Racial and Ethnic Disparities in the Purchase of Nongroup Health Insurance: The Roles of Community and Family-Level Factors

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Objective. To evaluate the influence of community- and family-level factors on racial/ethnic disparities in the uptake of nongroup (individual) health insurance.

Data Sources. Responses to the 1996–1997 Community Tracking Study Household Survey plus community-level descriptors from several sources including census data, the Area Resource File, and community and migrant health center Medicare cost reports.

Study Design. Logistic regression was used to compare families in which at least one person had nongroup health insurance to families without nongroup insurance in which at least one person was uninsured. Sequential models were constructed examining family- and community-level factors.

Results. Twenty-three percent of families with otherwise-uninsured persons purchased nongroup insurance, ranging from 11% to 41% among the 60 communities sampled. Disadvantaged minority group members, especially Spanish-speaking Hispanics, had half or less the odds of whites of purchasing nongroup insurance. Education had a weaker association with purchasing nongroup insurance among minority group members than among whites. Community-level factors had minimal effect on disparities in uptake, although greater housing segregation was associated with lower uptake among blacks.

Conclusions. Minority group members are much less likely to purchase nongroup insurance than whites. Family income and community factors do not explain this gap. Programs aimed at stimulating voluntary insurance purchase will continue to underenroll disadvantaged minorities if nonfinancial barriers to acquiring insurance coverage, including the interplay between race/ethnicity and education, are not better understood and addressed.

Key words. Health insurance, minority groups, socioeconomic factors

Many current proposals for increasing health insurance coverage of Americans rely on encouraging individuals and families to purchase their health insurance through the nongroup (also called the individual) market.

These proposals often feature incentives such as tax credits to subsidize a portion of the purchase price. One rationale for such proposals is the assumption that modest financial incentives can induce uninsured Americans to purchase their own health insurance. However, evidence suggests that this assumption lacks credibility—a number of researchers have concluded that even substantial incentives will induce only a small additional number of persons to purchase their own health insurance (Thomas 1994; Marquis and Long 1995; Chernen, Frick, and McLaughlin 1997; Gabel, Hunt, and Kim 1997). A second rationale for proposals for increasing health insurance coverage through the nongroup market is their political expediency. They avoid the appearance of “heavy-handed” government interference, such as would occur with mandated coverage.

Currently, only about 4.5% of the population under the age of 65 relies on the nongroup market as their only source of health insurance (U.S. General Accounting Office 1996). Those who buy nongroup insurance tend to be older than those with employer-sponsored insurance and the uninsured; a greater proportion live in small cities and rural areas, though the majority still live in metropolitan areas. While two-thirds of families buying nongroup insurance are headed by a full-time worker, a much greater percentage of families making this purchase are headed by part-time, part-year, and self-employed workers than families with employer-sponsored insurance (Chollet 2000). This market appears to be flawed in many ways, with widely divergent prices reported for similar products within a single market (Chollet and Kirk 1998). There is substantial concern about adverse selection driving insurers from the market, particularly in states mandating community rating (Chollet 2000) and nongroup markets have collapsed in several states in the wake of reforms (Hackey 2000). However, one study suggests it may be possible to avoid selection bias in subsidized-premium programs (Swartz and Garnick 2000).

Whether the nongroup market serves those who need it most is open to question. Adults aged 50–64 who have nongroup coverage are healthier than those who are uninsured and those with employment-based insurance (Simantov, Schoen, and Bruegman 2001). Premiums are substantially higher

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than in the group market (Simantov, Schoen, and Bruegman 2001), with commissions estimated to be approximately twice as high as in the small group market (up to 20% of premiums) (Hall 2000) and overall "loading" (proportion of premium not spent on health care) around 40% of premiums (Pauly and Percy 2000). Adequate and affordable coverage may be difficult or impossible to find (Duchon and Schoen 2001) and coverage is generally less complete than with group insurance (Gabel et al. 2002). For those with preexisting conditions, coverage may not be offered. If it is, there are likely to be substantial exclusions and premiums may be unaffordable in states without community rating (Pollitz, Sorian, and Thomas 2001). Where there are high-risk pools, the theoretical possibility of coverage is frequently negated by unaffordable premiums (Stearns and Mroz 1995).

