Variations in Health Insurance Coverage for Rural and Urban Nonelderly Adult Residents of Florida, Indiana, and Kansas

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ABSTRACT: ***Context:*** *Evidence exists for differences in health insurance coverage among states, but less is known about variations across different kinds of communities within states.* ***Purpose:*** *This article assesses the role of residential setting (metropolitan county, rural adjacent, and rural nonadjacent) in health insurance coverage for adult residents, under age 65, using data from large-scale surveys collected in 3 diverse states (Florida, Indiana, and Kansas).* ***Methods:*** *Descriptive statistics are provided, and logistic regression models are used to examine the relationship between uninsurance status and residential settings while controlling for personal characteristics. Adjusted uninsurance rates by residential settings are presented for each state.* ***Findings:*** *Residential settings are significantly associated with uninsurance status in 2 of the 3 states we examined. We find that adult Floridians of rural adjacent counties are more likely to be uninsured than those in urban counties, but, for Indiana residents, uninsurance status is comparable between urban and rural adjacent residents. Rural nonadjacent Indiana residents are more likely to be uninsured compared to those in urban counties. The insurance status of adult Kansans does not vary across residential settings.* ***Conclusion:*** *Residential settings are significantly associated with being uninsured, but the significance of this link between residential locations and uninsurance status varies from state to state.*

Being uninsured is one of the most fundamental barriers to health care services. In 1996, 12.8 million families in the United States (11.6%) experienced difficulty or delay in obtaining needed care, and lack of health insurance was one of the main reasons for such delay.[1] As of 2002, 15.2% (43.6 million) of the US population lacked health insurance,[2] which represented 2.4 million more uninsured people than in 2001 and was the largest increase in a decade. In acknowledging this, the federal government has sought to decrease the percentage of Americans without health insurance as one of Healthy People 2010 objectives.

Public policy analysts have addressed various causes of uninsurance and begun to recognize that many of these underlying causes of uninsurance vary considerably across states. In fact, the federal Health Resources and Services Administration funded a "State Planning Grant" program to assist states in their efforts to understand and respond to their own circumstances. The Robert Wood Johnson Foundation funded a "State Coverage Initiatives" program that compiles information on state programs and provides technical assistance to state officials.

While there is some evidence of the differences in coverage across states,[3-5] few studies have addressed the variations in coverage across different kinds of communities within states. A Minnesota study indicated that more rural residents were uninsured than urban residents.[6] Rural residents in Nebraska were not significantly different from urban residents in uninsurance rate, but rural residents tended to experience longer spells of being uninsured compared

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to urban residents.[7] The different findings from the 2 studies suggest that states vary in the effect of residential settings, but both were based on 1992 or earlier data.

Two recent studies of national data show that there are urban/rural differences in health insurance coverage. Cunningham and Ginsburg reported that communities with low rates of uninsurance were located in large metropolitan areas (more than 200,000 people).[8] Using the 1998 Medical Expenditure Panel Survey, another study found that 25.4% of nonelderly adult residents of rural areas were uninsured, compared with 19.9% of rural adjacent to urban residents, and 19.6% of urban residents.[9]

This article examines the variation in health insurance coverage for urban/rural residents across 3 states—Florida, Indiana, and Kansas—using data from 3 recent state-specific health insurance surveys. We hypothesize that residential settings are significantly associated with uninsurance status, but that this effect of residence varies across the 3 states.

Method

Data Source. The data were from 3 state health insurance surveys conducted by researchers at the University of Florida: the Florida Health Insurance Study (FHIS), the Indiana Health Insurance Study (IHIS), and the Kansas Health Insurance Study (KHIS).[10-12] Telephone interviews were conducted in 1999 (FHIS), 2000 (IHIS), and 2001 (KHIS) to collect information about health insurance coverage, health care utilization, demographic characteristics, and measures of socioeconomic status. Sample weights were constructed to produce estimates representative of each state's population. More detailed information on the survey methodology can be found in the reports of these studies.[10-12] The present study focused on adults between age 18 and 64; the final analytic data sets contained 15,348 cases from the KHIS, 26,094 from the FHIS, and 18,622 from IHIS.

