

# Has COVID-19 made rural areas more attractive places to live? Survey evidence from northwest Missouri

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## Abstract

COVID-19 disruptions encouraged some rural regions to think about proactively attracting newly footloose residents—but would the pandemic make rural areas seem more attractive to potential return migrants? Using econometric analysis of survey data, we do not find evidence of this. To natives who had left the study region, attitudes about living in rural areas during COVID were lower on average than for those who stayed. We find, however, that owning a business and a stronger sense of belonging are both associated with positive attitudinal shifts towards rural living, which has practical implications for rural migration policy.

**Keywords:** *rural, return migration, COVID-19, survey, self-employment*

**JEL Classification:** O18, R23, R58

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## 1. Introduction

The SARS-CoV-2 coronavirus pandemic (hereafter ‘COVID-19’ or ‘COVID’) brought massive economic and social disruption to rural America in 2020 (Mueller et al., 2021). The pandemic may have opened the door for growth opportunities, however, as rural communities seemingly appeared more appealing to newly remote workers (Albrecht et al., 2020). Some rural leaders began to think about proactively attracting residents, hoping that a shift in preferences towards rural settings would provide new comparative advantages for entrepreneurs and teleworkers seeking a higher quality of life in rural America (Smith, 2020). Policymakers and rural advocates asked whether the pandemic would be severe enough to reverse the status quo of rural out-migration and offer new opportunities? What about in low-amenity rural areas?

The prospect of COVID-19 attracting residents enthralled rural leaders because rural areas without natural amenities have grappled for decades with population decline (McGranahan et al., 2010), which strains economic growth and jeopardizes hospital, school and even grocery store survival. A growing body of literature has found that migration to low natural amenity rural areas is driven primarily by attachments to place and family ties that supersede economic opportunities (Harrison, 2017; Niedomysl & Amcoff, 2011; von Reichert et al., 2011). Return migrants—those who migrate out and then migrate back to their original community—may represent not only the most likely migrant to low amenity rural areas but also important contributors to social and economic vitality (von Reichert et al., 2011, 2014a, 2014b).

To understand whether the pandemic influenced rural preferences, we examine reported changes in rural preference during the first summer and early autumn of the COVID-19 pandemic by migration status. We reconsider a familiar problem—attracting new residents to de-populating, low-amenity rural areas—in the context of a global pandemic, which greatly disrupted how individuals worked, traveled and interacted in groups. By surveying high school graduates of a predominantly rural region in the U.S. Midwest, both current and former residents, our study contributes quantitatively to prior return migration studies in rural America, which are primarily interview-based (von Reichert et al., 2011, 2014a, 2014b), with a focus on identifying actionable, short-term policy implications. Our study contributes to the discussion about how COVID-19 and its aftermath may affect migration and mobility in rural areas going forward.

After discussing antecedents and background information, we present our research questions and survey approach, hypothesizing that COVID-19 would increase preferences for living in a rural area, more so among those who had ever lived outside versus had never left their native region. A discussion of our survey data is followed by the empirical model, in which we test

our hypothesis using survey respondents’ prior migration status in probit regression analysis to examine the influence of COVID-19, demographic and occupational characteristics, and current sense of belonging on individuals’ attitudes about where they want to live.

We do not find evidence that COVID-19 made rural places seem more attractive to those who had ever lived outside the study region, a disappointing result for rural leaders. Regression results, however, suggest rural attitudes increased for entrepreneurs. Thus, return migration to the study region could be enhanced by carefully targeting policy efforts at entrepreneurs and, potentially, families with young children, who have ties to the region. We also find that building social capital—a sense of belonging—may enhance rural living perceptions. We conclude with a discussion of the implications for scholars, decision-makers and community economic development practitioners.

## 2. Background

### 2.1 Migration in the Rural United States

Population growth consists of two core components: natural increase and net in-migration. Natural increase refers to a surplus of births over deaths, while net migration refers to the change in resident population after accounting for migration into and out of the region (Johnson & Beale, 1994). For most of the twentieth century, natural increase in U.S. rural counties created modest population growth, despite low or negative net migration (Johnson & Cromartie, 2006). As in much of Europe, natural change in parts of rural America is now negative; as such, regional migration patterns are increasingly critical to the total population and future vitality of these communities (Johnson & Lichter, 2019).

The U.S. has experienced waves of migration into and out of rural areas (Johnson & Fuguitt, 2000). Rural communities with desirable natural amenities and access to nearby population and employment centers were more likely to attract new and returning migrants (Chen & Rosenthal, 2008; McGranahan, 1999), and more likely to foster entrepreneurial ventures that create a vibrant rural economy (McGranahan et al., 2011). Urban-rural migration flows have been affected by industrial decentralization, energy resource development, urban expansion, and natural and social amenities (Kruger et al., 2010; Radeloff et al., 2005; Sherman, 2021). Rural communities also experienced dramatic influxes and outflows of residents corresponding with large employer location decisions (Broadway & Stull, 2006; Crowley & Knepper, 2019) and the boom-and-bust cycles that center around natural resource extraction (Brasier et al., 2011; Gilmore, 1976; Keough, 2015).

Beyond external factors, individual characteristics can also shed light on rural migration trends. The life-course theory of migration observes that a person’s likelihood of living in a rural area

fluctuates by age (Lee, 1966; von Reichert et al., 2014b). Individuals are most likely to leave rural areas for educational and early career opportunities, they are more likely to return as they settle down and raise a family, or soon after retiring. As an individual reaches an advanced age, they may migrate out of rural areas to seek adequate healthcare (Plane & Jurjevich, 2009). Although higher education levels explain much of the rural to urban migration (Weber et al., 2007), increased mobility and quality of life residential preferences have pulled people into rural areas (Renkow & Hoover, 2000). Job opportunities are often a primary motivator for people who choose to stay in rural areas, emphasizing the importance of local economic development in creating these opportunities (Vazzana & Rudi-Poloshka, 2019).

Several studies have found that a lower cost of living motivated rural in-migration decisions (Bijker et al., 2012; Fitchen, 1995). Other individuals choose to migrate to a more rural setting based on previous experiences of living in rural areas (Feijten et al., 2008; Gkartzios & Scott, 2009). It is important to note, however, that the relationship between rural and urban areas is complex and region-specific; thriving urban areas are more likely to, but do not automatically, create opportunities and contribute to population growth in their surrounding rural regions (Olson & Munroe, 2012). Moreover, migrant motivations can be difficult to discern, as many people report intertwined reasons in interviews (Harrison, 2017; Parr, 2019) and surveys (Niedomysl & Amcoff, 2011; R  rat, 2016).

## 2.2 Rural Return Migration

Return migration—or reverse migrants, individuals who migrate out and then migrate back to their origin communities—is of interest to rural leaders as it can mitigate local population decline or even lead to population growth, boosting an otherwise stagnant rural economy, (see, for example, Deller et al., 2001; McGranahan, 1999; Nelson, 1999, 2005). Rural return migration remains a smaller area of study; work in this space has examined the migration impacts of entrepreneurship, differential wages, social ties and household influences, life cycle, geography and networks. Through a combination of methods, a more nuanced view of who returns and who stays in rural communities (and why) is emerging, broadening our understanding of trends, motivations and possible policy implications.

Theoretical and empirical work underpinning reverse migration has identified a range of motivating factors. Neoclassical theory emphasized economic choices and framed returners as failed migrants who were unable to find adequate wages in new locations (Todaro, 1969). New economics of labor theories, however, view a return as a calculated strategy, to prioritize household needs over individual needs or after accomplishing an income goal that motivated a move (Casarino, 2004). Other theories deepen the complexity of motivation by considering place factors, including social relationships and broader community structures, environmental characteristics

and recreational opportunities (Morse & Mudgett, 2018). Many studies found returners are often motivated by social reasons (Niedomysl & Amcoff, 2011) or have experienced a more positive sense of place and formed deeper attachments to their communities (Stockdale, 2002; Ulrich-Schad et al., 2013). Within the return migration literature, some studies have attempted to understand what, if anything, policymakers could do to encourage population retention and growth in places facing persistent decline. Low-amenity areas are more likely to attract return migrants because of ties to families and places (von Reichert et al., 2011) and education may enhance these ties (Sowl et al., 2021). These ties persist even for areas widely seen as ‘undesirable’ because of their population decline and lack of employment (Harrison, 2017). Some returners are forced home when other employment opportunities do not materialize, or family obligations supersede the individual’s desires, consistent with a neoclassical perspective of returners as failed migrants (Cassarino, 2004; Pekkala, 2003).

