

Final Report #133

# Characteristics of Rural RNs Who Live and Work in Different Communities

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## ABOUT THE CENTER

The WWAMI Rural Health Research Center (RHRC) is one of six centers supported by the Federal Office of Rural Health Policy (FORHP), a component of the Health Resources and Services Administration (HRSA). The major focus of the RHRC is to perform policy-oriented research on issues related to rural health care and the rural health professional workforce. Specific interests of the RHRC include the adequacy of the supply and education of rural health care professionals, and the availability and quality of health care for rural populations, with particular emphasis on access to high-quality care for vulnerable and minority rural populations.

The WWAMI Rural Health Research Center is based in the Department of Family Medicine at the University of Washington School of Medicine, and has close working relationships with the WWAMI Center for Health Workforce Studies, state offices of rural health, and the other health science schools at the University, as well as with other major universities in the five WWAMI states: Washington, Wyoming, Alaska, Montana, and Idaho. The University of Washington has over 30 years of experience as part of a decentralized educational research and service consortium involving the WWAMI states, and the activities of the RHRC are particularly focused on the needs and challenges in these states.

The Rural Health Final Report Series is a means of distributing prepublication articles and other working papers to colleagues in the field. Your comments on these papers are welcome, and should be addressed directly to the authors. Questions about the WWAMI Rural Health Research Center should be addressed to:

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## EXECUTIVE SUMMARY

### BACKGROUND

Many registered nurses (RNs) living in rural areas of the United States leave their communities to work in other rural and urban communities.<sup>1</sup> This trend increased substantially between 1980 and 2004: in 1980, 14% of RNs living in rural areas worked in a different type of rural area or in an urban area compared with 37% in 2004. The majority of these RNs worked in areas that were “less rural” (larger rural or urban areas) than the rural area types in which they lived.<sup>2</sup> The increase in the percentage of rural RNs who travelled to another geographic area type for work occurred despite the finding that the percentage of all RNs who lived in rural areas of the United States changed only slightly between 1980 and 2004 (15% and 18%, respectively).

This new study explores person- and community-level factors associated with RNs’ decisions to commute away from their rural areas of residence for work. Rural health care facilities struggle with nurse recruitment and retention, and understanding what affects RNs’ decisions to work in other communities may help address rural workforce shortages.

### DESIGN

We examined rural RN demographic, education, employment, and salary characteristics, and compared rural RNs who work in different area types than those in which they live (commuters) to non-commuters by the economic profiles of their residence and work counties, types of rural areas (large rural, small rural, and isolated small

rural), and regions of the country. Data sources included the 2004 National Sample Survey of RNs (a representative sample of RNs in the U.S.), the Economic Research Service County Typology Codes, and Claritas population data. Using the Rural-Urban Commuting Area (RUCA) taxonomy of rural area types, we classified ZIP codes as being in urban or one of three subcategories of rural areas. We assessed significant statistical differences among results and produced point estimates with 95% confidence intervals.

### FINDINGS

Among rural-residing RNs, commuting to a job in another rural or urban area was associated with younger age (41.2% of RNs younger than 45 commuted compared with 34.1% of RNs age 45 and older) and employment in hospitals (40.6% of RNs employed in hospitals commuted compared with 33.4% of other rural-residing RNs). Fewer rural RNs in the West commuted compared with RNs in other regions (West = 26.8%, Midwest = 37.7%, Northeast = 38.8%, South = 40.3%). A higher percentage of rural RNs who had changed employers in the prior year commuted to other area types (43.7%) than RNs who kept the same employer and position (36.4%). A higher percentage of rural RNs who held staff nurse or nurse clinician (39.2%) or consultant positions (49.0%) worked in other geographic area types than did RNs holding other positions. The mean annual salaries of rural RNs who commuted to larger rural or urban jobs were higher than for non-commuting RNs, both when only full-time workers were examined (\$51,106 vs. \$48,558) as well as when full- and part-time workers were combined (\$45,509 vs. \$43,305). Factors that did not appear

to be associated with rural RNs' commuting included sex, race/ethnicity, highest nursing degree obtained, and job satisfaction. A larger percentage of rural RNs who lived in low-education counties commuted to work in area types different from their residence than did RNs in non-metro recreation or retirement destination counties. These findings consistently were most pronounced in smaller and more isolated rural area types.

## **DISCUSSION**

Higher salaries appear to have been one of the factors drawing rural RNs to commute to other geographic areas for work. Because there were higher percentages of commuters among RNs who had changed jobs in the prior year and commuting was associated with younger RNs, commuting appears to be a somewhat opportunistic practice more readily embraced by RNs in the earlier stages of their careers. Living in a destination retirement community or recreation-oriented community appears to help keep rural RNs working in the types of rural areas in which they reside. RNs may commute less in the West because of lower population density and greater commuting distances.

The attractiveness of a higher salary may be sufficient to offset the disincentives of commuting among younger RNs, causing them to shop among jobs outside of their residence communities in order to find the best pay available. There are several reasons why older RNs, however, may work in their residence area type, although further research is needed for confirmation. More older RNs may be in positions (such as those with on-call requirements) for which they need to be close to respond, they may be less willing to work in the physically demanding staff nurse positions that are attractive to younger commuting RNs, they may be less willing to travel, and/or they may want to maximize retirement or other benefits by working for the same employer longer.

## **IMPLICATIONS FOR POLICY, DELIVERY, OR PRACTICE**

It is likely that policies that yield more competitive rural RN salaries could encourage more rural-residing RNs to work in the rural communities in which they live. Further study, for example to examine if rural RN commuting is associated with high RN vacancy rates, would help our understanding of the impact of this commuting behavior on the health workforce in rural communities.

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## BACKGROUND

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The growing proportions of RNs leaving their rural residence to work elsewhere are part of a general upward trend in the amount of commuting observed in American society for several decades. Between 1980 and 2000 there was an 85% increase in the number of workers in the United States who crossed county lines to commute to work.<sup>3</sup> The U.S. Census's American Community Survey for 2005-2009 found over 15% of workers traveled 45 minutes or more to work compared with 12% traveling more than 45 minutes in 1990.<sup>4,5</sup> Some of the causes of this trend are long term: they include suburbanization of residence (about 50% of all commuters in 2000 lived in the suburbs) accompanied by the relocation of existing jobs and creation of new ones outside of central urban areas, and widespread private vehicle ownership, which facilitated commuting by private vehicles.<sup>3</sup> In other words, commuting to work has become a common feature of American life.