Variables. The dependent variable, uninsurance status, is binary. We classified individuals as uninsured if they reported having no health insurance coverage at the time of the telephone interview. Residents were considered to be insured if they reported having any form of health insurance coverage, unless that coverage only provided extra cash while in the hospital or paid for 1 type of service, such as dental care, vision care, cancer treatment, nursing home care, or accidents.

The primary independent variable of interest was residential setting. To obtain rural/urban status of respondents, we matched self-reported county with the Rural/Urban Continuum Codes (RUCCs) from the 2000 Area Resource File.[13] We then segmented rural-urban status into 3 categories: urban (metropolitan counties), rural adjacent to urban (nonmetropolitan counties with RUCCs 4, 6, or 8), and rural nonadjacent (nonmetropolitan counties with RUCCs 5, 7, or 9).

Other covariates included residents' demographic characteristics and socioeconomic status. Sociodemographic characteristics consisted of race/ethnicity, age, gender, marital status, education, and income.[8] Self-reported health status and variables that described employment status and the firm size for employed persons were also controlled.

Data Analysis. We described the 3 states' samples according to personal characteristics of the respondents in each state. Because the dependent variable was binary and the respondent was the unit of analysis, logistic regression was used to study the effect of residential setting on uninsurance status, controlling for other personal characteristics. Adjusted uninsurance rates were determined for each state. We used STATA version 7.0 (StataCorp LP, College Station, Tex) for the statistical analysis.

Findings

Residents' characteristics varied from state to state. For example, most Floridians (92.6%) resided in urban counties compared to 72.2% of Indiana residents and 58.3% of Kansans (Table 1). Only 1.2% of adult Floridians lived in rural nonadjacent counties, compared to 6.4% of Indiana residents and 29.2% of Kansans. Over 80% of Indiana residents and Kansans were white, while 68.5% of adult Florida respondents were white. Florida had higher percentages of African American and Hispanic residents than Indiana and Kansas. Floridians were also older. A greater percentage of employed Indiana and Kansas residents worked for large firms compared to employed Floridians.

Overall Uninsurance Rates in Each State. The 3 states differed significantly in overall uninsurance rates. Florida had a higher uninsurance rate (18.0%) than Kansas (11.7%) or Indiana (11.0%) (Table 1). The logistic regression model estimated that Floridians were more likely to be uninsured (odds ratio = 1.578, $P < 0.01$) than Kansans, while Indiana residents were as likely to be uninsured as Kansans, after controlling for other factors.

Uninsurance Rates by Residential Setting in Each State. Rural adjacent and nonadjacent residents of each

Adjusted Uninsurance Rates and Odds Ratios (ORs) for Nonelderly Adults in Florida, Indiana, and Kansas, by Residential Setting

		Residential Setting		
		Urban	Rural Adjacent	Rural Nonadjacent
Number of cases (% of all cases)		Number of cases by residential setting in each state (% of all cases)		
Kansas	15,348 (100)	8,948 (58.3)	1,919 (12.5)	4,482 (29.2)
Florida	26,094 (100)	24,163 (92.6)	1,644 (6.3)	313 (1.2)
Indiana	18,622 (100)	13,445 (72.2)	3,985 (21.4)	1,192 (6.4)
Adjusted uninsurance rates by state***†		Adjusted uninsurance rates by residential setting within each state***‡		
Kansas	11.7%	10.7%	12.3%	13.5%
Florida	18.0%	17.9%	21.4%	21.3%
Indiana	11.0%	10.8%	11.3%	13.3%
Adjusted ORs of uninsurance (SE) by state†		Adjusted ORs of uninsurance (SE) by residential setting within each state‡		
Kansas	Referent	Referent	1.065 (0.123)	0.969 (0.083)
Florida	1.578 (0.083)***	Referent	1.193 (0.115)*	1.088 (0.249)
Indiana	0.966 (0.051)	Referent	1.005 (0.079)	1.315 (0.162)**

***$P < 0.01$; **$P < 0.05$; *$P < 0.1$.

† Estimates were based on logistic regression using the combination data set from 3 states. The adjusted uninsurance rates for Floridians and Indiana residents were significantly different from the referent (Kansans). The regression also estimated the ORs of uninsurance, controlling for age, gender, race/ethnicity, marital status, income, education, employment status, and health status.