### 2.3 COVID-19, Migration and Rural Entrepreneurship

The COVID-19 pandemic upset business activity, labor markets and traditional domestic migration flows. As employers increasingly allowed skilled workers to telework, stories about a rural migration reversal became prevalent, although Whitaker (2021) showed *ex-post* that the urban out-migration on net was far from an exodus. Around the time our survey went into the field, service sectors had unprecedentedly high 30% unemployment rates (Falk et al., 2020), while one-third of the U.S. workforce worked entirely from home—double pre-pandemic rates (Bick et al., 2020; Brynjolfsson et al., 2020). Using occupation codes to estimate the percentage of jobs that could be completed at home, White and Spell (2020) found for Missouri that the share of jobs that could be done from home was lowest in rural counties, suggesting remote work might disadvantage rural areas. The pandemic accelerated a push for rural broadband availability and adoption, and setting-up rural businesses for remote work and e-commerce and new entrepreneurial efforts would maximize the economic benefits of rural broadband (Isley & Low, URev). Indeed, high-speed internet access in rural areas is increasingly relevant for entrepreneurship across industries (Deller et al., 2021), firm size and especially in remote-rural areas (Conroy & Low, 2021a).

In rural areas, pandemic-induced social distancing and economic restrictions were more lenient than in urban areas, making it easier for nascent entrepreneurs to establish a business and find new customers—this also made doing business in a rural area comparatively advantageous. By late-2020, U.S. business applications for establishments likely to have paid employees had surged, far exceeding year-ago levels (Brown, 2020). Although official business dynamics data will not be released for several years, it appears many turned to entrepreneurship during the downturn. When wage and salary employment options are thin, self-employment has been shown to offer a promising alternative in rural areas (Low & Weiler, 2012) and place-based entrepreneurship

policy and programs have benefited rural areas and rural entrepreneurial ecosystem building efforts (Conroy & Low, 2021b).

A body of work indicates that returned migrants have higher entrepreneurial tendencies. Migration generally allows individuals to accumulate business acumen and financial capital, which they bring home, increasing their entrepreneurial potential; however the impact of leaving and then returning on social capital is mixed (Black & Castaldo, 2009; Deller et al., 2019; Wahba & Zenou, 2012).

### 3. Research Questions and Survey Approach

Will rural migration and mobility be affected by COVID-19? Would entrepreneurs and remote workers shift their living preferences towards rural settings? Did regional and household characteristics affect changes in rural preferences during COVID-19? Grounded in prior research, we hypothesized that return migration choices in our low natural amenity study region were driven by social and familial ties, rather than economics. We further hypothesized that relative to those who had never left the study region, COVID-19 would increase preferences for living in a rural area, because having lived elsewhere rurality seemed more appealing. We hypothesized this would be especially true among people with children at home or retirees, as Cromartie et al., 2015 found these groups were most likely to return to rural areas. Further, these groups may be more fearful of dense urban spaces during the COVID-19 pandemic than age groups less susceptible to the disease.

#### 3.1 Survey Approach

At the beginning of the COVID-19 pandemic, leaders in the study region asked us to help them seek input on how to attract newly footloose workers who might relocate to the region now that they were working remotely. Leaders hypothesized that the region’s low cost of living, proximity to Kansas City, and friendly small towns would be attractive to remote workers. No one was sure, however, how COVID-19 would influence the preferences of potential in-migrants.

The empirical research on rural migration led us to suggest that data collection efforts focus on the potential of return migrants. We developed and conducted a 25-question survey in partnership with a variety of stakeholders representing regional planning commissions, economic development organizations, and city leaders across the 18-county region. One goal of the survey—and the aim of this analysis—was to understand the motivations of migrants into and out of the study region, a low amenity rural area, and how those motivations may have changed due to COVID-19.

The survey asked about quality of life preferences, migration attitudes and perceptions regarding the COVID-19 pandemic. We used a convenience sampling survey approach to reach current residents and high school alumni, capturing a mix of migration choices and age groups. The survey

was advertised by community partners through social media, radio, television and newspaper articles across the region. Word-of-mouth and social media aided in reaching high school alumni who had migrated outside of the region.

### 3.2 The Study Region: Northwest Missouri

The 18 counties that comprise the Northwest Missouri study region (hereafter, NWMO) include 15 non-metropolitan counties, defined as having no urban areas over 50,000 and no significant commuting to such an urban area (see maps in [Figures 1 and 2](#)). The three remaining counties are part of the Metropolitan Statistical Area (metro) surrounding St. Joseph, Missouri. According to the 2020 U.S. Census, St. Joseph had a population of 72,473, a 5.6% decrease from 2010. In comparison, over the same decade on average, U.S. metro areas grew 8.8% and non-metro areas shrank by 0.6% (Dobis et al., [2021](#)). Like much of the U.S. Midwest, the study region has seen slow population growth and rural population decline over the past two decades (Eathington, [2010](#); White, [2021](#)). The northern edge of the region is bordered by Iowa, while western counties border the Missouri River, which divides Missouri from Kansas and Nebraska. The region is culturally and geographically similar to the upper Midwest with little recreational water access, flat land featuring few trees, planted in soybeans and corn, and hot, humid summers paired with cold winters, ranking it low in McGranahan’s (1999) natural amenities scale—and less attractive to migrants.

The relative differences between the counties within the NWMO region and the counties where survey respondents who grew up in the region and left now live, so-called *Leavers*, are available in Appendix [Table A.1](#). Relative to the other counties represented in the survey, the NWMO region features lower natural amenities, fewer college graduates and lower per capita personal incomes. The region is predominantly white (95%) and relatively dependent upon farming employment (16%), in part because there are relatively few towns with population greater than 2500 residents (see [Figure 2](#)).

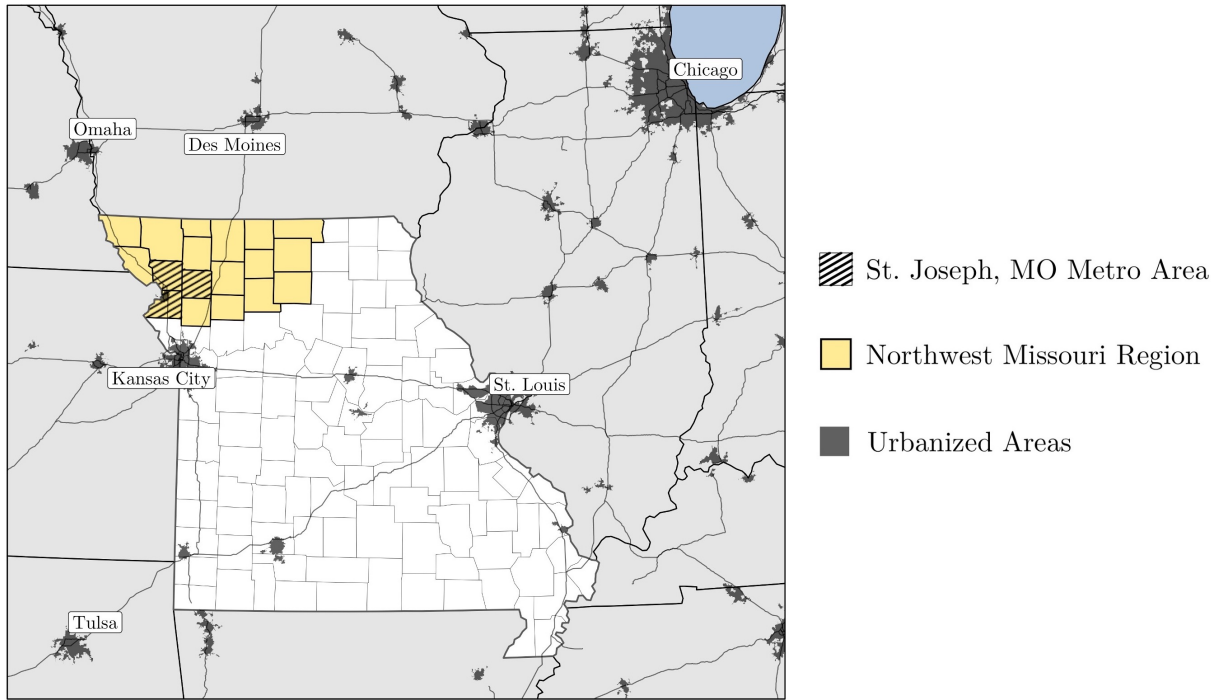
## 4. Data

### 4.1 Survey Respondents

The survey, conducted online using *Qualtrics*, was completed by 1941 respondents, with total of 1677 responding to *all* of the questions used in our analysis. To reach people who no longer lived in the region, leaders reached-out through secondary school alumni group Facebook pages. Leaders also consciously attempted to engage younger people, to strengthen our convenience sample. The survey was open July 14 through September 30, 2020. Respondents were predominantly