The nation's rural areas have reported shortages of RNs for decades.<sup>6-10</sup> As a result, considerable resources have been spent to recruit and retain RNs in rural areas and many vacancies are filled by expensive contract nurses. These vacancies persist despite our findings that there were more RNs per capita living in rural areas in 2004 than the number per capita in urban areas in 1988:

there were 717 RNs per 100,000 urban residents in 1988 and 753 RNs per 100,000 residents of isolated small rural areas (the area type with the lowest density of RNs) in 2004.<sup>1</sup> These findings likely imply that rural-residing RNs are bypassing jobs near their homes for employment in more populated areas, even if it involves commuting significant distances.

Better understanding of the factors that contribute to a rural-residing RN's decision to work in a different community is needed to develop strategies to avert or reduce further maldistribution of the rural RN workforce. In the analyses that follow, we shed light on these dynamics by exploring individual- and community-level characteristics of rural nurses that may be associated with RNs' decisions to commute from rural areas of residence to work in other communities—most often in more populated rural and urban areas.

## METHODS

Our findings describe characteristics of rural RNs who did, and who did not, live and work in the same Rural-Urban Commuting Area (RUCA) defined area types (isolated small rural, small rural, large rural, and urban). For efficiency we call RNs "commuters" if they worked in different area types than the area type in which they resided. We acknowledge that RNs may commute relatively large distances to work without meeting this definition of "commuter," e.g., if they drive from one large rural area to another or from one location within an isolated small rural area to another site in that same area.

## DATA SOURCES

This study used individual-level data from the 2004 round of the National Sample Survey of Registered Nurses (NSSRN), a nationally representative survey of RNs conducted by the Health Resources and Services Administration (HRSA) every four years.<sup>11</sup> The 2004 NSSRN used a stratified, nested sample drawn from



the population of RNs with active licenses in the United States at the time of the survey. This sampling technique accounted for RNs who are licensed in more than one state and allowed for the oversampling of minorities. The resulting data set provided appropriate weights to be applied in order to obtain an unduplicated count of actively licensed RNs. The 2004 NSSRN had a 70.5% response rate, resulting in a sample with 35,635 unweighted and 2,909,357 weighted respondents. Through a special use agreement with HRSA, we used the version of the NSSRN data that included respondent residence and work ZIP codes, allowing us to carry out geographical analyses.

In addition to RN data, we used community economic measures from the 2004 County Typology Codes developed by the Economic Research Service (ERS) of the U.S. Department of Agriculture.<sup>12</sup> The ERS typology classifies all counties in the United States according to indicators of economic dependence and policy-relevant themes. Our analyses used the policy-relevant ERS county designation typology: persistent poverty, housing stress, low-employment, low-education, population loss, non-metro recreation, and retirement destination.

## STUDY POPULATION

This study examined rural RNs (identified by their RUCA area type of residence) who were employed in nursing. In 2004, working RNs comprised 85.1% of all RNs with active licenses living in rural areas.<sup>1</sup> As described above, the final analysis file excluded RNs without residence or work geographic data needed for RUCA assignment and those whose commuting status could not be ascertained. We also excluded from our analyses the small number of RNs younger than 18 or older than 75 years of age, as well as RNs who were in the military or resided outside of the continental United States. RNs with advanced practice education (10.1% of all rural RNs in the 2004 NSSRN sample) also were excluded because we found in our preliminary work that advanced practice nurses (APNs) had different commuting patterns from other RNs, suggesting that they really may be a distinct professional group. In addition, because the NSSRN sampling design does not select from a specific APN strata, separate estimates for APNs may not reflect their true population characteristics.<sup>11</sup>

Our final study population of rural RNs working in nursing included 6,517 unweighted and 408,501 weighted respondents. There are slight differences in these numbers by analyses because of missing data for individual survey question items.

## GEOGRAPHY

We applied the ZIP code-based Rural-Urban Commuting Area (RUCA) taxonomy to identify the rural-residing RNs in our study. RUCAs are used

to designate areas as urban or rural based on their functional relationships using Census Bureau data and definitions combined with work commuting flows.<sup>13</sup> The RUCA codes can be collapsed into groupings to identify urban, large rural, small rural, and isolated small rural areas. For this study, we grouped RUCA codes as follows: urban (RUCA codes 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, and 10.1); large rural (RUCA codes 4.0, 4.2, 5.0, 5.2, 6.0, and 6.1); small rural (RUCA codes 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, and 9.2); and isolated small rural (RUCA codes 10.0, 10.2, 10.3, 10.4, 10.5, and 10.6). RNs were assigned to either urban, large rural, small rural, or isolated small rural areas using current residence and current work ZIP codes available in the 2004 NSSRN data file.

Some cases (less than 1% of the entire sample) lacked some or all the ZIP code information needed to assign RUCAs. We imputed missing data using other available data sources that best estimated the corresponding RUCA area type. First, when residence ZIP codes were missing, we substituted “residence” with the survey mailing ZIP code (also made available in the data file). Previous analyses showed a very high level of concordance between residence and mailing ZIP codes in our study population. If both the current residence and the current mailing ZIP codes were missing, we used the county-level Federal Information Processing Standards (FIPS) codes that also were included in the NSSRN 2004 data file. FIPS codes are issued by the National Institute of Standard and Technology (NIST) in order to standardize the identification of geographic entities across federal government agencies. We attached 2003 Urban Influence Codes (UICs) to each of those FIPS codes and used the UIC values to approximate a RUCA assignment for cases lacking valid residence as well as mailing ZIP codes. In similar fashion, we used FIPS codes and UIC values to approximate the RUCA areas type of current work when the corresponding ZIP code was missing. Cases lacking both ZIP code and FIPS code data were excluded from the study population.