Our previous, multivariate analyses of the purchase of nongroup health insurance by respondents to the 1987 National Medical Expenditure Survey (NMES) who would otherwise have been uninsured found that being a racial or ethnic minority group member and having lower educational attainment, lower income, and lower wealth were all independently associated with lower odds of purchasing nongroup insurance. The lower uptake associated with minority group membership was particularly troubling, since it persisted after adjustment for the other factors as well as health status, family configuration, and responses to questions about the value of health insurance and of health care (Saver and Doescher 2000).

In this study, we sought to further explore possible underlying determinants of the disparities in uptake of nongroup health insurance related to racial or ethnic background. As our previous work showed that subjects' stated attitudes about the value of health insurance and health care did not explain the observed racial and ethnic disparities, we were particularly interested in whether community-level measures, such as strength of the local safety net or inequality and social capital measures (Kawachi and Kennedy 1997), could explain the differences in the uptake of nongroup health insurance associated with minority group membership. We had two inequality and social capital measures available from the Census Bureau: race-specific measures of income inequality and housing segregation. We hypothesized that, in communities with higher levels of inequality on these measures, members of disadvantaged minority groups would be less likely to purchase nongroup health insurance, reflecting greater feelings of disenfranchisement and lower likelihood of adopting a mainstream view of the importance of buying health insurance if it was not otherwise available.

METHODS

Data for this study came from the Community Tracking Study (CTS) Household Survey, a telephone survey of 60,446 individuals conducted in 1996 and 1997 (Kemper et al. 1996), representing the U.S. housed, noninstitutionalized population. Sixty communities (51 urban and 9 rural) were randomly selected using stratified sampling with probability in proportion to population size in order to ensure representation of the U.S. population. While random-digit dialing was used to select most households, a small sample was also included to represent households without phones; these were provided cellular phones for the interviews. The overall response rate was 65 percent. The survey recorded information including sociodemographics, health insurance coverage, and health status.

Respondents to the CTS were classified into family insurance units (FIUs), consisting of those persons who could be covered under an employer-sponsored insurance plan—one adult or a married couple plus children aged 0–17 and children aged 18–22 who were full-time students. Data were obtained only for one randomly-selected child in each FIU.

There were 6,305 families in which at least one person under age 65 had purchased nongroup health insurance or at least one person under age 65 was uninsured and no one had purchased nongroup insurance. We excluded persons who purchased insurance related to previous employment (presumably as a COBRA extension) as, while individually purchased, these policies and their premiums would reflect the group insurance market, not the nongroup market. Moreover, this type of health insurance purchase might reflect a fundamentally different decision from other nongroup insurance purchase. After this exclusion, we were left with a study population of 6,022 families. While analyses presented in this article are based on this population of 6,022 families, we ran supplementary analyses utilizing all 6,305 families and compared the results.

The Andersen-Newman model of access to care (Andersen and Newman 1973) was used to structure the analyses; as has recently been reemphasized, community factors are explicitly incorporated into this model (Phillips et al. 1998). Predisposing factors were racial or ethnic background (classified as Hispanic interviewed in Spanish, Hispanic interviewed in English, non-Hispanic black, non-Hispanic white, or other), education (the highest educational attainment of any adult under age 65), insurance status of others in the family (employment-related insurance, public insurance other than Medicare, or any other status), age (the age of the oldest person under age