Figure 1: The 18-County Study Region, Northwest Missouri



*Notes:* Urbanized Areas are defined by the U.S. Census Bureau as having a population over 50,000; Metropolitan areas are comprised of counties and defined by the U.S. Office of Management and Budget.

women (75%) and reflect individuals with internet access and who are likely more active on social media.<sup>1</sup>

## 4.2 Respondents Migration Status and Outcome Variable Summary

Survey respondents were categorized into four migration statuses: *Stayer*, *Leaver*, *Returner* and *In-Migrant*, based on responses to questions that asked about their relationship to the NWMO region. Most respondents were *Stayers*, which we define as having graduated from high school in NWMO and remaining in the region up until completing the survey. [Table 1](#) gives the distribution of respondents that fall into each migration category and summarizes how each

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<sup>1</sup>We provided weekly survey totals by county to leaders within the region to encourage the group to keep promulgating the survey's availability. These summaries tallied how many respondents lived in the region compared to those that had moved away, as well as the ages of respondents.

Responses may be biased by the survey's distribution and the community leaders who were promoting it as a way to collect attitudes about community-building and priority-setting. Some community leaders described how they intentionally reached out to pessimists in the community and invited their comments and feedback to help improve the community. Reviewing the responses to open-ended questions about concerns for the community's future and best and worst attributes of the community revealed a range of community feelings both positive and negative. The survey instrument is available on our research website: URL redacted for double-blind peer review, but was provided to the editor.



Table 1: Outcome Variable Response by Migration Status

*1 = “Yes, I value living in a less populated area more than I did before [the COVID-19 pandemic].”*

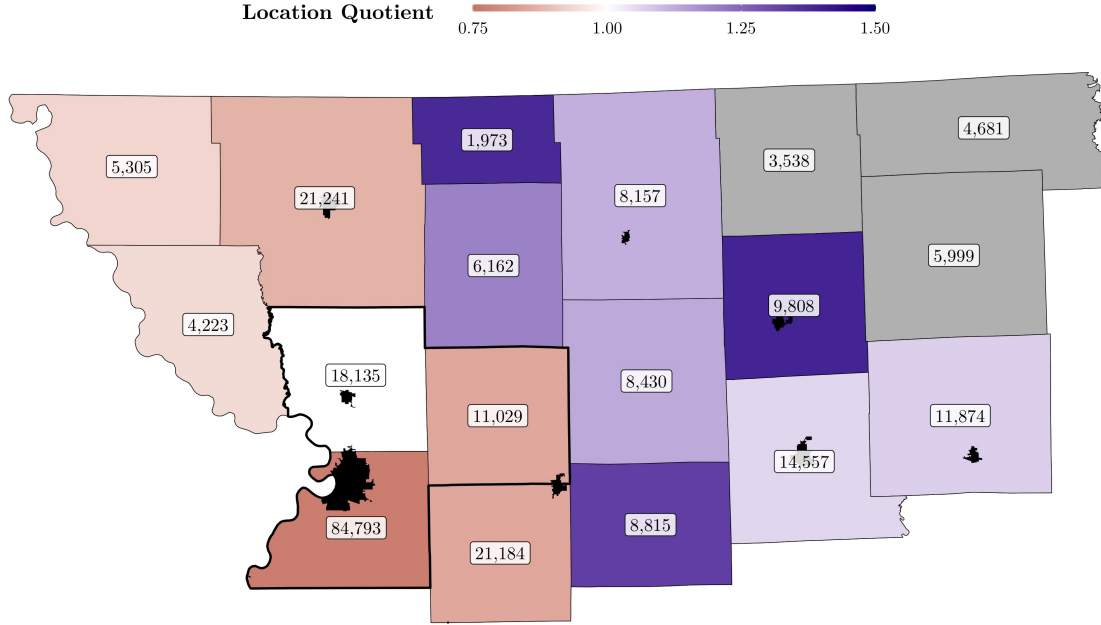
Migration Status	# of Responses	% of Responses	# Affirmative	% Affirmative
Stayer	763	45.5%	347	45.5%
Returner	396	23.6%	192	48.5%
In-Migrant	363	21.6%	170	46.8%
Leaver	155	9.2%	29	18.7%
Total	1677	100%	738	44%

group responded to the question that is our outcome variable, *Rural*: “Yes, I value living in a less populated area more than I did before [COVID-19]” Around 45% of *Stayers*—just under half—answered that they valued living in a less populated area more than they did before the COVID-19. *Returners*, which we define as having graduated from high school in NWMO, lived outside the region afterwards at some point, and currently live in NWMO, answered the question affirmatively at a similar rate, and accounted for the second-most responses (24%). *In-Migrants*, defined as having graduated from high school outside NWMO and currently residing in NWMO, were the third largest group of respondents (22%) and answered the question for our outcome variable similarly to the other two groups (i.e., 45-48% affirmative), suggesting the pandemic had a similarly positive impact on rural living preferences among those who had never left the region compared to those who had lived elsewhere and now live in the region. *Leavers*, those who graduated from high school in NWMO and now live outside the region, were the smallest migration category among the respondents at just over 9%. Interestingly, the *Leavers* had the lowest proportion of respondents that indicated a positive shift toward more rural preferences following the emergence of the pandemic (19%). Thus, potential return migrants were least likely to value rural living more due to the pandemic—less than half as likely as those already living in NWMO.

Although the study region is largely rural, responses to our variable of interest varied spatially. The western-most counties were all at or below the regional average (i.e., less likely to value rural living due to COVID-19) in a location quotient ([Figure 2](#)). The western half of the region has better access to urban amenities, i.e., Kansas City, St. Joseph and four-lane motorways ([Figure 1](#)), which may explain lower rural perceptions after the pandemic. This suggests self-sorting—those who liked rural living liked it even more during the pandemic. Noting the higher likelihood of yes responses within the region from respondents further from urban amenities, we include a metropolitan control variable in our empirical model.

Figure 2: Distribution of Outcome Variable as a Share of County Respondents (LQ)

*Outcome Variable: "Yes, I value living in a less populated area more than I did before"*



Notes: Grey shading indicates 10 or fewer responses from a county; Urban Areas in black have populations over 2500, as defined by the U.S. Census Bureau; county population labeled, metropolitan counties in bold outline

### 4.3 Why Respondents Live Where they Live

In addition to gauging respondents' attitudes toward rural migration, our survey also asked a series of questions regarding individuals' motivations for their current migration status. *Stayers*, *In-Migrants* and *Leavers* were all asked, "Which of the following reasons contributed to your decision to stay in the region/move into the region/leave the region?" *Returners* were asked a series of three questions: Which of the following reasons contributed to your decision to leave the region?; Which of the following reasons contributed to your decision to move back to the region?; Which of the following reasons were the primary reason you chose to move back to the region? Given the complexity behind migration choices, most of the questions allowed multiple responses. [Table 2](#) contrasts motivations across migration groups for all respondents who answered this question. Previous motivations are useful benchmarks as we consider the research question, whether COVID changed rural preferences by migration status.

Respondents indicated they make migration choices not just for themselves but as households; 40% of all *In-Migrants* noted that the decision to "support my spouse" was a motivating factor to move into the region, smaller and similar percentages of *Stayers* and *Leavers* noted the same motivation, while *Returners* were the least likely to select this reason. With 95% of northwest

Missouri residents identifying as white, 20% of *Leavers* noted that diversity and inclusiveness were motivating factors for their out-migration. Although *Leavers* on average now live in higher amenity places, climate and geography were not as often selected.

#### 4.3.1 *Leaver Motivations: Employment and Educational Opportunities*

Consistent with previous empirical studies, wage or salary job opportunities was the most commonly cited contributing factor to why people left NWMO, (67% of *Leavers*, 56% of *Returners*). The second most common motivation for leaving was educational opportunities. Notably, 9% of *Stayers* and *In-Migrants* also cited this as a motivation for staying/in-migrating. The 18-county region contains two post-secondary colleges that grant two-year degrees and two four-year universities. Other employment opportunities including *entrepreneurship and business ownership* as well as *support a family business* were more commonly cited by *Stayers* and *In-Migrants* than *Leavers*. Military service was a common write-in response, and given that rural counties tend to send higher shares of their youth into military service, it would have been beneficial to include this as a stand alone option.

