2015**, *55*, 339–363. [CrossRef]
35. Partridge, M.D.; Rickman, D.S.; Ali, K.; Olfert, M.R. Lost in space: Population growth in the American hinterlands and small cities. *J. Econ. Geogr.* **2008**, *8*, 727–757. [CrossRef]
36. Glaeser, E.L.; Kohlhase, J.E. Cities, Regions and the Decline of Transport Costs. *Pap. Reg. Sci.* **2003**, *83*, 197–228. Available online: http://www.rri.wvu.edu/regscweb.htm (accessed on 1 November 2021). [CrossRef]
37. Bartik, T.J.; Biddle, S.C.; Hershbein, B.J.; Sotherland, N.D. *WholeData: Unsuppressed County Business Patterns Data*; Version 1.0 [dataset]; WE Upjohn Institute for Employment Research: Kalamazoo, MI, USA, 2018.
38. Carpenter, C.; Loveridge, S. Immigrants, Self-Employment, and Growth in American Cities. *J. Reg. Anal. Policy* **2017**, *47*, 100–109. Available online: https://jrap.scholasticahq.com/article/7840.pdf (accessed on 25 October 2021).
39. Deller, S.; Lledo, V. Amenities and Rural Appalachia Economic Growth. *Agric. Resour. Econ. Rev.* **2007**, *36*, 107–132. [CrossRef]
40. Barbieri, C. A comparison of agritourism and other farm entrepreneurs: Implications for future tourism and sociological research on agritourism. In Proceedings of the 2008 Northeastern Recreation Research Symposium, Bolton Landing, NY, USA, 30 March–1 April 2008; pp. 343–349.
41. Galinato, G.I.; Galinato, S.P.; Chouinard, H.H.; Taylor, M.R.; Wandschneider, P.R. Agritourism in Washington State: An Industry Profil. 2011. Available online: http://ses.wsu.edu/impact-center/wp-content/uploads/sites/2/2018/05/EM040E.pdf (accessed on 21 December 2021).
42. Rilla, E.; Hardesty, S.D.; Getz, C.; George, H. California agritourism operations and their economic potential are growing. *Calif. Agric.* **2011**, *65*, 57–65. Available online: http://californiaagriculture.ucanr.xn--orgapril-june201157-sh6k (accessed on 21 December 2021). [CrossRef]