



## ORIGINAL ARTICLE

# 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 find that for natives who had left the study region, attitudes about living in rural areas during COVID were lower on average than for those who stayed. Interestingly, we do find that owning a business and having a stronger sense of belonging are both associated with positive attitudinal shifts towards rural living, which has practical implications for rural migration policy.

## KEYWORDS

COVID-19, entrepreneurship, return migration, rural, survey

## JEL CLASSIFICATION

O18, R23, R58

## 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 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 toward rural settings would provide new comparative advantages for entrepreneurs and teleworkers seeking a

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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 in low-amenity areas and offer new opportunities.

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 US 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 also 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.

Compared with those living in the rural region, we do not find evidence that COVID-19 made our low-amenity rural area seem more attractive to those who lived outside the study region. Regression results, however, suggest rural attitudes increased for entrepreneurs. That is, although COVID may only lead to a little rural in-migration, those who do migrate are especially likely to own a business. 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 stronger ties with in-migrants, building their networks, and strengthening their social capital, leads to community attachment, that is, a sense of belonging, which 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 US 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 United States 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 (McGranahan, 1999; Chen & Rosenthal, 2008), 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, and 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 on the basis of 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; Rérat, 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. Neo-classical 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 (Cassarino, 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., 2022). 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 US workforce worked entirely from home—double the prepandemic 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. Rural residents in Iowa reported that COVID-19 had the largest negative effects on their relationships with close friends, their mental health, and relationships with close family (Peters, 2021). The pandemic accelerated a push for rural broadband availability and adoption, and setting up rural businesses for remote work, e-commerce, and new entrepreneurial efforts would maximize the economic benefits of rural broadband (Isley & Low, 2022). Indeed, high-speed internet access in rural areas is increasingly relevant for entrepreneurship across industries (Deller et al., 2021) and firm size, 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, US 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 toward rural settings? Did regional and household characteristics affect changes in rural preferences during COVID-19? Grounded in prior research, we hypothesized that return migration preferences 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.

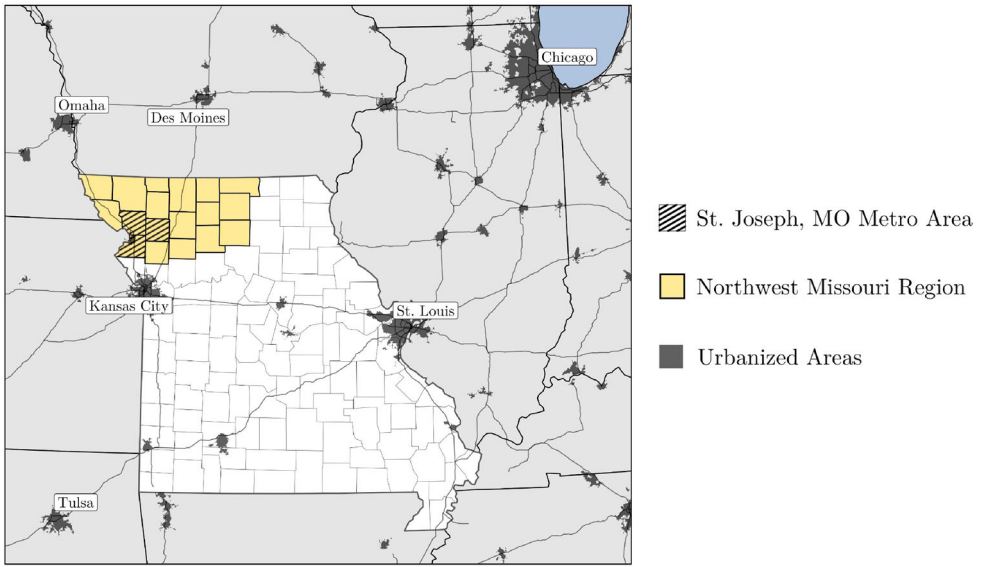
The empirical research on rural migration led us to suggest that data collection efforts focus on the potential of return migrants. We developed and conducted a 25-question survey in partnership with a variety of stakeholders representing regional planning commissions, economic development organizations, 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 because of 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 make up the Northwest Missouri study region (hereafter, NWMO) include 15 nonmetropolitan counties, defined as having no urban areas over 50,000 and no significant commuting to such an urban area (see maps in Figure 1 and 2). The three remaining counties are part of the Metropolitan Statistical Area (metro) surrounding St. Joseph, Missouri. According to the 2020 US Census, St. Joseph had a population of 72,473, a 5.6% decrease from 2010. In comparison, over the same decade on average, US metro areas grew 8.8% and nonmetro areas shrank by 0.6% (Dobis et al., 2021). Like much of the US 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 separates 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 thus less attractive to migrants.