65 in the FIU), family structure (initially classified as single without children, single with children, married without children, married with children, or other), presence of one or more adults, children, or both who are eligible for nongroup insurance (either uninsured or who have nongroup insurance), and smoking status of adults under age 65 in the household (any smoker versus no smoker). Family-level income as a proportion of the federal poverty level (FPL) was an enabling factor, and measures of need were physical health status (lowest Short Form-12 Physical Component Summary [PCS-12] score of any adult in the FIU) and mental health status (lowest Short Form-12 Mental Component Summary [MCS-12] score of any adult in the FIU). (Ware, Kosinski, and Keller 1996) Community- and state-level data were obtained from a number of sources (see Table 1) and merged in with CTS data. Measures of the strength of the local safety net were per capita visits to community and migrant health centers (CMHCs), per capita visits to public and teaching hospital outpatient departments, per capita number of physicians (generalist or all patient care physicians) in the community, state and federal funding for primary care services for the medically underserved (Rosenbaum et al. 1998), and mean hours per month of charity care reported by physicians in the community responding to the CTS physician survey (Cunningham et al. 1999). Social capital measures were race-specific Gini indices of income inequality and housing segregation (Harrison and Weinberg 1990), plus community-level rates of being uninsured. The race-specific measures were evaluated in race-specific models; no models were examined for non-Hispanic whites as housing segregation indices were not available for this group. Continuous community-level measures were evaluated both as continuous measures and as ranked (quintile) measures to minimize outlier effects. Other factors included dummy variables representing various state-level reforms in the nongroup insurance market. We also evaluated two cost-of-living measures, both an overall cost of living index and a measure of the costliness of medical care, the adjusted, average per capita cost (AAPCC) for each site. Finally, to evaluate the effects of all community-level factors, measured and unmeasured, on the family-level factors, we constructed a model with family-level predictors plus dummy variables identifying each community in the CTS.

Multiple logistic regression was used to model associations of the predictors with the decision to purchase health insurance. Analyses were conducted with the FIU as the unit of analysis. Community-level factors were tested individually in models containing the FIU-level factors. Interaction terms between race or ethnicity and all other factors were evaluated in models

Table 1: Community- and State-Level Factors Evaluated

<i>Factor</i>	<i>Source</i>
Local safety net—volume of outpatient care at FQHCs from Medicare cost reports	United Government Services, Milwaukee, WI, under a Freedom of Information Act request
Local safety net—relative local health insurance costs—Medicare AAPCC data	HCFA (available at http://www.hcfa.gov/stats/hmorates/rates96.exe)
Local safety net—total state and federal funding for comprehensive primary medical care practices for medically underserved populations; percent medically underserved persons served with federal and state funds	Rosenbaum et al. (1998)
Local safety net—volume of outpatient care at public hospital(s); volume of outpatient care at teaching hospital(s)	1995 American Hospital Association survey data
Income inequality (race-specific indices)*; housing segregation (race-specific indices) (Iceland and Weinberg 2001)	U.S. Bureau of the Census data
Per capita number of office-based generalist physicians (derived from the American Medical Association's Physician Masterfile)	1997 Area Resource File
Area cost of living indices	Geographic Reference Report (BTA Economic Research Institute 1997)
Individual insurance "community rating," "rating band," "guaranteed issue," "guaranteed renewal," "mandatory reinsurance," "voluntary reinsurance," "pre-existing conditions," and "mandatory loss ratio" legislation; limit (in months) of waiting periods for pre-existing conditions under law; all as of June 1996; extent of optional Medicaid coverage provided by state	Urban Institute "Assessing the New Federalism" database (available at http://newfederalism.urban.org/nfdb/download/nfdbonly.exe)
Proportion of population without employment-related or public insurance; proportion of population below poverty level; large/small/non-MSA residence	CTS data

* Purchased from Steve Heacock at the U.S. Bureau of the Census, 301-457-3204.

and retained if they were significant at the $p < 0.05$ level. *SUDAAN* was used to adjust variance estimates for the complex sampling design of the CTS using the Taylor series linearization method (Shah, Barnwell, and Bieler 1997).

RESULTS

Demographics for the FIUs (henceforth referred to simply as families) in the study are shown in Table 2. More than half of the families in the study were

Table 2: Characteristics of Study Population ($N = 6,022$ Families)

<i>Factor</i>	<i>% of Study Population*</i>	<i>% Purchasing Nongroup Insurance*</i>
<i>Predisposing</i>		
Racial/ethnic background		
Spanish-speaking Hispanic	9	7
English-speaking Hispanic	8	16
African American	16	12
Non-Hispanic white	61	29
Other	6	25
Highest educational attainment		
0–11 years	17	8
High school graduate	41	15
Some study beyond high school	22	27
College graduate	20	49
Age of oldest adult under 65		
18–34	48	15
35–49	33	27
50–64	19	38
Potentially-eligible persons in family		
Adult	76	21
Child	2	18
Both adult and child	22	32
Anyone with public insurance in family		
Yes	8	4
No	92	25
Family structure		
Single female without children	22	22
Single male without children	29	16
Married, without children, no private insurance in household	10	41
Married, without children, private insurance in household	2	24
Married, with children, no private insurance in household	17	32
Married, with children, private insurance in household	5	17
Single, with children	13	17
Other	2	21
Smoker in family		
Yes	37	13
No	63	29
<i>Enabling</i>		
Family income as a % of the FPL		
0–100%	26	11
101–150%	14	12
151–200%	13	17