## ANALYSES

We performed bivariate analysis using SPSS (Versions 11.0 and 17.0) and SUDAAN (Release 9). The complex sample design of the NSSRN necessitated the use of SUDAAN to calculate variance estimates and statistical tests. Unadjusted linear regression and chi-square analysis were used respectively to test means and proportions for significant statistical differences. Point estimates with their 95% confidence intervals are presented here.

ERS policy-relevant county designations are not mutually exclusive, so tests of significance were not applicable among findings for community-level analyses.

**Table 1: RNs Who Commuted to an Area Type Different from Where They Reside**

Region:	RNs Residing in Rural Areas, Overall				RNs Residing in Large Rural Areas				RNs Residing in Small Rural Areas				RNs Residing in Isolated Small Rural Areas			
	Number†	Percent Who Commute***	95% Confidence Intervals		Number†	Percent Who Commute*	95% Confidence Intervals		Number†	Percent Who Commute**	95% Confidence Intervals		Number†	Percent Who Commute	95% Confidence Intervals	
U.S. Overall	408,502	37.5%	35.8-39.1	208,920	24.2%	22.3-26.2	114,890	41.4%	38.7-44.2	84,692	64.8%	61.2-68.3				
Northeast	63,673	38.8%	33.9-44.0	34,331	23.2%	18.7-28.4	13,351	45.3%	36.3-54.6	15,991	67.2%	60.1-73.5				
Midwest	144,850	37.7%	35.5-39.9	66,267	24.0%	20.9-27.4	48,184	40.7%	36.7-44.7	30,400	62.8%	58.8-66.8				
South	149,197	40.3%	38.5-42.2	79,085	27.4%	24.2-30.9	40,285	45.8%	41.9-49.6	29,828	67.0%	61.1-72.4				
West	50,782	26.8%	23.9-30.0	29,237	17.3%	13.3-22.2	13,070	26.6%	19.5-35.3	8,473	59.9%	49.2-69.8				

\* P ≤ .05 for comparisons of results among regions. \*\* P ≤ .01 for comparisons of results among regions. \*\*\* P ≤ .001 for comparisons of results among regions.

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

‡ Weighted numbers. May not sum to total because of missing data for individual survey questions.

## RESULTS

This report of our findings shows first the distribution of rural RNs' commuting patterns in 2004, nationally and within regions of the country, and follows with greater detail on their education, household, demographic, and work characteristics. We then describe the community characteristics of rural RNs who commuted to area types that were different from the area types in which they resided.

### REGIONAL DIFFERENCES IN COMMUTING PATTERNS

In 2004, 37.5% of rural RNs worked in jobs in different area types (i.e., urban, large rural, small rural, or isolated small rural) than the area type in which they lived. The more isolated the rural area type in which an RN lived, the greater the percentage of RNs in that area who commuted to larger rural towns or urban areas for work (see Table 1 and Figure 1). This trend held true across the four regions of the country, although in the West the percentages of rural RNs who commuted (worked and lived in different area types) were lower (26.8%) than in the other three geographic regions (37.7% in the Midwest, 38.8% in the Northeast, and 40.3% in the South).

### RURAL RNS' COMMUTING PATTERNS BY EDUCATION, HOUSEHOLD, DEMOGRAPHIC, AND WORK-RELATED CHARACTERISTICS

#### Education, Household, and Demographic Characteristics

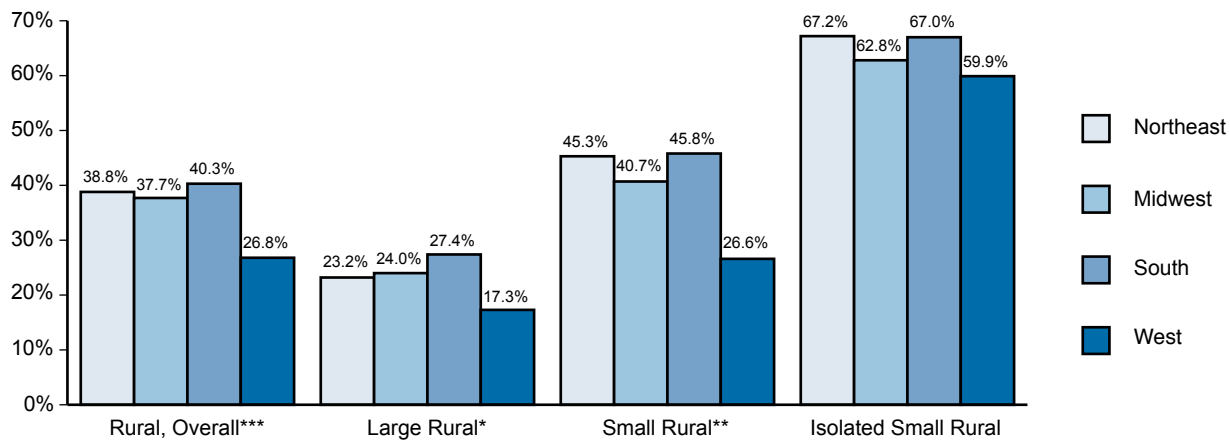
The extent to which rural RNs commute to work to an area type different from the type where they reside by different RN education, household, and demographic characteristics is shown in Table 2.

**Nursing Education:** The NSSRN provides data on the highest nursing degree attained by respondents. The percentages of rural RNs who commuted from home to a different area type for work varied little by the highest nursing education achieved: slightly more RNs with a diploma or associate degree as their highest nursing education commuted to work in different area types compared with RNs with BSNs or higher nursing degrees, although the difference was not significant (37.7% vs. 36.3%).

**Marital and Dependents Status:** The same percentages (37.0%) of married and of divorced/separated/widowed rural RNs commuted to different area types for work, while a higher, but not significantly different, percentage of never-married rural RNs commuted (41.3%).

The percentages of rural RNs with and without dependent children or adults in their home who commuted were similar: 36.4% of those with dependents in their home commuted compared with

**Figure 1: Percent of Rural RNs Who Commute† to an Area Type Different from Where They Reside, by U.S. Census Region**



\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

37.7% of those without dependents in their home.