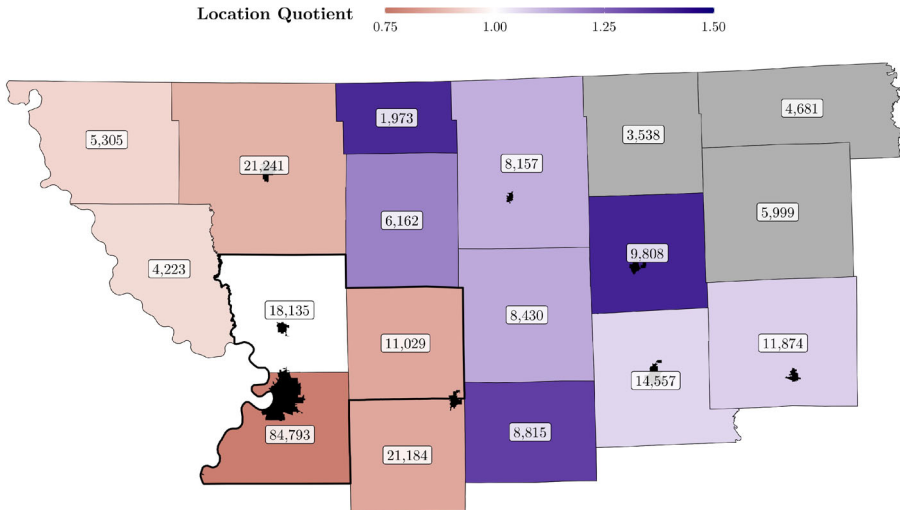
The relative differences between the counties within the NWMO region and the counties where survey respondents who grew up in the region and left, so-called *Leavers*, now live, are available in Appendix Table A1. Relative to the other counties represented in the survey, the NWMO region features lower 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 a population greater than 2,500 residents (Figure 2).



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.

**FIGURE 1** The 18-County Study Region, Northwest Missouri

*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

**FIGURE 2** Distribution of outcome variable as a share of county respondents (LQ)

**TABLE 1** Outcome variable response by migration status

| <i>1= 'Yes, I value living in a less-populated area more than I did before [the COVID-19 pandemic].'</i> |                |                |               |               |
|--|----------------|----------------|---------------|---------------|
| 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  | 1,677          | 100%           | 738           | 44%           |

## 4 | DATA

### 4.1 | Survey respondents

The survey, conducted online using Qualtrics, was completed by 1,941 respondents, with a total of 1,677 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 women (75%) and reflect individuals with Internet access and who are more likely to be 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*, defined 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 group responded to the question that is our outcome variable: '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 pandemic. *Returners*, defined as having graduated from high school in NWMO, lived outside the region afterwards at some point, and currently live in NWMO, and answered the question affirmatively at a similar rate, accounting 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. That all three groups of current NWMO residents answered the outcome variable affirmatively at similar rates, that is, 45–48%, suggests the pandemic had a similarly positive impact on rural living preferences among those who had never left the region, compared with those who had lived elsewhere and now live in the region. All three groups currently live in relatively low-amenity rural areas, however. Conversely, the *Leavers* are much more likely to live in a metro area.

<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 with 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.



*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%. The *Leavers* had the lowest proportion of respondents that indicated a positive shift toward more rural preferences following the emergence of the pandemic (19%). On the one hand, almost one in five potential return migrants reported they value living in a less-populated area more than before the pandemic, good news for rural leaders. On the other hand, *Leavers* were least likely to value rural living more owing to the pandemic; less than half as likely as those already living in NWMO. When *Leavers* consider the outcome variable question, they likely approach it differently than those living in NWMO. They likely think, *Am I more likely to move back home now because of COVID?*, which differs from, *Did I make the right choice in choosing to live here?*<sup>2</sup>

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 because of COVID-19) in a location quotient (Figure 2). The western half of the region has better access to urban amenities, such as 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.