continued

Table 2: Continued

<i>Factor</i>	<i>% of Study Population*</i>	<i>% Purchasing Nongroup Insurance*</i>
201–300%	17	23
301–600%	21	36
> 600%	9	55
<i>Need</i>		
	Purchased nongroup insurance	Did not purchase nongroup insurance
Continuous Predictors–Families	Mean (SE)	Mean (SE)
Lowest PCS-12 score in family	49.3 (0.3)	48.1 (0.3)
Lowest MCS-12 score in family	50.8 (0.2)	48.3 (0.2)

Note: SE denotes standard error

*Percentages adjusted with SUDAAN for sampling design to represent national percentage estimates.

single adults without children and more than half had incomes less than 200 percent of the FPL. Of the families in the study, 23 percent ($n = 1,501$ unweighted) purchased nongroup insurance for at least one member. In 80 percent of study families, all members were either uninsured and/or had nongroup insurance; only about 10 percent of families had at least one person with employment-related insurance and this proportion did not vary appreciably by racial or ethnic background. Associations with predisposing factors (see column 1 of Table 3) were as expected, with Hispanic Americans (particularly those interviewed in Spanish) and African Americans being much less likely to buy nongroup insurance, as were families with lower educational attainment, younger families, families headed by unmarried persons, and families with smokers. Families in which anyone had public insurance other than Medicare were much less likely to purchase nongroup insurance than families in which no one had public insurance other than Medicare. Having both adults and children in the household potentially in the market for nongroup insurance coverage was also associated with increased odds of purchasing it relative to having only eligible adults or only eligible children. The enabling factor, income, was strongly associated with the purchase of nongroup insurance. Both physical and mental health status were slightly higher in families making this purchase than in those not doing so.

In multivariate models (see Table 3), all of the bivariately significant family-level factors remained significantly associated with the purchase of

Table 3: Predicting the Purchase of Nongroup Insurance

Factor	Unadjusted		Adjusting for Family-Level Factors		Adjusting for Family-Level Factors and Community Identifier	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
<i>Predisposing</i>						
Racial/ethnic background						
Spanish-speaking Hispanic	0.18	(0.04, 0.74)	0.29	(0.07, 1.10)	0.26	(0.10, 0.69)
English-speaking Hispanic	0.46	(0.34, 0.61)	0.48	(0.32, 0.71)	0.55	(0.40, 0.76)
African American	0.34	(0.25, 0.47)	0.42	(0.29, 0.62)	0.52	(0.36, 0.75)
Non-Hispanic white	1	—	1	—	1	—
Other	0.80	(0.61, 1.04)	0.83	(0.60, 1.17)	0.89	(0.64, 1.24)
Highest educational attainment						
0–11 years	0.47	(0.34, 0.66)	0.67	(0.50, 0.91)	0.63	(0.45, 0.89)
High school graduate	1	—	1	—	1	—
Some study beyond high school	2.10	(1.7, 2.6)	1.6	(1.4, 1.9)	1.6	(1.3, 2.0)
College graduate	5.50	(4.6, 6.6)	3.8	(3.0, 4.7)	3.4	(2.7, 4.2)
Age of oldest adult under 65						
18–34	0.28	(0.23, 0.35)	0.35	(0.29, 0.43)	0.34	(0.26, 0.45)
35–49	0.60	(0.51, 0.70)	0.51	(0.41, 0.63)	0.53	(0.42, 0.67)
50–64	1	—	1	—	1	—
Anyone with public insurance in family	0.13	(0.09, 0.18)	0.15	(0.09, 0.23)	0.17	(0.12, 0.25)
Family structure						
Single female without children	0.60	(0.45, 0.79)	0.40	(0.25, 0.63)	0.38	(0.26, 0.56)
Single male without children	0.41	(0.33, 0.51)	0.27	(0.20, 0.36)	0.28	(0.21, 0.37)
Married, no children, no job-related insurance in household	1.49	(1.18, 1.88)	0.72	(0.51, 1.02)	0.73	(0.50, 1.07)
Married, no children, job-related insurance in household	0.66	(0.41, 1.06)	0.19	(0.11, 0.33)	0.21	(0.11, 0.40)
Married, with children, no job-related insurance in household	1	—	1	—	1	—

