Uninsured in Texas: Neighborhood Context and Health Insurance Coverage

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Abstract

The American public currently relies on health insurance as their gateway to care. However, insurance has become increasingly expensive leaving some 45 million Americans without adequate coverage, including 7 million children. Insurance coverage is not uniform across geographies with Texas ranking highest in the nation for percent uninsured. Not only is 24 percent of the population in Texas uninsured, but Texas is a rapidly growing state with a high proportion of Hispanics, immigrants, and self-employed residents, all factors noted to influence insurance coverage. This research uses the 2008 American Community Survey and presents a closer look at the uninsured within the state of Texas and the relationships between insurance and community characteristics. Using Hierarchal Linear Modeling we find that individual predictors of insurance attainment are mediated by geography.

Key Words: Health Insurance, Texas, Multilevel Modeling

1. Introduction

A pressing issue for the American people, the health of the country has recently come under scrutiny. Not only are unhealthy practices more widely publicized, but the nation's health care system and coverage has gained considerable attention. Specifically, the issue of health insurance, who has it and who does not, has been challenged by the current White House administration. While recent legislation will have massive impacts on health insurance coverage, changes will take years to implement and further understanding of the barriers to the current uninsured can create better strategies for future insurance coverage implementation.

Although on the decline, the existing health insurance system in the United States is largely employment-based where 62 percent of those under 65 with private coverage received health insurance through their employer in 2007, down from 67 percent in 2000 and 70 percent in 1980. A health care system based largely on private coverage through employers has the potential to leave those out of the labor force, the self employed or those working part-time at a disadvantaged when it comes to obtaining health insurance. The Center for Disease Control and Prevention reports that in 2008, approximately 44 million Americans under the age of 65, roughly 17 percent of the population, did not have health insurance coverage. This number includes 6.6 million children. While the research presented here is not about the political or economic implications of health insurance coverage, it is important to note that a large number of uninsured individuals within a society has far-reaching negative societal impacts.

Until recent legislation, states have been primarily responsible for insurance regulation and health care innovation. States are responsible for administering Medicaid and SCHIP, both funded jointly by federal and state governments (Kail, Quadagno, & Dixon, 2009). States then have a vested interested in insuring their populations as state funding must cover, at least part, of the uninsured populations. Thus laws and regulation of coverage vary across state boundaries with some states containing far more insurance coverage (as a percent of the population) than others.

This study focuses on one state in particular, Texas, which is the second most populous state in the nation (behind California) with an estimated 24.3 million residents in 2008, according to the US Census Bureau. Yet, it is the lowest ranking state in the nation when it comes to health care coverage. While the national average of uninsured persons is 15 percent, 24 percent of Texas residents lack health insurance coverage. In addition, a diverse population makes the study of health care coverage particularly important in Texas. The research presented here attempts to clarify some already known individual characteristics that predict insurance attainment by better understanding community effects on insurance coverage.

1.1 Characteristics of the Uninsured

Currently, health insurance is a choice in this nation, although sometimes highly dictated by outside influences. Researchers have found numerous individual factors that tend to be highly correlated with health issues. There is a positive association between education and health outcomes both on large national levels as well as on smaller subsets of populations (Maitra, 2010). Not only does this impact health overall, but it is expected that those that are more educated have insurance education impacts the type of work one does, and much of the insurance coverage in this nation comes through one's employer. In addition, education and earnings are highly correlated with those with greater education, in general, earning more which eases monetary constraints to afford health insurance, even if it is not provided through an employer

Moreover, characteristics such as race, income, and health have been tied to health insurance coverage. Shi (2001) looked at the convergence of these three variables. Overall, the study found that income was a more significant predictor of lack of insurance coverage than race and that self reported bad health showed little disparity on insurance. Our current health care system, which is largely funded by employers or individuals who can afford it, has an obvious connection between income and health insurance coverage. The issue of race is a little more complex. Shi (2001) showed that race was an important factor but suggested that minorities were over-represented in the low-income and bad health groups and thus were notably affected by any associations that income and self reported bad health had with insurance coverage. While not totally comprehensive due to data set limitations of other variables, the study demonstrates the interplay between an individual's socio-demographic characteristics and health insurance coverage.