‡ Estimated uninsurance rates were based on logistic regression using individual state data sets. The adjusted uninsurance rates for rural adjacent residents and rural nonadjacent residents were significantly different from the reference group (urban residents) within each state. The regression also estimated the ORs of uninsurance, controlling for age, gender, race/ethnicity, marital status, income, education, employment status, and health status.

state had a higher adjusted uninsurance rate than urban residents. Almost 18% of urban Floridians were uninsured, but 21.4% of rural adjacent residents and 21.3% of nonadjacent residents had no insurance coverage (Table 1). The uninsurance rates for Kansans from urban, rural adjacent, or rural nonadjacent counties were 10.7%, 12.3%, and 13.5%, respectively, and for Indiana residents were 10.8%, 11.3%, and 13.3%.

Controlling for other measured characteristics, residential settings were a significant factor in explaining uninsurance status of Floridians and Indiana residents, but not of Kansans. As shown in Table 1, the odds ratio of being uninsured for Floridians in rural adjacent counties was approximately 1.2, which indicated greater risk of uninsurance compared to urban residents. Rural nonadjacent Floridians were as likely to be uninsured as urban residents, but the small sample size in rural nonadjacent category (n = 313) might be inadequately powered to detect a statistically significant difference. In contrast, the odds ratio for rural nonadjacent Indiana residents was 1.32, suggesting greater likelihood of uninsurance compared to urban residents within that state. With respect to Kansans' uninsurance status, none of the settings showed statistical significance. The large samples in each residential setting in Kansas indicated a true finding of no difference for rural Kansans rather than a limitation related to statistical power.

Discussion

Our findings confirmed the hypotheses that adult residents of the 3 study states varied in uninsurance rates. Specifically, adult Floridians were overall more likely to be uninsured than residents of Indiana and Kansas. For all residential settings, Florida's rates were higher than those for Indiana and Kansas. Florida is a large, growing state with tremendous diversity in its adult population, and larger minority and immigrant populations relative to the other 2 states. Although heavily populated, the state also includes large undeveloped rural areas. The unique characteristics of rural Florida may present coverage barriers that are not consistent with other areas of the nation. Thus, it is not unexpected for the rates of uninsurance in Florida to be so varied. In contrast, greater population homogeneity in Kansas and Indiana probably led to less variation, although there were differences in rates of coverage across groups. The design of this study did not permit assessing the underlying sources of this difference

within and across states, though it would be an avenue for further investigation and possible policy discussion.

The analysis in this paper has 2 key limitations. First, health insurance status was self-reported. Second, health insurance status reflected the insurance coverage at the time of interview. While the uninsured status at a single point in time could be temporary for one person, because of the large sample size of the present study, the uninsured status at the time of interview provided an estimate of persons who at any given time might experience barriers to obtaining needed health care. Despite these limitations, this study provides important guidance for policymakers interested in improving rates of geographic coverage.

Our findings document that states vary in health insurance coverage for rural or urban residents. During the past decade, many states initiated reforms on health insurance coverage, including purchasing alliances targeted at the small group market, subsidized coverage through employers, individual tax credits or medical saving accounts, and open enrollment and continuity of coverage, but few have succeeded in reducing uninsurance rates.[6] One possible reason for this lack of success could be that these reform approaches were not be applicable to all communities within states. As the nation and states look for new strategies to improve health insurance coverage, especially at a local and regional level, understanding community-based variation in coverage within states, such as differences in rural versus urban counties, may facilitate effective policy making.

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