continued

Table 3: Continued

<i>Factor</i>	<i>Unadjusted</i>		<i>Adjusting for Family-Level Factors</i>		<i>Adjusting for Family-Level Factors and Community Identifier</i>	
	<i>OR</i>	<i>(95% CI)</i>	<i>OR</i>	<i>(95% CI)</i>	<i>OR</i>	<i>(95% CI)</i>
Married, with children, job-related insurance in household			0.43	(0.32, 0.59)	0.31	(0.22, 0.44)
Single, with children			0.42	(0.33, 0.53)	0.58	(0.26, 1.22)
Other			0.56	(0.32, 0.95)	0.56	(0.26, 1.21)
Smoker in family			0.36	(0.30, 0.44)	0.49	(0.40, 0.58)
<i>Enabling</i>						
Family income as a % of the federal poverty level						
0–100%			0.10	(0.08, 0.13)	0.30	(0.21, 0.42)
101–150%			0.11	(0.09, 0.15)	0.27	(0.20, 0.38)
151–200%			0.17	(0.13, 0.23)	0.35	(0.24, 0.50)
201–300%			0.25	(0.19, 0.32)	0.45	(0.33, 0.62)
301–600%			0.47	(0.38, 0.57)	0.72	(0.54, 0.97)
> 600%			1	—	1	—
<i>Need</i>						
Lowest PCS-12 score in family			1.012	(1.005, 1.018)	1.008	(1.000, 1.016)
Lowest MCS-12 score in family			1.022	(1.016, 1.028)	1.018	(1.009, 1.026)

Note: O.R. = odds ratio, C.I. = confidence interval, PCS-12 and MCS-12 are the physical and mental component scales of the Short Form-12.

nongroup insurance except the indicator of having eligible adults, children, or both in the household. African American and English-speaking Hispanic families had about half the odds and Spanish-speaking Hispanic families about one-quarter the odds of non-Hispanic white families of making this purchase. “Others” were not significantly different from non-Hispanic white families for making this purchase. Families with someone having at least a college education had more than five times the odds of purchasing nongroup insurance as families where no one had graduated from high school. Younger families remained substantially less likely than older ones to buy nongroup insurance. Bivariately, the presence of anyone in the household with employment-related insurance was associated with modestly lower odds of purchasing nongroup insurance (odds ratio [95 percent confidence interval] = 0.79 [0.66, 0.96]). When entered in multivariate models, there was substantial confounding with family structure. Analyses revealed that odds of buying nongroup insurance for married couples were much lower if anyone in the household had employment-related insurance, whereas for single adults this factor was by definition absent and for other families it did not affect the odds of making this purchase. Therefore we combined these initially separate factors in our analyses, as shown in Tables 2 and 3. Family structure varied by racial or ethnic group (data not shown), but not in a manner that would explain the observed associations with racial or ethnic background (data not shown). The presence of anyone in the household with public insurance other than Medicare remained associated with greatly reduced odds of purchasing nongroup insurance and did not have a similar issue although power for detecting such effects was extremely low as so few households in which anyone had public insurance purchased nongroup insurance. Single adults without children were significantly less likely than other families to buy nongroup insurance, and having a smoker in the family continued to be associated with less than half the odds of purchasing nongroup insurance. Income was strongly associated with the purchase of nongroup insurance—families having incomes no more than 150 percent of the FPL had less than one-quarter the odds of families with incomes greater than 600 percent of the FPL of making this purchase, and families with incomes 150–300 percent of the FPL had less than half the odds of the wealthiest families of doing so. The associations with better physical and mental health status among families purchasing nongroup health insurance also persisted. Education and income accounted for almost all of the change in the magnitude of the association of racial/ethnic background with insurance purchase between the univariate and family-level-only models. The changes associated

with education and with income were quite similar in magnitude (data not shown).