### 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?'; and '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 of whether COVID changed rural preferences by migration status.

Respondents indicated they make migration choices not just for themselves, but also as households; 40% of all *In-Migrants* noted that the decision to 'support my spouse' was a motivating factor to move into the region, and 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

<sup>2</sup>We thank an anonymous reviewer for pointing out to us how the *Leavers* interpret this question different from those who are living in NWMO and this difference also plays out in the results section.



**TABLE 2** Survey respondents' motivations for migration behavior

| <b>Reasons for staying (%) (n = 1,008)</b>    |    |  |    |
|---|----|--|----|
| 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 |  |    |
| <b>Reasons for in-migrating (%) (n = 453)</b> |    |  |    |
| 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  |  |    |
| <b>Reasons for leaving (%) (n = 203)</b>      |    |  |    |
| 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  |  |    |
| <b>Reasons for returning (%) (n = 518)</b>    |    |  |    |
| 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  |  |    |

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.

## 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 presented 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 that 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

**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 |           |

Note: 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> US Office of Management and Budget data, 2013.

<sup>c</sup> The NY Times GitHub data: *Cumulative Cases and Deaths*, 2021. Minimum value was zero and the maximum value was 2.65 deaths per 100,000, in the 15 days prior to the survey being taken, in the respondent's county.

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>3</sup> Whether 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 ( $p < 0.001$ ).

The estimated coefficients on *In-Migrants* and *Returners* were positive but not different ( $p > 0.1$ ) from *Stayers* (Table 4, Model (1)). That is, for those who have previously lived outside the region, and potentially maintain ties to

<sup>3</sup>While marginal effects are in Table 4, the estimated coefficients are available in Appendix Table B1.

**TABLE 4** Results: Yes, I value living in a less-populated area more than I did before

|                                 | (1)                  | (2)                  | (3)                 |
|---------------------------------|----------------------|----------------------|---------------------|
| Leaver                          | -0.242***<br>(0.030) |                      |                     |
| In-Migrant                      | 0.017<br>(0.027)     | -0.030<br>(0.045)    |                     |
| Returner                        | 0.023<br>(0.021)     | -0.005<br>(0.025)    |                     |
| Female                          | 0.079***<br>(0.029)  | 0.069***<br>(0.022)  | 0.014<br>(0.093)    |
| Age                             | 0.121**<br>(0.053)   | 0.255***<br>(0.054)  | 0.029<br>(0.113)    |
| Age squared                     | -0.008*<br>(0.005)   | -0.019***<br>(0.006) | -0.003<br>(0.012)   |
| Retiree                         | -0.050<br>(0.041)    | -0.037<br>(0.094)    | -0.129**<br>(0.064) |
| Self-employed business owner    | 0.089**<br>(0.042)   | 0.105**<br>(0.045)   | 0.180***<br>(0.042) |
| Works in family business        | 0.031<br>(0.057)     | -0.052<br>(0.104)    |                     |
| Not employed, seeking work      | 0.154<br>(0.102)     | 0.348***<br>(0.120)  |                     |
| Not working, not seeking work   | -0.031<br>(0.058)    | -0.076<br>(0.070)    |                     |
| Works remotely                  | 0.036<br>(0.047)     | 0.139**<br>(0.055)   | 0.003<br>(0.072)    |
| Has children in household       | 0.073**<br>(0.032)   | 0.154***<br>(0.044)  | -0.013<br>(0.055)   |
| Has other adults in household   | 0.039<br>(0.026)     | 0.045<br>(0.055)     | -0.016<br>(0.024)   |
| Took survey in August           | -0.002<br>(0.037)    | -0.034<br>(0.040)    | 0.087<br>(0.057)    |
| Took survey in September        | -0.050*<br>(0.025)   | 0.011<br>(0.043)     | 0.072<br>(0.064)    |
| County COVID deaths per 100,000 | -0.025<br>(0.036)    | -0.016<br>(0.048)    | -0.094<br>(0.090)   |
| Lives in metro area             | -0.079***<br>(0.024) | -0.059<br>(0.037)    | -0.137*<br>(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             |

Note: Marginal effects are displayed and the coefficients are available in Table B1; variables with insufficient corresponding survey responses were dropped from Model (3) (denoted by ”).