#### 4.3.2 *Returner and In-Migrant Motivations: Family Ties and Sense of Place*

Consistent with previous findings, return migrants were more likely to be motivated to be near family and friends; 80% of *Returners* listed this as a motivation and 57% as the primary motivation. The next most commonly cited reason, *Want my kids to grow up like I did*, indicated a nuanced attachment to place that likely includes community structures, rural lifestyle and educational institutions. Notably, 20% of *Returners* indicated that they, *Always knew I wanted to return* as a motivating factor. In comparison, 46% of *Stayers* selected, *Always knew I wanted to stay* as a contributing factor and 14% of *leavers* reported they *Always knew I wanted to leave*.

*In-Migrants* more frequently identified a household rather than individual consideration, as 40% reported *Support my spouse*. The next two most common responses show a split between household and social considerations, *To be near family and friends*, which we infer may result from marriage, and economic considerations, *Wage and salary job opportunities*. Responses also suggest that those surveyed have lived in rural and perhaps low-amenity places before, as 8% indicated *Want my kids to grow up like I did* and 7% chose *Climate and geography*.

#### 4.3.3 *Stayer Motivations: Family Ties and Continuity*

The strongest motivations for staying in the region included proximity to family and friends, raising children as they were raised, and the ability to engage in their community. These suggest that personal preferences were the primary motivation to stay. A smaller share of respondents selected *support my spouse* or *support a family business*, both indicate that they were placing household and family needs first. The survey did not directly ask about an inability to migrate.

Table 2: Survey Respondents' Motivations for Migration Behavior

**Reasons for staying (%) (n = 1,008)**

To be near family and friends	84	Faith-based opportunities	9
Want my kids to grow up like I did	46	Educational opportunities	9
Engagement in my community	26	Entrepreneurship opportunities	8
Support my spouse	23	Climate and geography	6
Always knew I wanted to stay	23	Diversity and inclusiveness	1
Support a family business	15	Other	2
Wage or salary job opportunities	14		

**Reasons for in-migrating (%) (n = 453)**

Support my spouse	40	Climate and geography	7
To be near family and friends	29	Support a family business	6
Wage or salary job opportunities	28	Engagement in my community	6
Entrepreneurship opportunities	9	Always knew I wanted to move to the region	2
Educational opportunities	9	Diversity and inclusiveness	1
Want my kids to grow up like I did	8	Other	13
Faith-based opportunities	7		

**Reasons for leaving (%) (n = 203)**

Wage or salary job opportunities	67	Entrepreneurship opportunities	4
Educational opportunities	36	Climate and geography	4
Support my spouse	24	Faith-based opportunities	2
Diversity and inclusiveness	20	Support a family business	1
Always knew I wanted to leave	14	Engagement in my community	0
Want my kids to grow up like I did	13	Other	8
To be near family and friends	9		

**Reasons for returning (%) (n = 518)**

To be near family and friends	80	Entrepreneurship opportunities	5
Want my kids to grow up like I did	32	Educational opportunities	4
Wage or salary job opportunities	20	Climate and geography	3
Always knew I wanted to come back	20	Faith-based opportunities	2
Engagement in my community	14	Diversity and inclusiveness	1
Support my spouse	13	Other	6
Support a family business	8		

Table 3: Summary Statistics: Analysis Variables by Migration Status

	Stayers, Returners, and In-Migrants		Leavers	
	Mean	Std. Dev.	Mean	Std. Dev.
COVID-19 Changed Rural Living Preference <sup>a</sup>	0.47	0.5	0.19	0.4
Identifies as Female	0.78	0.41	0.66	0.47
Age	50.7	14.2	48.8	14.4
Has Child(ren) in Household	0.44	0.5	0.34	0.48
Has Other Adult(s) in Household	0.75	0.44	0.75	0.44
Retiree	0.17	0.38	0.13	0.34
Self-Employed Business Owner	0.11	0.31	0.09	0.29
Works in Family Business	0.03	0.17	0.02	0.13
Not Employed, Seeking Work	0.01	0.11	0.01	0.08
Not Working, Not Seeking Work	0.02	0.15	0.04	0.19
Works Remotely	0.05	0.23	0.1	0.3
Employed in the Region, Not a Family Business	0.53	0.5	0.47	0.5
Feels Sense of Belonging in Current Community	0.72	0.45	0.69	0.46
Lives in a Metropolitan Area <sup>b</sup>	0.28	0.45	0.85	0.36
Local COVID-19 Mortality Rate, 15-Day Average <sup>c</sup>	0.12	0.32	0.22	0.42
	N = 1,522		N = 155	

Notes: All variables are from the survey unless otherwise noted and all variables except the COVID-19 mortality rate have a minimum of zero and a maximum of one.

<sup>a</sup>: Dependent variable, indicates response of: “*Yes, I value living in a less populated area more than I did before*” the COVID-19 pandemic.

<sup>b</sup>: U.S. Office of Management and Budget data, 2013.

<sup>c</sup>: NY Times GitHub data: *Cumulative Cases and Deaths*, 2021. Minimum value was zero and the maximum value was 2.65 deaths per 100K, in the 15 days prior to the survey being taken, in the respondent’s county.

## 5. Empirical Model

We employ a maximum likelihood design to estimate the probability that a given survey respondent will answer: “Yes, I value living in a less populated area more than I did before,” when asked if the COVID-19 pandemic changed their attitude about where they want to live, designated by  $RURAL_i$ . We estimate the following reduced-form probit regression model:

$$p(RURAL_i = 1) = f(\beta_0 + \beta_1 MIGR_i + \beta_2 SEX_i + \beta_3 2AGE_i + \beta_4 AGE_i^2 + \beta_5 EMP_i + \beta_6 HH_i + \gamma_i + \phi_i + \epsilon_i) \quad (1)$$

where independent variables include:  $MIGR_i$ , which is a vector of migration status (*Leavers*, *In-Migrants*, or *Returners*, with *Stayers* as the omitted condition, as summarized in [Table 1](#));  $SEX_i$  denotes that the respondent identified as female;  $AGE_i$  (in decades) and its square,  $AGE_i^2$ , to capture its nonlinear nature;  $EMP_i$  is a vector of employment status for which respondents can only select one option (employed in a wage and salary job, retiree, self-employed, works for a family-owned business, not employed but seeking employment, i.e., unemployed, not working and not seeking work, working remotely for a business located outside NWMO); and  $HH_i$  is a vector of household characteristics (children, other adults in the household).  $\gamma_i$  is a fixed-effect term for the month a respondent took the survey, which may correspond with a waning sense of urgency about the pandemic between the survey opening in July and closing on September 30, 2020. Finally,  $\phi_i$  is a vector corresponding to the respondent’s current county, including the COVID death rate two weeks prior to the survey being taken and the metropolitan area dummy indicator. Variable descriptions and summary statistics are available in [Table 3](#), pooled by migration status used in the empirical analysis.

For respondents living in NWMO, population weights based on two strata—current county and gender—were used as survey responses did not correspond with the existing distribution of population throughout the region. For instance, responses varied by geography, as a function of the convenience sampling. Buchanan County accounted for 34.5% of the region’s population but only 11.1% of survey responses, whereas Linn County accounted for nearly 20% of survey responses but contains only 4.7% of NWMO’s population ([Figure 2](#)). Population weights were not calculated for *Leavers* as they live outside the region and no administrative data on their prevalence is available.

## 6. Results

We estimated Equation (1) with a probit model and the resulting marginal effects are in [Table 4](#).<sup>2</sup> The binary outcome variable of interest—the respondent experienced a positive shift in their attitudes about where they want to live, indicating that they value living in a less populated area more than they did before the COVID-19 pandemic—took the value 1. We examine three groups of respondents: Model (1) uses the full set of completed responses, for which there are no population weights; Model (2) uses population weights and all respondents currently living in NWMO, excluding the *Leavers*; Model (3) includes only the *Leavers*, complementing Model (2) but without population weights. A Chow test indicates the pooled sample, Model (1), was statistically valid ( $p < 0.01$ ). Standard errors were clustered by county, multicollinearity was not a concern, and all three models are statistically significant ( $p < 0.001$ ).

### 6.1 Relative Rural Preferences Did Not Increase

Our central result suggests that, compared to *Stayers*, rural preferences did not increase during COVID-19—rather, rural preferences among *Leavers* decreased compared to *Stayers*. The estimated coefficients on *In-Migrants* and *Returners* were positive but not different ( $p > 0.1$ ) from *Stayers*. That is, for those who have previously lived outside the region—and potentially maintain ties to members of those outside communities—we found no differences in how COVID-19 affected preferences for living in rural areas compared to stayers, who have never left the study region.