**Gender and Age:** Similar percentages of male and female rural RNs commuted to work in different area types than where they resided: 38.7% of male rural RNs commuted vs. 37.4% of female rural RNs.

Greater differences could be seen by RN age, however. A larger percentage of younger RNs (less than 45 years of age) commuted out of their rural residence areas than among older RNs (age 45 or older) (41.2% vs. 34.1%). But even though older rural RNs were less likely than younger RNs to commute to work, still more than a third of those over age 45 did so. The mean age of commuting rural RNs was 43.8 years compared with 45.7 years for non-commuters. Figure 2 shows commuting characteristics of rural RNs by five-year age groups.

**Table 2: Rural RNs Who Commute† by Education, Household, and Demographic Characteristics**

Characteristic	Rural RNs		
	Number‡ (Weighted)	Percent Who Commute	95% Confidence Intervals
<b>Highest nursing education</b>			
Diploma or associate degree	272,709	37.7%	35.7-40.0
Bachelor's or higher	129,808	36.3%	33.6-39.2
<b>Marital status</b>			
Married	312,198	37.0%	35.2-38.9
Widowed/divorced/separated	67,499	37.0%	34.6-39.4
Never married	20,224	41.3%	34.3-48.7
<b>Dependent children or adults in household</b>			
Yes	142,248	36.4%	34.3-38.5
No	256,209	37.7%	35.9-39.5
<b>Gender</b>			
Male	19,924	38.7%	31.9-45.9
Female	388,480	37.4%	35.8-39.1
<b>Age***</b>			
< 45 years	186,739	41.2%	38.7-43.7
≥ 45 years	218,768	34.1%	32.5-35.7

\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

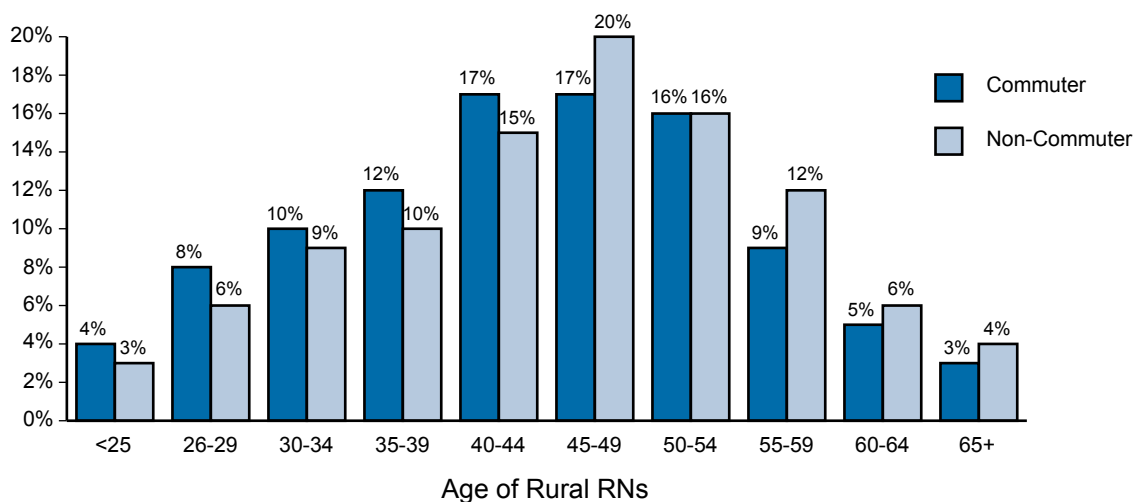
‡ Weighted numbers. May not sum to total rural RNs because of missing data for individual survey questions.

## Employment Characteristics

The relationship between employment characteristics of rural RNs and commuting is shown in Table 3.



**Figure 2: Age Distribution of Rural RNs by Commuting\* Status**



\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

**Table 3: Rural RNs Who Commute† by Employment Characteristics**

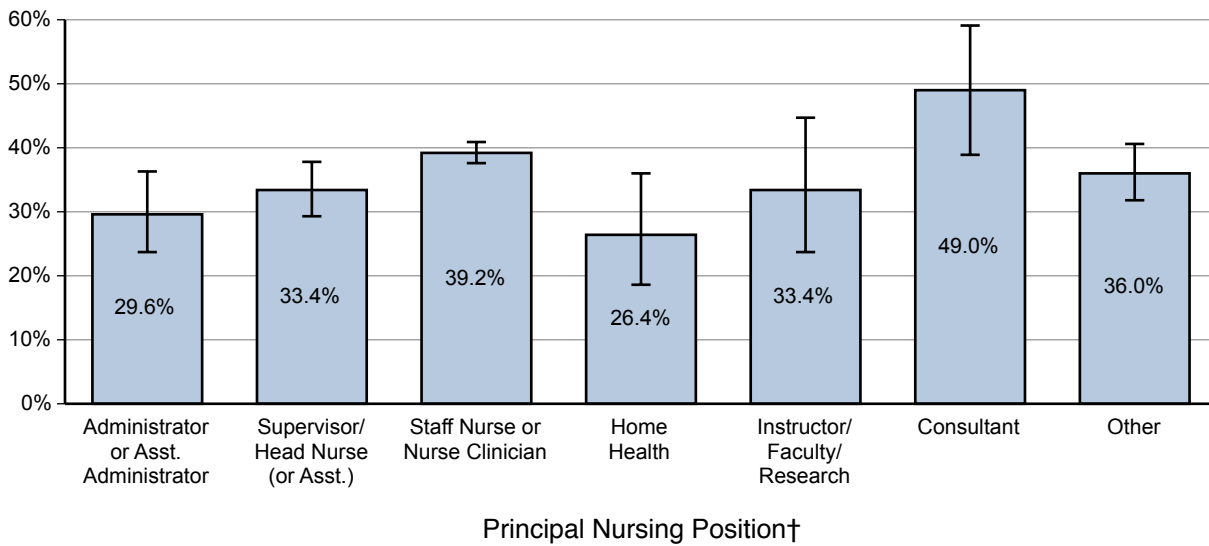
Characteristic	Rural RNs		
	Number‡ (Weighted)	Percent Who Commute	95% Confidence Intervals
<b>Employment setting***</b>			
Hospital	220,605	40.6%	38.5-42.7
Non-hospital	181,198	33.4%	31.0-35.8
<b>Full- or part-time status</b>			
Work full time	297,664	37.3%	35.7-38.9
Work part time	110,662	38.1%	34.6-41.6
<b>Principal nursing position**</b>			
Administrator or asst. administrator	25,928	29.6%	23.7-36.3
Supervisor/asst. supervisor/head nurse/asst. head nurse	45,521	33.4%	29.3-37.8
Staff nurse or nurse clinician	261,249	39.2%	37.6-40.9
Home health	10,437	26.4%	18.6-36.0
Instructor/faculty/research	9,002	33.4%	23.7-44.7
Consultant	4,996	49.0%	38.9-59.1
Other	44,724	36.1%	31.8-40.6
<b>Direct patient care (DPC)</b>			
<50% of principal position is DPC	136,667	35.6%	32.7-38.7
≥50% of principal position is DPC	261,996	38.3%	36.8-39.8
<b>Union participation*</b>			
Represented by a union	50,184	33.6%	29.5-38.0
Not represented by a union	348,999	37.8%	36.1-39.4
<b>Transition in employment in past year**</b>			
Same employer and same position	294,255	36.4%	34.6-38.3
Same employer, different position	28,673	35.9%	29.6-42.7
Different employer	47,806	43.7%	40.4-47.2