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



members of those outside communities, we found no differences in how COVID-19 affected preferences for living in rural areas compared with 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, those who no longer live in the NWMO region were on average less likely to have increased affinity for rural living during COVID than *Stayers*, *ceteris paribus*. Recall that *Leavers* view this question differently precisely because they no longer live in the region, but once did. Thus, this result must be interpreted cautiously, as respondents have already self-sorted. Unconditionally, 19% of *Leavers* responded affirmatively that COVID-19 increased their rural living preference (Table 3). While this summary statistic is notable, it may not signify a big jump in potential return migration, because intention does not indicate actual decision to migrate, as noted in Kao and Sapp (2020a).

The marginal effect on *Lives in Metro Area* suggested that those respondents were almost 8% less likely to respond affirmatively than those living in nonmetropolitan areas, *ceteris paribus*. As foretold in the nonparametric results (Table 1), this estimate suggests that COVID-19 is unlikely to induce a relocation of footloose, remote workers to rural areas. Substantial caveats apply to the results described in this section. Our survey includes only people who used to live in the region, the question addressed rural living but not low-amenity rural living in NWMO, and the sample size for Model (3), the *Leavers*, was small.

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. Most notably, we find that business owners may be more likely to return to rural areas compared with workers (Table 4).<sup>4</sup> 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 with the omitted condition. Owing to a focus on entrepreneurship as an economic development strategy in rural America, (such as 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); the effect was largest (18%) for *Leavers*, (Model (3)), the group that NWMO leaders are trying to target. In a rural community, each entrepreneurial family that moves in can make a palpable difference. This result suggests policy recommendations for attracting entrepreneurs as return migrants to rural areas may be worth further consideration.

Additionally, from the workplace results we find:

- 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 with 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 among 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>5</sup> Per Plane & Jurjevich (2009), we suspect that, in the context of the pandemic, better access to health care in urban areas may have incentivized the *Leaver Retirees* to show no increase in rural preference (only 2 out of 20 do so).
- Individuals living inside NWMO who were unemployed, that is, not working and 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, for example, (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 with wage and salary employees.

<sup>4</sup>As the most common workplace type, those employed by someone other than a family member in the region, that is, wage and salary employees, was the reference category, so Table 4 reports estimated coefficients on the other six options.

<sup>5</sup>The survey included a question about community factors that will influence where a respondent will live in the next 5 years; 90% of *Retiree Leavers* reported that health care was very important, while the overall response to this question was 62%.

**TABLE 5** Probit regression results: Sense of belonging

|                         | Leavers omitted   |                    | Leavers only       |                    |
|-------------------------|-------------------|--------------------|--------------------|--------------------|
|                         | (1)               | (2)                | (3)                | (4)                |
| Lives in metro area     | -0.059<br>(0.037) | -0.054<br>(0.035)  | -0.137*<br>(0.071) | -0.135*<br>(0.074) |
| I feel like I belong    |                   | 0.052**<br>(0.021) |                    | 0.002<br>(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                |

Note: Estimates displayed are marginal effects, the full set of results for this regression is available in Appendix C.

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

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 (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 with 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).

The COVID-19 death rate in a respondent's home county 2 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.

Finally, to understand if a sense of belonging or community attachment 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 with those who didn't feel that they belonged (see Model (2), Table 5).<sup>6</sup> A respondent's relative sense of belonging had no bearing among *Leavers*. Including this proxy for community attachment did not alter results on other coefficients, suggesting the results are robust to its inclusion. The beneficial effects of community attachment, such as the interpersonal relationships, trust, shared norms and shared values that help anchor an individual or household within a community (Putnam, 2000), likely explain the *I Feel Like I Belong* results. In addition to their influence on rural migration preferences as demonstrated in this study, strong community attachment may lead to stronger social capital, which may also positively affect other aspects of economic growth (Kao & Sapp, 2020b; Rupasingha et al., 2000).