There was wide variation at the community level in the uptake of nongroup insurance, ranging from 11 ± 4 percent to 41 ± 8 percent of potential purchasers overall. Despite this substantial variation, only one of the community and state-level factors characterizing the safety-net was significant in the multivariate models—the annual per capita number of teaching and public hospital outpatient department visits was associated with modestly lower odds of purchasing nongroup insurance. In the model containing this factor, a doubling of these visits from one to two was associated with an odds ratio (95 percent confidence interval) of 0.84 (0.76, 0.94). Across the sites, the mean number of these visits was 1.31, so this odds ratio indicates that teaching or public hospital outpatient capacity twice the average was associated with approximately 16 percent lower odds of purchasing nongroup insurance.

In analyses using the race-specific analyses of measures of inequality, housing segregation was highly significant for blacks and of borderline significance for Hispanics. For blacks, those living in the least segregated quintile of communities had 3.6 (95 percent confidence interval 1.9, 6.7) times the odds of those in the most segregated quintile of communities of making this purchase and those in the middle three quintiles were intermediate. Among Hispanics, those in the least segregated quintile had 2.7 (1.1, 6.3) times the odds of those in the most segregated quintile of buying nongroup insurance, but those in the middle quintiles had similar odds to those in the most segregated quintile. None of the income inequality measures approached significance.

Since many potentially relevant characteristics of communities remained unmeasured in the CTS, we evaluated a model in which all community differences, measured and unmeasured, were represented through use of dummy variables identifying each site. As shown in Table 3, adjusting for community had no substantial effects on the associations seen in the family-level-only model and in particular did not noticeably alter the differences in uptake associated with racial or ethnic background.

There was only one significant ($p = 0.03$) interaction with racial/ethnic background, involving family educational attainment. This is presented separately in Table 4 to facilitate its interpretation. Education had a very modest effect in Hispanic families interviewed in Spanish, though confidence intervals were fairly wide. College graduate Hispanics interviewed in Spanish had only 13 percent of the odds of college graduate, non-Hispanic whites of purchasing nongroup insurance. Among Hispanics interviewed in English, no

Table 4: Interaction between Racial/Ethnic Background and Educational Attainment for the Purchase of Nongroup Insurance

<i>Race/Ethnicity</i>	<i>Highest Educational Attainment in Family</i>					
	<i>Less Than High School</i>		<i>High School</i>		<i>Graduation</i>	
	<i>OR</i>	<i>(95% CI)</i>	<i>OR</i>	<i>(95% CI)</i>	<i>OR</i>	<i>(95% CI)</i>
Spanish-speaking Hispanic	0.27	(0.04, 1.64)	0.32	(0.10, 1.03)	0.65	(0.15, 2.74)
English-speaking Hispanic	0.40	(0.17, 0.94)	0.41	(0.19, 0.91)	0.66	(0.39, 1.12)
African American	0.54	(0.23, 1.30)	0.63	(0.34, 1.17)	0.55	(0.33, 0.89)
Non-Hispanic white	0.47	(0.28, 0.80)	1	–	1.80	(1.45, 2.24)
Other	1.37	(0.52, 3.63)	0.64	(0.35, 1.14)	1.12	(0.65, 1.95)
					0.52	(0.17, 1.60)
					2.50	(1.19, 5.27)
					0.82	(0.44, 1.54)
					4.12	(3.15, 5.40)
					4.12	(2.31, 7.35)

Note: Model includes all other family-level factors shown in Table 3 and dummy variables for site. OR = odds ratio, CI = confidence interval.

substantial effect was seen except for college graduates. Among African Americans, there was only a modest, nonsignificant increase in the odds of making this purchase among college graduates relative to other African Americans and college graduate African Americans had only 20 percent of the odds of college graduate, non-Hispanic whites of buying nongroup insurance.

While we excluded persons purchasing employment-related individual coverage from these analyses, we also evaluated models containing these persons. The findings did not vary notably from those reported above (data not shown).