\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

‡ Weighted numbers. May not sum to total rural RNs because of missing data for individual survey questions.

**Figure 3: Percent of Rural RNs Who Commute\*, by Principal Nursing Position**



\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.  
 † Bars indicate 95% confidence intervals.

**Employment Setting:** A significantly higher percentage of rural RNs who worked in hospitals commuted to work in area types different from those in which they resided compared with rural RNs who worked in other settings (40.6% vs. 33.4%).

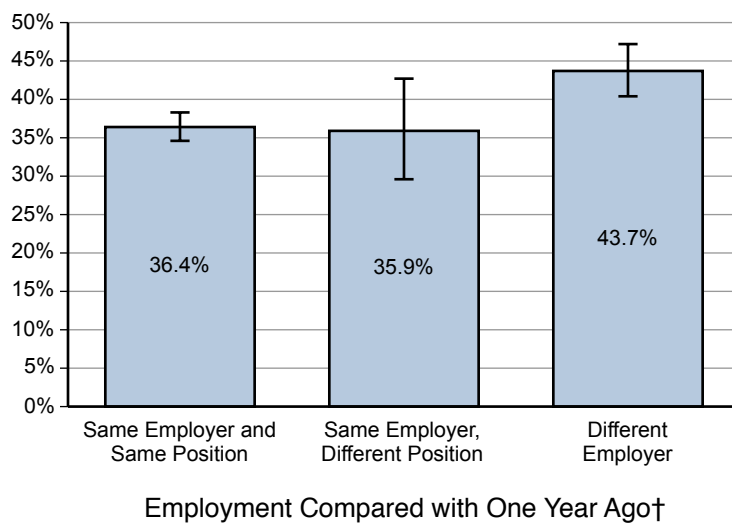
**Full-Time vs. Part-Time**

**Employment:** Similar percentages of rural RNs who worked full time commuted out of their residence area types for work as did those who worked part time (37.3% vs. 38.1%).

**Principal Nursing Position:** The NSSRN provided 37 options from which RNs could select their principal nursing position. Among the nursing positions held by most rural RNs, the greatest percentages of commuting were reported by staff nurses or nurse clinicians (39.2% of the combined categories) and by consultants (49.0%). The positions with the lowest percentages of commuting were home health (26.4%) and administrators and assistant administrators (of organizations, facilities, agencies, or nursing) (29.6%). See Figure 3.

**Direct Patient Care:** Rural RNs whose principal nursing position involved direct patient care less than

**Figure 4: Percent of Rural RNs Who Commute\*, by Current and Prior Year Employment Status**



\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.  
 † Bars indicate 95% confidence intervals.

half of the time had a slightly lower percentage of commuting out of the area type of their residence than did rural RNs with more involvement in direct patient care (35.6% vs. 38.3%), although these differences were not significant.

**Union Participation:** Workers participate in unions to secure desired working conditions and wages. We examined union membership among rural RNs to see if commuters were more or less likely to be union members. Only 16.1% of rural RNs reported being represented by a union. A somewhat higher percentage of rural RNs without union representation commuted to work in an area type different from their residence area type (37.8%) than among those with union representation (33.6%).

**Transitions in RN Employment During the Past Year:** Nearly 80% of rural RNs reported they had the same principal nursing position and same employer as they held one year prior. But rural RNs who had changed

employers in the past year commuted to work in 2004 at much higher rates (43.7%) than did rural RNs who stayed with the same employer in the same position as they held the prior year (36.4%). Rural RNs who had kept the same employer but were in a different position from the prior year commuted at lower rates (35.9%), but this difference was not significantly different from either of the other types of rural RNs. See Figure 4.

### Salary

Commuting RNs who worked full time and resided in any rural area type had higher mean salaries (\$51,106) than their counterparts who did not commute (\$48,558) (Table 4). Mean salaries were also higher for commuting rural RNs compared with non-commuting rural RNs when part-time and full-time workers were combined (Figure 5).