<sup>6</sup>Sign and significance for other results stayed the same as in the base model, Table 4. See Appendix Table C1 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<sup>2</sup> 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.



## 7 | POLICY IMPLICATIONS & CONCLUSIONS

During the survey period, the summer of 2020, the COVID-19 pandemic was ever present. There was no vaccine and the death rate was steadily increasing, particularly in rural areas of the United States. Our results suggest that some individuals increased their preference for living in rural regions during the pandemic 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 suggest that 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 than the broad, place-based advertising campaign regional leaders were considering to attract migrants. Within the study region, community attachment 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, building their social capital and, ultimately, their community attachment (Kao & Sapp, 2020b).

That the self-employed may be most open to living in a rural area because of COVID was perhaps our strongest result. This result was the only one that held across both the NWMO residents and the *Leavers* group. If COVID induces three households to migrate to the study region and two of those households bring a business and create jobs, then this is a meaningful improvement to the region, even if small, statistically. 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 and Low (2022), also may drive this result. The link between broadband and rural entrepreneurship is well documented, for example, 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.

Combining our parametric and nonparametric 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.

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 could help 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

We find evidence that self-employed business owners were likely to have increased rural living preferences during COVID-19. Compared with *Stayers*, findings did not suggest that COVID increased preferences for living in rural



areas. 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. 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 depopulation 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. We examined a low-amenity rural area that has faced persistent population decline, and future research is likely to find that COVID did increase the attractiveness of high-amenity rural areas. Moreover, our study examines preference for rural areas at one point in time during the pandemic and does not measure actual migration; these attitudes may have changed during the course of the pandemic, especially given the rise in partial telework and its affect on commuting. In addition, 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, such as 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%), owing to the open-ended response field; these observations were omitted from our econometric analysis.

Our results suggest future research could delve into why rural migration attitudes changed and did not change with respect to policy-relevant factors, for example, 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, such as 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 in the future with a random sampling method, a control group for the *Leavers*, those living in a metro area with no rural upbringing, and stronger outreach to *Leavers*. 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 examine this question in other rural regions, or examine the staying power of COVID-19 impacts to understand how preferences have continued to change or have reverted.

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## APPENDIX A: COUNTY DEMOGRAPHIC PROFILES

**TABLE A1** 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 US Bureau of Economic Analysis, County Economic Profile, 2019.

<sup>c</sup>US Census Bureau, American Community Survey, 2015–19, 5-year release.



## APPENDIX B: BASE REGRESSION COEFFICIENTS

**TABLE B1** Probit Model Coefficients: *Yes, I value living in a less-populated area more than I did before*

|                                 | (1)                  | (2)                  | (3)                 |
|---------------------------------|----------------------|----------------------|---------------------|
| Leaver                          | -0.643***<br>(0.081) |                      |                     |
| In-Migrant                      | 0.046<br>(0.072)     | -0.083<br>(0.124)    |                     |
| Returner                        | 0.060<br>(0.056)     | -0.013<br>(0.068)    |                     |
| Female                          | 0.211***<br>(0.078)  | 0.189***<br>(0.058)  | 0.056<br>(0.369)    |
| Age                             | 0.322**<br>(0.144)   | 0.696***<br>(0.148)  | 0.114<br>(0.454)    |
| Age squared                     | -0.022*<br>(0.013)   | -0.051***<br>(0.016) | -0.013<br>(0.049)   |
| Retiree                         | -0.132<br>(0.111)    | -0.100<br>(0.258)    | -0.513**<br>(0.255) |
| Self-employed business owner    | 0.235**<br>(0.112)   | 0.286**<br>(0.121)   | 0.713***<br>(0.209) |
| Works in family business        | 0.082<br>(0.150)     | -0.142<br>(0.287)    |                     |
| Not employed, seeking work      | 0.410<br>(0.273)     | 0.948***<br>(0.346)  |                     |
| Not working, not seeking work   | -0.083<br>(0.152)    | -0.208<br>(0.189)    |                     |
| Works remotely                  | 0.094<br>(0.125)     | 0.378**<br>(0.156)   | 0.013<br>(0.287)    |
| Has children in household       | 0.193**<br>(0.085)   | 0.421***<br>(0.123)  | -0.052<br>(0.219)   |
| Has other adults in household   | 0.103<br>(0.070)     | 0.122<br>(0.154)     | -0.063<br>(0.097)   |
| Took survey in August           | -0.004<br>(0.096)    | -0.093<br>(0.114)    | 0.374<br>(0.281)    |
| Took survey in September        | -0.133**<br>(0.065)  | 0.031<br>(0.118)     | 0.318<br>(0.290)    |
| County COVID deaths per 100,000 | -0.067<br>(0.094)    | -0.043<br>(0.131)    | -0.373<br>(0.361)   |
| Lives in metro area             | -0.210***<br>(0.065) | -0.162<br>(0.103)    | -0.544*<br>(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               |
| <i>p</i>                        | 0.0000               | 0.0001               | 0.0000              |