*Leavers* were 24% less likely than *Stayers* to report that COVID-19 made them increase their value for living in a rural area ([Table 4](#), Model (1)). That is, even controlling for currently living in a metropolitan area, those who no longer live in the NWMO region were on average less likely to have increased affinity for rural living during COVID, *ceteris paribus*. The marginal effect on *Lives in Metro Area* suggested that those respondents were almost 8% less likely to respond affirmatively than those living in non-metropolitan areas, *ceteris paribus*. As foretold in the non-parametric results ([Table 1](#)), this estimate suggests that COVID-19 is unlikely to induce a relocation of footloose, remote workers to rural areas. This main finding is not the kind of positive reversal toward rural areas that regional leaders were hoping for.

### 6.2 Increased Rural Preference Was Associated with Some Characteristics

Certain household and individual characteristics were associated with a positive shift toward rural living preferences during COVID-19. Women were approximately 7% more likely to experience a positive rural shift than other gender categories ([Table 4](#), Models (1) & (2)). Respondents with children in the household were 7% more likely to respond affirmatively in the pooled Model

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<sup>2</sup>While marginal effects are in [Table 4](#), the estimated coefficients are available in Appendix [Table B.1](#).



Table 4: Results: *Yes, I Value Living in a Less Populated Area More Than I Did Before*

	(1)	(2)	(3)
Leaver	-0.242*** (0.030)		
In-Migrant	0.017 (0.027)	-0.030 (0.045)	
Returner	0.023 (0.021)	-0.005 (0.025)	
Female	0.079*** (0.029)	0.069*** (0.022)	0.014 (0.093)
Age	0.121** (0.053)	0.255*** (0.054)	0.029 (0.113)
Age Squared	-0.008* (0.005)	-0.019*** (0.006)	-0.003 (0.012)
Retiree	-0.050 (0.041)	-0.037 (0.094)	-0.129** (0.064)
Self-Employed Business Owner	0.089** (0.042)	0.105** (0.045)	0.180*** (0.042)
Works in Family Business	0.031 (0.057)	-0.052 (0.104)	
Not Employed, Seeking Work	0.154 (0.102)	0.348*** (0.120)	
Not Working, Not Seeking Work	-0.031 (0.058)	-0.076 (0.070)	
Works Remotely	0.036 (0.047)	0.139** (0.055)	0.003 (0.072)
Has Children in Household	0.073** (0.032)	0.154*** (0.044)	-0.013 (0.055)
Has Other Adults in Household	0.039 (0.026)	0.045 (0.055)	-0.016 (0.024)
Took Survey in August	-0.002 (0.037)	-0.034 (0.040)	0.087 (0.057)
Took Survey in September	-0.050** (0.025)	0.011 (0.043)	0.072 (0.064)
County COVID Deaths Per 100K	-0.025 (0.036)	-0.016 (0.048)	-0.094 (0.090)
Lives in Metro Area	-0.079*** (0.024)	-0.059 (0.037)	-0.137* (0.071)
Observations	1,677	1,522	155
Survey Weights	No	Yes	No
Pseudo R <sup>2</sup>	0.041	0.042	0.063
Wald Chi-Square	94.49	48.83	58.60
p	<0.0001	0.0001	<0.0001

\* p&lt;0.10, \*\* p&lt;0.05, \*\*\* p&lt;0.01

Notes: Marginal effects are displayed and the coefficients are available in [Table B.1](#); variables with insufficient corresponding survey responses were dropped from Model 3 (denoted by ' ').

(1) and 15% more likely if the household was located in NWMO, *ceteris paribus*, suggesting the presence of children may contribute to rural preferences, although results may be driven by respondents living in NWMO. For each decade of older age, respondents were almost 12% more likely to experience a positive shift toward an increased rural preference, up to age 69, when the nonlinear relationship begins to decline. Notably, in Model (2) the age effect’s magnitude is double for those already living in NWMO, compared to Model (1). Model (3), *Leavers*, features no age effect. These demographic results affirm studies finding that return migration to rural areas is most likely among young families and younger retirees (Cromartie et al., 2015; Plane & Jurjevich, 2009).

Our survey asked respondents to indicate the workplace arrangement that most closely matched their place of employment, and we find relationships between this and our outcome variable. As the most common workplace type, those employed by someone other than a family member in the region, i.e., wage and salary employees, was the reference category, so Table 4 reports estimated coefficients on the other six options. We find:

- Across all three models, *Self-Employed Business Owners* were more likely to respond that they valued living in a less-populated area more than before the pandemic, compared to the omitted condition. Due to a focus on entrepreneurship as an economic development strategy in rural America (e.g., Conroy & Low, 2021b; Deller et al., 2019; Low & Weiler, 2012), this is a notable finding. In the pooled sample, *Self-Employed Business Owners* were almost 9% more likely to respond affirmatively and the figure was over 10% in NWMO, Model (2); notably, the effect was largest (18%) for *Leavers*, Model (3). This result suggests policy recommendations for attracting entrepreneurs as return migrants to rural areas may be worth further consideration.
- Regarding remote workers, only those living in NWMO and working remotely outside the region indicated an increased preference for rural living post-COVID (14%, Model (2)), compared to wage and salary workers. For *Leavers*, *Works Remotely* was insignificant. Results suggest that remote workers living in NWMO may be satisfied with their decision to reside in the region, despite working elsewhere.
- Only for *Leavers* was the coefficient on *Retiree* different ( $p < 0.05$ ) than zero (Model (3)). Results suggest that *Retiree Leavers*—already living outside NWMO—were 13% less likely to indicate a preference for rural living post-COVID. Cromartie et al. (2015) reported that young retirees were amongst the most likely to return to low-amenity rural areas where

they grew up, but we suspect our negative coefficient is driven by COVID.<sup>3</sup> Per Plane & Jurjevich (2009), we suspect that, in the context of the pandemic, better access to health care in urban areas may have incented the *Leaver Retirees* to show no increase in rural preference (only two out of 20 do so).

- Individuals living inside NWMO who were unemployed, i.e., not working but actively seeking work, were more likely to have responded affirmatively (35%, Model (2)). This suggests the group chooses to stay in rural NWMO for non-economic reasons, consistent with previous literature, e.g., (Niedomysl & Amcoff, 2011).
- *Works in Family Business*, and *Not Working, Not Seeking Work* were not significantly ( $p < 0.1$ ) associated with changes in post-COVID rural living preferences, compared to wage and salary employees.

Finally, the COVID-19 death rate in a respondent’s home county two weeks before taking the survey had no effect on the outcome variable ( $p > 0.1$ ). The survey month dummy variables differed little from July, with a small (5%,  $p < 0.05$ ) decline in rural preference observed in the last month, September; this may be associated with COVID’s increasing propensity in rural areas by September and relative decline in urban areas.

### 6.3 Social Capital Increases Rural Preference Perceptions

To understand if social capital affected our results, we added to the previously estimated models a dichotomous variable indicating that respondents *Feel like they belong* in the place they currently live. We found that respondents living in the study region who felt a sense of belonging were around 5% more likely to respond that they valued living in a less-populated area more than before the COVID pandemic compared to those who didn’t feel that they belonged (see Model (2), Table 5).<sup>4</sup> A respondent’s relative sense of belonging had no bearing among *Leavers*, however. Including our social capital proxy did not alter results on other coefficients, suggesting the results are robust to its inclusion.

The beneficial effects of social capital—the interpersonal relationships, trust, shared norms and shared values that help anchor an individual or household within a community (Putnam, 2000)—

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<sup>3</sup>The survey included a question about community factors that will influence where a respondent will live in the next five years; 90% of *Retiree Leavers* reported that health care was very important, while the overall response to this question was 62%.

<sup>4</sup>Sign and significance for other results stayed the same as in the base model, Table 4. See Appendix Table C.1 for the full set of estimated marginal effects. Looking at Table 5, comparing Model (1) to Model (2), the social capital proxy does marginally increase the model’s explanatory power. The pseudo  $R^2$  increased by 0.005 with the addition of *I Feel Like I Belong* to Model (2), suggesting its addition does slightly improve Model (2), however the N is ten smaller. Model (4) is not improved.