Median salaries were also higher for commuting rural RNs compared with non-commuting RNs. The median salary difference was \$3,000 for full-

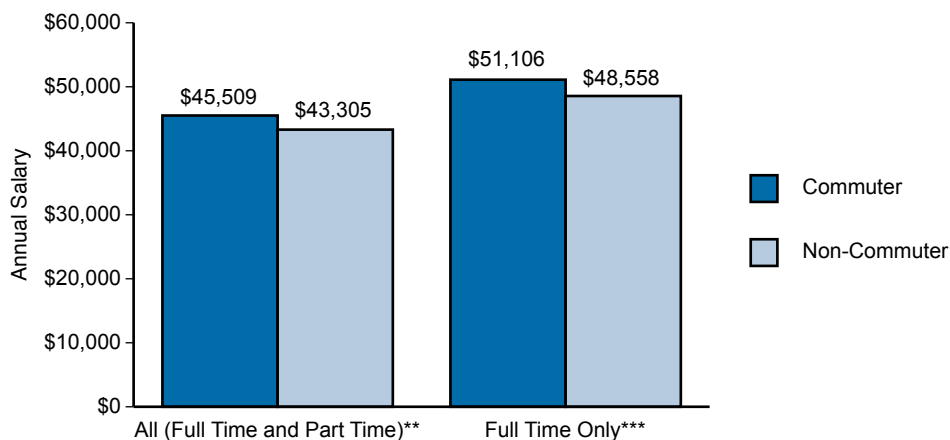
**Table 4: Annual Mean Full-Time Salaries of Rural Nurses by Commuting† Status**

	RNs Residing in Rural Areas, Overall		RNs Residing in Large Rural Areas		RNs Residing in Small Rural Areas		RNs Residing in Isolated Small Rural Areas	
	Number (Weighted)	Mean Salary***	Number (Weighted)	Mean Salary***	Number (Weighted)	Mean Salary**	Number (Weighted)	Mean Salary**
Employed full time								
Non-commuting	175,661	\$48,558	109,901	\$49,395	46,077	\$47,725	19,683	\$45,822
Commuting	103,369	\$51,106	33,865	\$53,233	33,488	\$51,272	36,016	\$48,952

\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

**Figure 5: Annual Mean Salaries of Rural RNs Who Do and Who Do Not Commute†**



\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

time RNs (\$49,500 for commuters vs. \$46,500 for non-commuters) and also by \$3,000 for all full- and part-time RNs combined (\$45,000 for commuters vs. \$42,000 for non-commuters).

### Satisfaction

Nearly 80% of rural RNs reported that they were extremely or moderately satisfied with their principal nursing position, with similar percentages among commuting and non-commuting RNs (78.0% and 79.0%, respectively). As shown in Table 5, the

**Table 5: Percent of Rural RNs Who Are Satisfied with Their Principal Nursing Position, by Commuting Status\* and Rural Area Type**

Characteristic	Rural RNs		
	Number† (Weighted)	Percent Who Commute‡	95% Confidence Intervals
Satisfaction with principal nursing position			
Extremely or moderately satisfied	315,362	37.0%	35.0-39.1
Neither satisfied nor dissatisfied	32,153	38.3%	33.2-43.7
Extremely or moderately dissatisfied	53,594	38.6%	33.8-43.6

\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

† Weighted numbers. May not sum to total rural RNs because of missing data for individual survey questions.

‡ Results of overall chi square not significant.

percentage of rural RNs who commuted was also similar regardless of their level of satisfaction with their principal nursing position: between 37% and 39% commuted whether or not they were satisfied.

## COMMUNITY CHARACTERISTICS OF RURAL RNS WHO COMMUTE

The ERS 2004 county typology codes includes five county policy types that we used in these analyses as community-level characteristics that might contribute to rural RNs' decisions to work in a different area type. The five ERS county policy type specifications, described below, are not mutually exclusive. For purposes of our interpretation of the findings, we refer to low-education, low-employment, persistent poverty, and population loss counties as "economically stressed" communities and non-metro recreation and retirement destination counties as "economically reinforced" communities.

**Persistent poverty** counties are those where 20% or more of residents were poor as measured by each of the last four censuses: 1970, 1980, 1990, and 2000 (386 counties total, 340 of which are non-metro).

**Low-education** counties are those in which 25% or more of residents 25-64 years old had neither a high school diploma nor GED in 2000 (622 counties total, 499 of which are non-metro).

**Low-employment** counties are those where less than 65% of residents 21-64 years old were employed in 2000 (460 counties total, 396 of which are non-metro).

**Population loss** counties are those where the number of residents declined both between the 1980 and 1990 censuses and between the 1990 and 2000 censuses (601 counties total, 532 of which are non-metro).

**Non-metro recreation** counties are classified using a combination of factors, including share of employment or share of earnings in recreation-related industries in 1999, share of seasonal or occasional use housing units in 2000, and per capita receipts from motels and hotels in 1997 (368 counties total, of which 334 counties are non-metro).

**Retirement destination** counties are those where the number of residents 60 and older grew by 15% or more between 1990 and 2000 due to in-migration (440 counties total, of which 277 are non-metro).

## Rural Community Types and RN Commuting

Overall, rural RNs who lived in ERS-classified counties with characteristics of being economically stressed appeared somewhat more likely to leave their rural areas of residence for work than rural RNs who lived in economically reinforced counties (Table 6). Because the ERS county types are not mutually exclusive and some RNs may fall into multiple categories, testing of the statistical significance of differences among ERS county types was not applicable (see Figure 6).

Among rural area types, commuting out of the economically stressed counties was most pronounced for isolated small rural areas. When isolated small rural areas were located in low-education or persistent poverty counties, between 70% and 75% of RNs living in those areas worked in other area types. For RNs living in small rural and large rural areas, the commuting association with community type is less clear. Small rural areas that were in economically stressed counties had higher percentages of RN commuting than those in more economically reinforced

counties, but the differences were not as great. In large rural areas, the numbers were more variable and did not follow the general pattern seen in small rural and isolated small rural areas.

As shown in Figure 7, the mean salary of rural RNs (including both full- and part-time workers) who commuted to a different area type for work was not significantly different from non-commuters residing in all ERS county types except population loss, where commuters earned more average salary than non-commuters.