DISCUSSION

We find a persistent and substantial gap in the uptake of nongroup health insurance between members of disadvantaged minority groups and non-Hispanic whites, though we did not replicate our finding in the National Medical Expenditure Survey (NMES) (Saver and Doescher 2000) of the "other" group also being less likely to make this purchase. The U. S. General Accounting Office suggested that this disparity was due to the gap in income between disadvantaged minorities and others (U.S. General Accounting Office 1996), but both our findings here and in our earlier study of the NMES (Saver and Doescher 2000) indicate that a substantial gap remains after adjusting for income and multiple other factors. Educational attainment is a highly significant predictor of purchase, but racial or ethnic gaps in educational attainment explain only a portion of the differences remaining after adjustment for income. The significant interaction we found between racial or ethnic background and educational attainment suggests that education has far less influence on the purchase of nongroup insurance among disadvantaged minority group members than non-Hispanic whites. In other words, even if racial or ethnic gaps in educational attainment were eliminated, disparities in the uptake of nongroup insurance likely would narrow far less than would be predicted from the association of educational attainment and nongroup insurance purchase in non-Hispanic whites.

As well as providing a look at family participation in the nongroup insurance market almost a decade after the NMES, the CTS allowed us to separately evaluate Spanish- and English-speaking Hispanic Americans. The lower likelihood of Hispanic respondents who were interviewed in Spanish to purchase nongroup insurance may reflect degree of acculturation and its relation to the value placed on having health insurance, language barriers to

learning about the availability of nongroup health insurance and understanding the terms of a policy, immigration status, or other factors. It is also consistent with the known lower use of health care services by Hispanic Americans after adjusting for health status (Weinick, Zuvekas, and Cohen 2000).

A unique feature of the CTS was the ability to analyze community-level factors simultaneously with individual and family-level factors. We were able to characterize the major components of the outpatient safety net in most of the CTS communities with a number of measures that have not heretofore been utilized in studying nongroup insurance purchase. Our findings suggest that, with the apparent exception of a small effect for teaching and public hospital outpatient capacity, there is not significant substitution of the safety net for purchasing nongroup insurance. Whatever the reasons for substantial regional variations in the purchase of nongroup health insurance, variation in the local safety net does not appear to be one of them. These findings are consistent with a recent report, based on the National Survey of America's Families, that differences in the vulnerability of the safety net across states do not explain an appreciable amount of the access gap between insured and uninsured Americans (Holahan and Spillman 2002).

None of the indicators of state-level reforms in the nongroup insurance market were significant. Other studies of state reforms in the nongroup insurance market have found either modest reductions in coverage or no change (Custer 1998; Sloan and Conover 1998; Nichols 2000; Marsteller et al. 1998). Our lack of ability to replicate findings of decreased uptake of nongroup insurance with certain market reforms is probably a result of several factors. First, only 30 states were represented in the 60 CTS communities and we therefore had lower power than studies with data from all 50 states to find such effects. Second, state reforms are rarely carried out as single, isolated changes and our representation of this complex situation by modeling a set of dummy variables for different reforms in a single state may not accurately reflect the "package" nature of the reform(s). Third, reforms grouped together in a single category, such as guaranteed issue or community rating, may really represent rather different changes. Grouping measures of reforms together may obscure the effect of a particular change in a particular state.

The significance of a housing segregation index in predicting uptake by Hispanic and, particularly, African Americans might seem to suggest a possible explanation for the observed racial or ethnic disparities in nongroup insurance purchase. However, our findings present a conundrum: while significant for these groups, the relationship between housing segregation (or

something associated with it) and nongroup insurance purchase does not appear to be a significant explanatory factor for the disparity in uptake between these minority groups and non-Hispanic whites, since the dummy variables for site, which would contain this effect, did not explain any of the disparities in uptake. It is possible that these communities would show similar relationships between housing segregation indices for non-Hispanic whites and nongroup insurance purchase, but indices for non-Hispanic whites were not available to test this; when we examined black housing segregation as a predictor for nongroup insurance purchase by whites, it was not significant (data not shown).