Table 5: Probit Regression Results: Sense of Belonging

	Leavers Omitted		Leavers Only	
	(1)	(2)	(3)	(4)
Lives in Metro Area	-0.059 (0.037)	-0.054 (0.035)	-0.137* (0.071)	-0.135* (0.074)
I Feel Like I Belong		0.052** (0.021)		0.002 (0.051)
Observations	1,522	1,512	155	153
Pseudo R <sup>2</sup>	0.042	0.047	0.063	0.060
Base Variables Included	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

*Note:* Estimates displayed are marginal effects, the full set of results for this regression is available in [Appendix C](#).

likely explain the *I Feel Like I Belong* results. In addition to their influence on rural migration preferences as demonstrated in this study, strong social ties may also positively affect other aspects of economic growth (Rupasingha et al., 2000).

## 7. Policy Implications & Conclusions

During the survey period, the summer of 2020, the COVID-19 pandemic was everpresent. There was no vaccine and the death rate was steadily increasing, particularly in rural areas of the U.S. Our results suggested that, compared to *Stayers*, the pandemic reinforced our respondent *Leavers*' resolve against living in rural areas—precisely the opposite result NWMO region local leaders were hoping for. Some individuals increased their preference for living in rural regions during the pandemic, however, and some of their characteristics provide policy implications for decision-makers and guidance for scholars, as we continue to probe the pandemic's impact on migration.

### 7.1 Policy Recommendations for Rural Return Migration

For our study region, the empirical results and antecedents did not suggest that local leaders should invest in the broad, place-based advertising campaign they were considering to attract migrants. Instead, targeted recruitment of self-employed entrepreneurs, and perhaps early retirees and households with children, with a previous tie to the region, may be more successful. Within the study region, social capital may nudge people who have lived outside the region at some point into appreciating rural lifestyles, and this has useful implications: we suggested to the study region that they foster inclusivity and do more to welcome immigrants and in-migrants

and integrate them into schools, government and local decision-making to increase their ties to the region.

Combining our parametric and non-parametric results, we conclude that in-migration to low amenity rural regions may be driven by a need to support a spouse who wanted to live in the area (as was the case for many *In-Migrants*), or to be near family and friends, inferring these connections may also occur through marriage. As the region ages, however, it is possible that familial and friend linkages may weaken. That is, over time, friends and family are a diminishing asset and relying on them to attract return migrants may not be sustainable.

Separately, one of our strongest results suggests the self-employed may be most open to living in a rural area due to COVID—the only result that held across both the NWMO residents and the *Leavers* group. Entrepreneurship and rural return migration have been connected empirically (Black et al., 2005; Deller et al., 2019), supporting our result and suggesting this group is ripe for targeted recruitment efforts. The huge effort to get rural Americans high-speed internet connections, as documented by Isley et al. [URev](#), also may drive this result. The link between broadband and rural entrepreneurship is well documented, e.g., Deller et al. 2021, but in rural America the linkage between broadband adoption and moving existing businesses online is less clear, although evidence from O’Hara and Low, 2020 suggests farm businesses in remote rural areas are benefiting from moving online.

This study was motivated to inform population recruitment efforts in rural regions with low natural amenities. Beyond recruitment, policymakers and local leaders may also consider spending time and resources retaining current residents. Our results suggest communities deliberately engaging in-migrants and return migrants to build a sense of belonging may be more likely to retain these migrants through periods of economic and social stress, such as the pandemic, in addition to benefiting from their new ideas and accumulated business acumen. Practically, communities can encourage new and existing families to participate in community process, have informal expectations that new children join school clubs, form welcoming committees that adopt new families, and intentionally diversify community leadership roles to ensure a plurality of views and perspectives are heard (Rahe, 2013).

## 7.2 Conclusion

COVID-19 did not increase preferences for living in rural areas among any migrant category compared to the dedicated *Stayers*; indeed, it decreased preferences among residents who grew up in northwest Missouri and no longer live there. We find evidence that self-employed business owners were likely to have increased rural living preferences during COVID, perhaps our most robust finding, as it held across all model specifications. Other findings held only for individuals currently living in the region and warrant further investigation. That is, rural return migration

during COVID may be more likely for households with children and those headed by females or young retirees, under age 70, but additional research is needed. Further, COVID-19 increased rural living preferences among individuals within the study region who had a stronger sense of belonging. Our results were stable across different specifications, giving us confidence that they may be applicable to other low-amenity rural regions in developed countries that are facing de-population and looking for tools to retain current residents and foster return migration.

Our analysis should be considered a first-look at COVID-driven changes in rural migration attitudes as it has limitations. Chiefly, our convenience sample is far from an equal probability of selection method, however, our relatively large number of respondents for this sort of survey gives us confidence. *Leavers*, however, represented fewer than 10% of respondents, and this relatively small N precluded conducting deep-dives into that group, e.g., variable interactions. Further, we were not able to calculate population weights for the *Leavers*, yet results for this migrant category yield the most practical policy-advice. Another issue was the number of completed surveys missing either gender or age (15.7%), due to the open-ended response field; these observations were omitted from our econometric analysis and could perhaps be imputed, increasing the N overall.

Our results suggest future research could delve into *why* rural migration attitudes changed and did not change with respect to policy-relevant factors, e.g., access to healthcare for retirees. For fear of endogeneity, our analysis did not utilize many survey questions. Used in future descriptive research, however, these questions—focused on quality of life preferences that might drive future migration decisions, e.g., healthcare, broadband access and civic engagement differences—could shed additional light on rural return migration preferences during COVID-19 and policy implications. In collaboration with leaders from the study region, we hope to repeat the survey with a random sampling method and stronger outreach to *Leavers* in the future. The subsequent survey would also delve deeper into self-employed entrepreneurs and their motivations and impacts on the region. Finally, we encourage research that might corroborate our findings across other rural regions or examine the staying power of COVID-19 impacts, to understand how preferences have continued to change or have reverted.

## References

- Albrecht, D., Bentley, M., Harris, T., & Coupal, R. (2020). COVID-19 and economic opportunities for rural America: Community strategies for attracting new rural residents. *Rural Connections*. <https://www.usu.edu/wrdc/files/news-publications/Albrecht-etal-RC-FA-WIN-2020.pdf>
- Bick, A., Blandin, A., & Mertens, K. (2020). *Work from home after the COVID-19 outbreak* (tech. rep.). CEPR Discussion Paper No. DP15000. <https://doi.org/10.24149/wp2017r2>
- Bijker, R. A., Haartsen, T., & Strijker, D. (2012). Migration to less-popular rural areas in the Netherlands: Exploring the motivations. *Journal of Rural Studies*, 28(4), 490–498.
- Black, D., McKinnish, T., & Sanders, S. (2005). The economic impact of the coal boom and bust. *The Economic Journal*, 115(503), 449–476.
- Black, R., & Castaldo, A. (2009). Return migration and entrepreneurship in Ghana and Côte d'Ivoire: The role of capital transfers. *Tijdschrift voor Economische en Sociale Geografie*, 100(1), 44–58.
- Brasier, K. J., Filteau, M. R., McLaughlin, D. K., Jacquet, J., Stedman, R. C., Kelsey, T. W., & Goetz, S. J. (2011). Residents' perceptions of community and environmental impacts from development of natural gas in the Marcellus Shale: A comparison of Pennsylvania and New York cases. *Journal of Rural Social Sciences*, 26(1), 3.
- Broadway, M. J., & Stull, D. D. (2006). Meat processing and Garden City, KS: Boom and bust. *Journal of Rural Studies*, 22(1), 55–66.
- Brown, J. P. (2020). US business applications surge in the face of COVID-19. *Federal Reserve Bank of Kansas City Economic Bulletin*, 1–4. [https://www.kansascityfed.org/documents/7087/US\\_BusinessApplicationsSurgeFaceCOVID19\\_EB\\_Brown.pdf](https://www.kansascityfed.org/documents/7087/US_BusinessApplicationsSurgeFaceCOVID19_EB_Brown.pdf)
- Brynjolfsson, E., Horton, J. J., Ozimek, A., Rock, D., Sharma, G., & TuYe, H.-Y. (2020). *COVID-19 and remote work: An early look at US data* (tech. rep.). National Bureau of Economic Research. <https://www.nber.org/papers/w27344>
- Cassarino, J.-P. (2004). Theorising return migration: The conceptual approach to return migrants revisited. *International Journal on Multicultural Societies (IJMS)*, 6(2), 253–279.
- Chen, Y., & Rosenthal, S. S. (2008). Local amenities and life-cycle migration: Do people move for jobs or fun? *Journal of Urban Economics*, 64(3), 519–537.
- Conroy, T., & Low, S. A. (2021a). Entrepreneurship, broadband, and gender: Evidence from establishment births in rural America. *International Regional Science Review*, online first. <https://doi.org/10.1177/01600176211018749>
- Conroy, T., & Low, S. A. (2021b). Opportunity, necessity, and no one in the middle: A closer look at small, rural, and female-led entrepreneurship in the United States.