**Table 6: Percent of Rural RNs Who Commute\* to an Area Type Different from Where They Reside, by ERS† County Type of Residence**

ERS County Type of Residence	RNs Residing in Rural Areas, Overall		RNs Residing in Large Rural Areas		RNs Residing in Small Rural Areas		RNs Residing in Isolated Small Rural Areas	
	Number (Weighted)‡	Percent Who Commute	Number (Weighted)‡	Percent Who Commute	Number (Weighted)‡	Percent Who Commute	Number (Weighted)‡	Percent Who Commute
<b>Economically stressed county type</b>								
Persistent poverty	34,411	38.1%	13,490	16.4%	12,270	39.5%	8,652	70.0%
Low education	58,257	45.9%	21,597	27.3%	20,344	42.9%	16,316	74.3%
Low employment	48,321	40.1%	16,899	23.9%	16,402	35.0%	15,019	64.0%
Population loss	66,874	35.6%	31,075	18.6%	18,691	41.8%	17,107	59.7%
<b>Economically reinforced county type</b>								
Non-metro recreation	60,686	33.1%	24,989	22.7%	18,784	28.1%	16,914	54.0%
Retirement destination	59,896	34.7%	28,709	24.9%	16,278	34.8%	14,909	53.3%

Confidence intervals (left to right by rural area type):

Persistent poverty 11.0-23.8, 33.4-46.0, 60.5-78.0, 33.7-42.7;  
 Low education 20.5-35.3, 36.0-50.0, 64.5-82.2, 42.0-49.8;  
 Low employment 17.1-32.3, 28.6-42.1, 56.0-71.3, 35.6-44.9;  
 Population loss 14.0-24.2, 33.4-50.7, 52.6-66.5, 31.6-39.8;  
 Non-metro recreation 18.2-27.9, 22.5-34.6, 47.1-60.7, 29.5-36.9;  
 Retirement destination 20.6-29.8, 27.8-42.6, 45.7-60.7, 31.1-38.4.

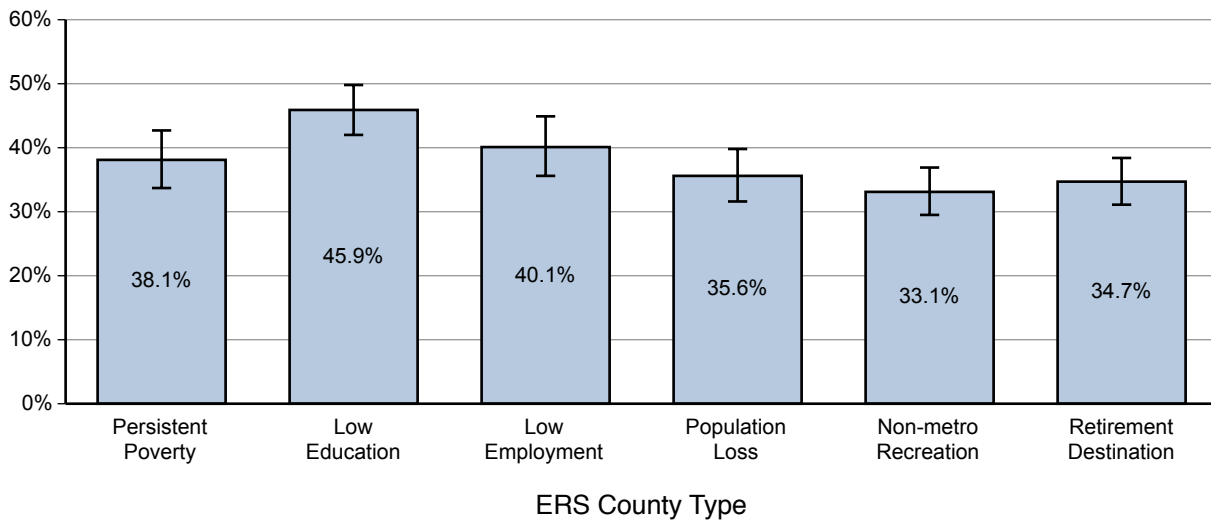
\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

† Economic Research Service, U.S. Department of Agriculture.

‡ Weighted numbers. May not sum to total because of missing data for individual survey questions.

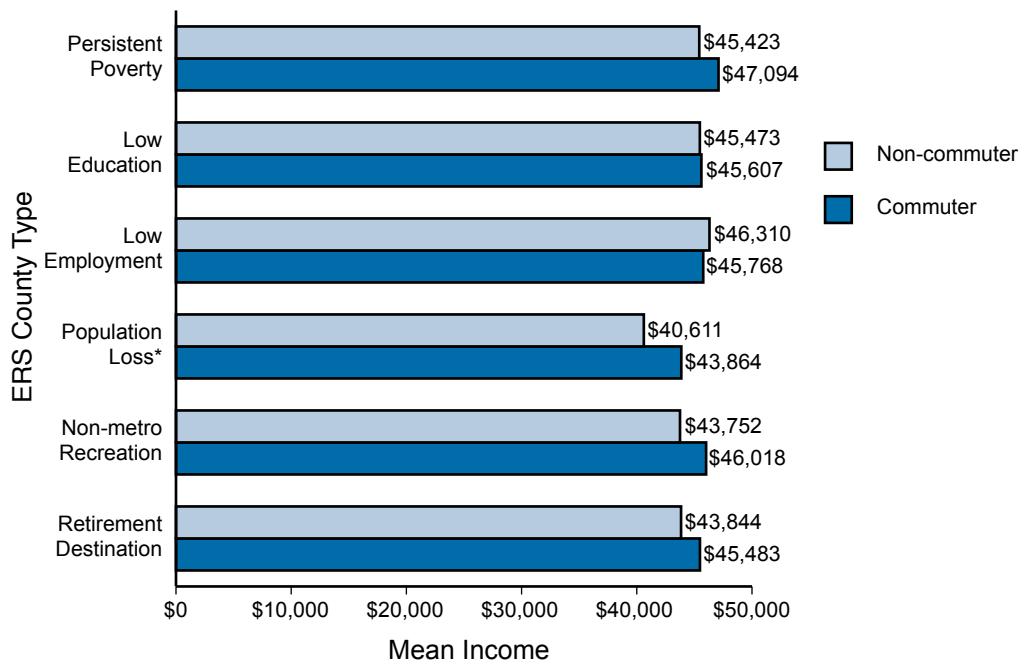


**Figure 6: Percent of Rural RNs Who Commute\* Out of the Area Type in which They Reside, by ERS County Type**



\* Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

**Figure 7: Mean Salaries† of Rural RNs Who Commute‡ and Those Who Do Not Commute, by ERS County Type of Residence**



\*  $P \leq .05$ . \*\*  $P \leq .01$ . \*\*\*  $P \leq .001$ .