Note: Variables with insufficient corresponding survey responses were removed from Model (3) (denoted by ").  
\**p* < 0.10, \*\**p* < 0.05, \*\*\**p* < 0.01.



## APPENDIX C: SENSE OF BELONGING, FULL REGRESSION OUTPUT

TABLE C1 Probit regression results: Sense of belonging

|                                 | Leavers omitted      |                      | Leavers only        |                     |
|---------------------------------|----------------------|----------------------|---------------------|---------------------|
|                                 | (1)                  | (2)                  | (3)                 | (4)                 |
| In-Migrant                      | -0.030<br>(0.045)    | -0.041<br>(0.053)    |                     |                     |
| Returner                        | -0.005<br>(0.025)    | 0.000<br>(0.024)     |                     |                     |
| Female                          | 0.069***<br>(0.022)  | 0.076***<br>(0.020)  | 0.014<br>(0.093)    | 0.010<br>(0.100)    |
| Age                             | 0.255***<br>(0.054)  | 0.275***<br>(0.054)  | 0.029<br>(0.113)    | 0.025<br>(0.115)    |
| Age squared                     | -0.019***<br>(0.006) | -0.021***<br>(0.006) | -0.003<br>(0.012)   | -0.003<br>(0.012)   |
| Retiree                         | -0.037<br>(0.094)    | -0.037<br>(0.091)    | -0.129**<br>(0.064) | -0.127*<br>(0.068)  |
| Self-employed business owner    | 0.105**<br>(0.045)   | 0.098**<br>(0.043)   | 0.180***<br>(0.042) | 0.177***<br>(0.041) |
| Works in family business        | -0.052<br>(0.104)    | -0.058<br>(0.101)    |                     |                     |
| Not employed, seeking work      | 0.348***<br>(0.120)  | 0.344***<br>(0.114)  |                     |                     |
| Not working, not seeking work   | -0.076<br>(0.070)    | -0.073<br>(0.069)    |                     |                     |
| Works remotely                  | 0.139**<br>(0.055)   | 0.139**<br>(0.056)   | 0.003<br>(0.072)    | -0.002<br>(0.075)   |
| Has children in household       | 0.154***<br>(0.044)  | 0.151***<br>(0.043)  | -0.013<br>(0.055)   | -0.011<br>(0.056)   |
| Has other adults in household   | 0.045<br>(0.055)     | 0.042<br>(0.056)     | -0.016<br>(0.024)   | -0.021<br>(0.025)   |
| Took survey in August           | -0.034<br>(0.040)    | -0.030<br>(0.042)    | 0.087<br>(0.057)    | 0.091<br>(0.057)    |
| Took survey in September        | 0.011<br>(0.043)     | 0.008<br>(0.038)     | 0.072<br>(0.064)    | 0.072<br>(0.064)    |
| County COVID deaths per 100,000 | -0.016<br>(0.048)    | -0.034<br>(0.044)    | -0.094<br>(0.090)   | -0.097<br>(0.093)   |
| Lives in metro area             | -0.059<br>(0.037)    | -0.054<br>(0.035)    | -0.137*<br>(0.071)  | -0.135*<br>(0.074)  |
| I feel like I belong            |                      | 0.052**<br>(0.021)   |                     | 0.002<br>(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                 |

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

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