*Applied Economic Perspectives and Policy*, online first. <https://doi.org/10.1002/aepp.13193>

- Cromartie, J., Von Reichert, C., & Arthun, R. (2015). Factors affecting former residents' returning to rural communities. (Economic Research Report-185). United States Department of Agriculture. *Economic Research Service*. <https://www.ers.usda.gov/publications/pub-details/?pubid=45364>
- Crowley, M., & Knepper, P. (2019). Strangers in their hometown: Demographic change, revitalization and community engagement in new Latino destinations. *Social Science Research*, 79, 56–70.
- Deller, S. C., Kures, M., & Conroy, T. (2019). Rural entrepreneurship and migration. *Journal of Rural Studies*, 66, 30–42.
- Deller, S. C., Tsai, T.-H., Marcouiller, D. W., & English, D. B. (2001). The role of amenities and quality of life in rural economic growth. *American Journal of Agricultural Economics*, 83(2), 352–365.
- Deller, S. C., Whitacre, B., & Conroy, T. (2021). Rural broadband speeds and business startup rates. *American Journal of Agricultural Economics*, n/a(n/a). <https://doi.org/https://doi.org/10.1111/ajae.12259>
- Dobis, E. A., Krumel, T. P., Cromartie, J., Conley, K. L., Sanders, A., & Ortiz, R. (2021). *Rural America at a glance: 2021 edition* (tech. rep.). <https://www.ers.usda.gov/publications/pub-details/?pubid=102575>
- Eathington, L. (2010). 2000-2009 population growth in the Midwest: Urban and rural dimensions. *Iowa Population Reports*. <http://www.icip.iastate.edu/sites/default/files/uploads/specialreports/popbriefs/Midwest%202009.pdf>
- Falk, G., Romero, P. D., Nicchitta, I. A., & Nyhof, E. C. (2020). *Unemployment rates during the COVID-19 pandemic* (tech. rep.). Washington, DC: Congressional Research Service Report R46554. <https://fas.org/sgp/crs/misc/R46554.pdf>
- Feijten, P., Hooimeijer, P., & Mulder, C. H. (2008). Residential experience and residential environment choice over the life-course. *Urban Studies*, 45(1), 141–162.
- Fitchen, J. M. (1995). *Poverty in rural America: A case study*. Waveland Press Inc.
- Gilmore, J. S. (1976). Boom towns may hinder energy resource development. *Science*, 191(4227), 535–540.
- Gkartzios, M., & Scott, M. (2009). Planning for rural housing in the Republic of Ireland: From national spatial strategies to development plans. *European Planning Studies*, 17(12), 1751–1780.
- Harrison, J. A. (2017). Rust belt boomerang: The pull of place in moving back to a legacy city. *City & Community*, 16(3), 263–283.
- Isley, C., & Low, S. A. (URev). Broadband adoption and availability: Impacts on rural employment during COVID-19. *Telecommunications Policy, Under Review R&R*.

- Johnson, K. M., & Beale, C. L. (1994). The recent revival of widespread population growth in nonmetropolitan areas of the United States. *Rural Sociology*, 59(4), 655–667.
- Johnson, K. M., & Cromartie, J. B. (2006). The rural rebound and its aftermath. *Population change and rural society* (pp. 25–49). Springer.
- Johnson, K. M., & Fuguitt, G. V. (2000). Continuity and change in rural migration patterns, 1950–1995. *Rural Sociology*, 65(1), 27–49.
- Johnson, K. M., & Lichter, D. T. (2019). Rural depopulation: Growth and decline processes over the past century. *Rural Sociology*, 84(1), 3–27.
- Keough, S. B. (2015). Planning for growth in a natural resource boomtown: Challenges for urban planners in Fort McMurray, Alberta. *Urban Geography*, 36(8), 1169–1196.
- Kruger, L. E., Mazza, R., & Stiefel, M. (2010). Amenity migration, rural communities, and public lands. *Forest community connections* (pp. 139–154). Routledge.
- Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47–57.
- Low, S. A., & Weiler, S. (2012). Employment risk, returns, and entrepreneurship. *Economic Development Quarterly*, 26(3), 238–251.
- McGranahan, D. A. (1999). Natural amenities drive rural population change. (Agricultural Economic Report No. 781). United States Department of Agriculture. *Economic Research Service*. <https://ageconsearch.umn.edu/record/33955/>
- McGranahan, D. A., Cromartie, J., & Wojan, T. R. (2010). Nonmetropolitan outmigration counties: Some are poor, many are prosperous. *USDA-ERS Economic Research Report*, (107). <https://www.ers.usda.gov/publications/pub-details/?pubid=44772>
- McGranahan, D. A., Wojan, T. R., & Lambert, D. M. (2011). The rural growth trifecta: Outdoor amenities, creative class and entrepreneurial context. *Journal of Economic Geography*, 11(3), 529–557.
- Morse, C. E., & Mudgett, J. (2018). Happy to be home: Place-based attachments, family ties, and mobility among rural stayers. *The Professional Geographer*, 70(2), 261–269.
- Mueller, J. T., McConnell, K., Burow, P. B., Pofahl, K., Merdjanoff, A. A., & Farrell, J. (2021). Impacts of the COVID-19 pandemic on rural America. *Proceedings of the National Academy of Sciences*, 118(1). <https://doi.org/10.1073/pnas.2019378118>
- Nelson, P. B. (1999). Quality of life, nontraditional income, and economic growth new development opportunities for the rural West. *Rural Development Perspectives*, 14(2), 32–37. <https://ageconsearch.umn.edu/record/289815/?ln=en>
- Nelson, P. B. (2005). Migration and the regional redistribution of nonearnings income in the United States: Metropolitan and nonmetropolitan perspectives from 1975 to 2000. *Environment and Planning A*, 37(9), 1613–1636.
- Niedomysl, T., & Amcoff, J. (2011). Why return migrants return: Survey evidence on motives for internal return migration in Sweden. *Population, Space and Place*, 17(5), 656–673.

- O'Hara, J. K., & Low, S. A. (2020). Online sales: A direct marketing opportunity for rural farms? *Journal of Agricultural and Applied Economics*, 52(2), 222–239.
- Olson, J. L., & Munroe, D. K. (2012). Natural amenities and rural development in new urban-rural spaces. *Regional Science Policy & Practice*, 4(4), 355–371.
- Parr, A. (2019). Understanding the motivations for return migration in Australia. *Australian Population Studies*, 3(1), 1–12. <https://doi.org/10.37970/aps.v3i1.43>
- Pekkala, S. (2003). Migration flows in Finland: Regional differences in migration determinants and migrant types. *International Regional Science Review*, 26(4), 466–482.
- Plane, D. A., & Jurjevich, J. R. (2009). Ties that no longer bind? The patterns and repercussions of age-articulated migration. *The Professional Geographer*, 61(1), 4–20.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon; Schuster.
- Radeloff, V. C., Hammer, R. B., Stewart, S. I., Fried, J. S., Holcomb, S. S., & McKeefry, J. F. (2005). The wildland–urban interface in the United States. *Ecological Applications*, 15(3), 799–805.
- Rahe, M. (2013). *Building prosperous communities: The effects of social capital, financial capital, and place* (Doctoral dissertation). University of Illinois at Urbana-Champaign. <http://hdl.handle.net/2142/44270>
- Renkow, M., & Hoover, D. (2000). Commuting, migration, and rural-urban population dynamics. *Journal of Regional Science*, 40(2), 261–287.
- Rérat, P. (2016). Migration and post-university transition. Why do university graduates not return to their rural home region? *Geographica Helvetica*, 71(4), 271–282.
- Rupasingha, A., Goetz, S. J., & Freshwater, D. (2000). Social capital and economic growth: A county-level analysis. *Journal of Agricultural and Applied Economics*, 32(3), 565–572.
- Sherman, J. (2021). *Dividing paradise: Rural inequality and the diminishing American dream*. Univ of California Press.
- Smith, S. V. (2020). A historic moment for rural recruitment. *Daily Yonder*. <https://dailyyonder.com/commentary-a-historic-moment-for-rural-recruitment/2020/10/28/>
- Sowl, S., Smith, R. A., & Brown, M. G. (2021). Rural college graduates: Who comes home? *Rural Sociology, online first*, 1–27. <https://doi.org/10.1111/ruso.12416>
- Stockdale, A. (2002). Out-migration from rural Scotland: The importance of family and social networks. *Sociologia Ruralis*, 42(1), 41–64.
- Todaro, M. P. (1969). A model of labor migration and urban unemployment in less developed countries. *The American Economic Review*, 59(1), 138–148.