† Includes full- and part-time workers.

‡ Work in a different area type (isolated small rural, small rural, large rural, or urban) than the type in which they reside.

## STUDY LIMITATIONS

As described above, this study used the term “commuter” to describe RNs who worked in a different area type (urban, large rural, small rural, or isolated small rural) than the area type in which they resided. The use of this term, however, does not involve any actual data on drive time or distance traveled to work, so it may underestimate the number of actual commuters by excluding RNs who travel long distances to work within one area type (e.g., within one expansive isolated small rural area) or from one area to another of the same type while crossing other area types (e.g., if the RN lived in a small rural area and worked in a different small rural area and had to cross a large rural area to get to the work location).

Several years have transpired since the data used in this study (the 2004 NSSRN) were collected, which may affect their applicability to current workforce and community situations. Commuting, however, is likely to have increased under worsening economic conditions, which may make these findings even more relevant to rural nurse policy and planning. There is also widespread evidence that the economic downturn has significantly slowed nursing retirements nationwide. It is logical to assume that this economic trend is also influencing nurses’ commuting patterns as well as their possible reluctance to change positions in a stagnant economy.

This study’s findings are limited by the occasional errors and biases inherent in cross-sectional sample surveys, including those that occur in the sampling design, when respondents differ from non-respondents, with respondent recall, in the construction and application of sample weights, and in data management. The response rate for the 2004 NSSRN was 70.5%, which should minimize non-response bias. The survey methodology, including sampling and weighting strategies, is fully documented and has been used for many other estimates of the nation’s RN population.

The community-level analyses in this study combined data classified using sub-county geographic parameters (the RUCA rural taxonomy) with data classified using county-level geographic parameters (the ERS policy-type county taxonomy). To interpret these findings, one must presume that if an RN commutes out of a RUCA area, s/he is also commuting out of the county, which may not be true. Nurses in geographically large counties may be commuting to work in large hospitals but remaining within county boundaries. As a result, the findings from the community-level analyses should be viewed with caution.

## DISCUSSION

Rural communities appear to be competing with larger towns and cities for RNs (although scant data exist on RN vacancies in rural areas that could be associated with the findings from this study). The higher salaries in larger towns and cities appear to draw rural RNs away from working in the area types in which they reside. This is more pronounced among younger RNs and among RNs who have changed employers recently. The attractiveness of a higher salary may be sufficient to offset the disincentives of commuting among younger RNs, meaning that higher RN pay in net outflow communities may be one way to sustain a local RN workforce. Older RNs, however, may remain in their residence communities because they are in positions (such as those with on-call requirements) for which they need to be close to respond, because they are less willing to work in the physically demanding staff nurse positions that are attractive to younger commuting RNs, because they are less willing to travel longer distances, and/or because they want to maximize retirement or other benefits by working for the same employer longer.

More rural RN commuters work in hospitals than do non-commuters. This pattern may be the expression of commuters’ preference for hospital work—particularly in direct patient care—or more likely is the result of hospitals’ higher salaries and dominance as an employer of RNs. Another explanation for this finding is that many hospitals employ RNs for short weeks of days with long hours, e.g., three 12-hour days per week. Such schedules enable RNs to earn maximum pay during a condensed workweek, allowing them to schedule workdays together and then spend more days per week at their rural homes.

The finding that RN education level appeared to not be associated with commuting patterns may change with the increase in the number of magnet-status hospitals and with other factors that increase demand for RNs with BSN degrees.

Marital status and the presence of children or adult dependents was not associated with RNs’ propensity to commute outside of their area of residence. Nursing remains a largely female profession and might be expected to conform to the “spatial entrapment” theory of gender-based commuting. As found by other researchers examining employment across job sectors, however, rural RNs’ commuting does not appear to be constrained by domestic responsibilities and is more likely motivated by the prospect of personal economic and professional rewards.<sup>14,15</sup>

Fewer commuting than non-commuting rural RNs were in administrative or supervisory positions, a possible indication that those in nursing management positions may not be able to meet the requirements of the job

during a condensed workweek or may need to be in close proximity to their jobs to be available to respond quickly to urgent needs. This finding may also indicate that those in management positions are less inclined to seek employment opportunities elsewhere.

Commuters and non-commuters share some characteristics: both full-time and part-time RNs commute at about the same rate, and no differences in commuting were seen among RNs with different levels of job satisfaction. It would seem that the commuting experience in and of itself does not undermine job satisfaction, or perhaps commuting is an expression of dissatisfaction with a previous job. The finding that there were more commuters among RNs who changed employers in the prior year than among those who did not suggests that many rural RNs who commute are opportunistic, in the sense that they more often seek and act upon new job opportunities with better perceived rewards.

Commuting by RNs is less prominent in the West, likely because western states are less densely populated and travel distances are greater than the average for central, southern, and eastern states, which makes commuting a more significant endeavor and less desirable.

Rural communities that are economically stressed experienced more out-commuting by RNs than those communities that were economically reinforced by retirement or recreation activities. This is consistent with research findings showing that across job sectors, approximately one third of new rural jobs and one half of new metro jobs are filled by commuters from outside the community.<sup>16</sup> Presumably, most of the commuters come from communities where the jobs are less available and/or desirable. A possible contributing factor may be that rural nursing programs are more likely to be located in recreationally focused communities (i.e., college towns) where nurses prefer to live and work following graduation.

## IMPLICATIONS FOR POLICY, DELIVERY, OR PRACTICE

Greater earnings appear to be an incentive for RNs to commute, or at the very least is one of the rewards of going to jobs outside of their rural area of residence. At the same time, living in a destination retirement community or recreation-oriented community appears to help keep rural RNs working in the types of rural areas in which they reside. The willingness of nurses to travel to improve their salaries is likely driven by many factors, including family income needs and lifestyle preferences. These findings have important implications for rural health care employers: nursing salaries matter. It is likely that policies that yield more competitive rural RN salaries could encourage more rural-residing RNs to work in the rural communities in which they live. Further study, for example to examine if rural RN commuting is associated with high RN vacancy rates, would help our understanding of the impact of this commuting behavior on rural communities.

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