Overall, our findings suggest that the decision to purchase health insurance is predominantly an individual or family-level decision. Our findings that the presence of other insurance in the household greatly decreases the uptake of nongroup insurance emphasizes the importance of providing family, not individual, coverage if we wish to increase the proportion of Americans with health insurance. If community-level factors do play a strong role in influencing disparities in uptake associated with race and ethnicity, they must be factors varying on a smaller geographic scale than the community as represented in the CTS—for example, at the neighborhood level. It seems likely that a substantial part of the disparity in the uptake of nongroup insurance must come from differences in attitudes about the value of health insurance, but in the NMES, even explicit attitudinal measures of the value of health insurance and health care, while highly significant, did not explain any of the racial/ethnic and social class disparities in uptake of nongroup insurance (Saver and Doescher 2000). We do not have any data to let us evaluate whether minorities are “redlined” in some fashion; given the complexities involved in the marketing, or lack thereof, of nongroup health insurance (Hall 2000), searching for evidence of redlining would take data of a type not ordinarily collected in surveys such as the CTS. Given the failure of standard survey questions and quantitative measures of multiple community-level factors to provide further insight into this disparity, there is a clear need for research to elucidate the critical operative factors.

There are a number of potential limitations of this study. First, while we had community- and state-level measures of a number of factors, it is possible that a finer-grained unit of analysis such as a neighborhood may be needed. Second, our inequality “social capital” measures were fairly limited. Hendryx and colleagues, using data from the CTS and social capital measures more related to social cohesion and interaction, did find significant associations of two measures of social capital with access to care (Hendryx et al. 2002). Third,

some would argue that a measure of the price of nongroup insurance is needed in the models. We sought price quotes for nongroup insurance at the CTS sites on a website providing such quotes, but for the 47 CTS sites for which at least two quotes were offered for allegedly similar products, the prices were so divergent we did not feel we could use them to impute prices that a particular family might face; this is consistent with previous findings of widely divergent prices within a market for very similar nongroup insurance products (Chollet and Kirk 1998). However, community-level cost-of-living and medical care indices, which ought to reflect community-level price variations, were assessed and were not significant. Also, in the NMES, we found that more than half of uninsured families had never priced nongroup insurance (Saver and Doescher 2000), indicating that, at least for many families, the actual price of insurance does not play a role in the decision not to purchase it. Fourth, the CTS lacked some of the measures we found significant in our NMES analyses, including wealth and attitudes about the values of health care and health insurance. However, since our NMES analyses found these to be independent of other factors (Saver and Doescher 2000), the lack of these measures should not significantly bias our results. Fifth, our data did not allow us to distinguish between families in which some access to employment-related health insurance was possible but had been declined. However, our analyses of the NMES did examine this factor and did not find it affected associations with other factors (Saver and Doescher 2000). Sixth, one might argue that analyzing this decision at the family rather than the individual level could obscure the role of some individual-level factors. However, the allocation of the resources needed to purchase insurance is unlikely to be an individual decision in a family and family coverage is obtained as a single purchase. We also included a number of individual-level characteristics of family members in our models. The lower odds of purchasing nongroup insurance if any family member had some other source of insurance supports using the family as the basic unit of analysis. We earlier analyzed data from the NMES at both the family and individual levels and found little difference in the results (Saver, unpublished observations). Finally, power is a limitation. While analyses were conducted at the family level with adjustment for the design of the CTS, the power to determine the significance of community-level factors was primarily limited by the number of different sites in an analysis—at most 60. However, other datasets that can be used to study nongroup insurance purchase do not have even this degree of geographic detail.

In summary, we find that, after adjusting for income and other factors, members of minority groups and those who are less educated continue to be

substantially less likely to purchase nongroup health insurance. Moreover, increasing educational attainment has a significantly weaker association with the decision to purchase nongroup insurance among disadvantaged minority group members than among non-Hispanic whites. Community-level factors explain little of these differences. These racial or ethnic and educational disparities do not appear to be an isolated phenomenon unique to the nongroup insurance market—the evidence from most voluntary enrollment programs, even those that are free, suggests that racial/ethnic disparities in uptake is a common problem (Avruch et al. 1998; Moon, Brennan, and Segal 1998; Lamphere and Rosenbach 2000). There does not appear to be any evidence to support the contention that tweaking financial incentives for uninsured families to enter the nongroup insurance market will solve the problem of the growing numbers of uninsured Americans (Thomas 1994; Marquis and Long 1995; Chernew, Frick, and McLaughlin 1997; Gabel, Hunt, and Kim 1997). Until there is a better understanding of factors underlying the racial/ethnic and educational disparities in the uptake of nongroup health insurance, programs relying on voluntary enrollment are likely to widen, not narrow, disparities in coverage between more- and less-advantaged Americans.

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