- Ulrich-Schad, J. D., Henly, M., & Safford, T. G. (2013). The role of community assessments, place, and the great recession in the migration intentions of rural Americans. *Rural Sociology*, 78(3), 371–398.
- Vazzana, C. M., & Rudi-Polloshka, J. (2019). Appalachia has got talent, but why does it flow away? A study on the determinants of brain drain from rural USA. *Economic Development Quarterly*, 33(3), 220–233.
- von Reichert, C., Cromartie, J. B., & Arthun, R. O. (2011). Returning home and making a living: Employment strategies of return migrants to rural US communities. *Journal of Rural and Community Development*, 6(2).
- von Reichert, C., Cromartie, J. B., & Arthun, R. O. (2014a). Impacts of return migration on rural US communities. *Rural Sociology*, 79(2), 200–226.
- von Reichert, C., Cromartie, J. B., & Arthun, R. O. (2014b). Reasons for returning and not returning to rural US communities. *The Professional Geographer*, 66(1), 58–72.
- Wahba, J., & Zenou, Y. (2012). Out of sight, out of mind: Migration, entrepreneurship and social capital. *Regional Science and Urban Economics*, 42(5), 890–903.
- Weber, B., Marre, A., Fisher, M., Gibbs, R., & Cromartie, J. (2007). Education’s effect on poverty: The role of migration. *Review of Agricultural Economics*, 29(3), 437–445.
- Whitaker, S. D. (2021). Did the COVID-19 pandemic cause an urban exodus? *Cleveland Federal District Data Briefs*, (20210205). <https://www.clevelandfed.org/en/newsroom-and-events/publications/cfed-district-data-briefs/cfddb-20210205-did-the-covid-19-pandemic-cause-an-urban-exodus.aspx>
- White, M. C. (2021). Population trends in Missouri and its regions. *University of Missouri Extension, Report #MX55*. <https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/miscpubs/mx0055.pdf>
- White, M. C., & Spell, A. (2020). Remote work. *Missouri Economy Indicator*, 1(7), 1–2. [https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/ExCEED/Docs/MissouriEconomy\\_COVID-19\\_015June2020.pdf](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/ExCEED/Docs/MissouriEconomy_COVID-19_015June2020.pdf)

# Appendices

## A. County Demographic Profiles

Table A.1: Demographic Profile of Counties Containing One or More Survey Respondents

	Counties in NWMO Region		Other Counties Represented in Survey	
	Mean	Std. Dev.	Mean	Std. Dev.
Natural Amenity Score <sup>a</sup>	-1.4	0.8	0.1	2.1
Population Change, 2010–19 <sup>b</sup>	-4.5%	3.4%	6.6%	9.5%
Employment Change, 2010–19 <sup>b</sup>	-0.3%	6.9%	15.9%	14.6%
Per-Capita Personal Income <sup>b</sup>	\$ 40,025	\$ 5,714	\$ 52,423	\$ 16,002
Percent Farm Jobs <sup>b</sup>	16.0%	7.9%	3.4%	5.3%
Percent Non-White <sup>c</sup>	5.2%	3.5%	18.5%	13.8%
Poverty Rate <sup>c</sup>	14.4%	3.6%	13.3%	5.2%
Percent with Bachelor's or Higher <sup>c</sup>	19.3%	3.8%	30.6%	12.3%
Number of Counties Represented	18		76	
Number of Respondents	1,522		155	

Notes

<sup>a</sup>: Z score, natural amenity index from McGranahan, 1999

<sup>b</sup>: Data from U.S. Bureau of Economic Analysis, County Economic Profile, 2019.

<sup>c</sup>: U.S. Census Bureau, American Community Survey, 2015-19, 5-year release.

## B. Base Regression Coefficients

Table B.1: Probit Model Coefficients: *Yes, I Value Living in a Less Populated Area More Than I Did Before*

	(1)	(2)	(3)
Leaver	-0.643*** (0.081)		
In-Migrant	0.046 (0.072)	-0.083 (0.124)	
Returner	0.060 (0.056)	-0.013 (0.068)	
Female	0.211*** (0.078)	0.189*** (0.058)	0.056 (0.369)
Age	0.322** (0.144)	0.696*** (0.148)	0.114 (0.454)
Age Squared	-0.022* (0.013)	-0.051*** (0.016)	-0.013 (0.049)
Retiree	-0.132 (0.111)	-0.100 (0.258)	-0.513** (0.255)
Self-Employed Business Owner	0.235** (0.112)	0.286** (0.121)	0.713*** (0.209)
Works in Family Business	0.082 (0.150)	-0.142 (0.287)	
Not Employed, Seeking Work	0.410 (0.273)	0.948*** (0.346)	
Not Working, Not Seeking Work	-0.083 (0.152)	-0.208 (0.189)	
Works Remotely	0.094 (0.125)	0.378** (0.156)	0.013 (0.287)
Has Children in Household	0.193** (0.085)	0.421*** (0.123)	-0.052 (0.219)
Has Other Adults in Household	0.103 (0.070)	0.122 (0.154)	-0.063 (0.097)
Took Survey in August	-0.004 (0.096)	-0.093 (0.114)	0.374 (0.281)
Took Survey in September	-0.133** (0.065)	0.031 (0.118)	0.318 (0.290)
County COVID Deaths Per 100K	-0.067 (0.094)	-0.043 (0.131)	-0.373 (0.361)
Lives in Metro Area	-0.210*** (0.065)	-0.162 (0.103)	-0.544* (0.283)
Observations	1,677	1,522	155
Survey Weights	No	Yes	No
Pseudo R <sup>2</sup>	0.041	0.042	0.063
Wald Chi-Square	94.49	48.83	58.60
p	0.0000	0.0001	0.0000

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

*Note:* Variables with insufficient corresponding survey responses were removed from Model 3 (denoted by ' ')



## C. Sense of Belonging, Full Regression Output

Table C.1: Probit Regression Results: Sense of Belonging

	Leavers Omitted		Leavers Only	
	(1)	(2)	(3)	(4)
In-Migrant	-0.030 (0.045)	-0.041 (0.053)		
Returner	-0.005 (0.025)	0.000 (0.024)		
Female	0.069*** (0.022)	0.076*** (0.020)	0.014 (0.093)	0.010 (0.100)
Age	0.255*** (0.054)	0.275*** (0.054)	0.029 (0.113)	0.025 (0.115)
Age Squared	-0.019*** (0.006)	-0.021*** (0.006)	-0.003 (0.012)	-0.003 (0.012)
Retiree	-0.037 (0.094)	-0.037 (0.091)	-0.129** (0.064)	-0.127* (0.068)
Self-Employed Business Owner	0.105** (0.045)	0.098** (0.043)	0.180*** (0.042)	0.177*** (0.041)
Works in Family Business	-0.052 (0.104)	-0.058 (0.101)		
Not Employed, Seeking Work	0.348*** (0.120)	0.344*** (0.114)		
Not Working, Not Seeking Work	-0.076 (0.070)	-0.073 (0.069)		
Works Remotely	0.139** (0.055)	0.139** (0.056)	0.003 (0.072)	-0.002 (0.075)
Has Children in Household	0.154*** (0.044)	0.151*** (0.043)	-0.013 (0.055)	-0.011 (0.056)
Has Other Adults in Household	0.045 (0.055)	0.042 (0.056)	-0.016 (0.024)	-0.021 (0.025)
Took Survey in August	-0.034 (0.040)	-0.030 (0.042)	0.087 (0.057)	0.091 (0.057)
Took Survey in September	0.011 (0.043)	0.008 (0.038)	0.072 (0.064)	0.072 (0.064)
County COVID Deaths Per 100K	-0.016 (0.048)	-0.034 (0.044)	-0.094 (0.090)	-0.097 (0.093)
Lives in Metro Area	-0.059 (0.037)	-0.054 (0.035)	-0.137* (0.071)	-0.135* (0.074)
I Feel Like I Belong		0.052** (0.021)		0.002 (0.051)
Observations	1,522	1,512	155	153
Pseudo R <sup>2</sup>	0.042	0.047	0.063	0.060
Base Variables Included	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

*Note:* Estimates are displayed as probit marginal effects; variables with insufficient corresponding survey responses were removed from Model 3 (denoted by ' ')