While characteristics of the uninsured stretch across national geographic divisions, certain areas of the nation contain higher concentrations of individuals with characteristics associated with health insurance coverage. Texas, as a state, is an example of one such area. In particular, while immigrants are not unique to Texas, the state shares a large border with Mexico, making immigrants an important part of the Texas population. In fact, in 2008 the US Census estimated that 16 percent of the population in Texas was foreign born compared to 12.5 percent for the US as a whole (2008 American Community Survey). The US health system is at best complicated to US immigrants and

at worse inaccessible due to lack of understanding, illegal status, or cost. Cebula (2006) found a negative correlation across states between the percent Hispanic and the percent with insurance coverage, noting the generally lower incomes of the Hispanic population as well difficult labor market conditions for recent immigrants in particular. Overall, Portes, Light, and Fernandez-Kelly (2009) demonstrate the varying complexities of the relationship between immigrants and the US health system. The study points out that language barriers, legal status, residential instability, poverty, and different cultural definitions for health are all potential challenges to the US immigrant population.

Angel, Angel, and Montez (2009) looked at health insurance in the context of employment, specifically for Mexican-origin men. The article notes the historical disadvantage of the Mexican-origin population within the United States. The article examines this population in relation to employment sectors, industries, and occupations and finds that Mexican-origin men are overrepresented in industries and occupations that historically have lower insurance coverage. However, even within these sectors the ethnic group is less likely to have coverage than non-Hispanic whites or African Americans. The study then confirms that while employment sector certainly plays a role, there are further barriers to health insurance for Mexican-origin men.

1.2 A Higher-Level Perspective

Oftentimes, individual characteristics are not the only important factor when considering social impact. Everybody is impacted by outside influences, including the community in which one is a part of. Looking at community level characteristics is an important part of understanding health insurance barriers, and will continue to be important in the implementation of sweeping health care reform.

Research indicates there are some very important community factors that influence health insurance coverage. Recently, Choi (2009) found that while controlling for individual characteristics, societal context greatly impacted health care access among immigrants in Hawaii. Although this study focuses mainly on ethnic communities and social capital, its findings indicate that community context matter to health access. Likewise, it can be hypothesized that it also matters to health insurance coverage. While looking at perceived health among the nation's older population, Wight et al. (2008) also found that an index of urban community level environmental factors, like abandoned housing, public deviance, and high crime rates, high poverty, high unemployment, low education, and low income, was a significant predictor of self-reported poor health.

Kirby (2008) documented that while various individual characteristics correlate with health access, community level characteristics also play a role. In particular, the study investigates the relationship between community poverty and the ability to obtain medical care. Overall, it finds that access to care is much stronger for middle- and high-income individuals than for lower-income groups; however, for poor individuals, living among others in similar economic circumstances makes a difference. The author suggests that this is because there are benefits of networking with people with the same experience that helps compensate for the negative influence of income on access to care. This research presents strong arguments for further analysis of community level characteristics, in addition to individual-level factors, when studying health care and insurance coverage. In fact, it suggests that community level characteristics can moderate individual level factors when it comes to health care.

Already noted, Cebula (2006) looked specifically at health insurance coverage at the state level to explain geographic differentials in the percentage of population without health insurance and found the percent Hispanic to be negatively correlated with insurance coverage across states. More specifically, Gresenz, Rogowski, and Escarce (2009) analyzed Hispanic access to health care in the US and found that Hispanic immigrants living in areas with more Spanish speakers or more Hispanic immigrants had better access to care. Overall, the study suggests that language and ethnic similarity within a community plays an important role in health care access. In particular, however, the study looked at access to care among the uninsured. Like those that were insured, access to care for the more recent immigrants was more limited compared to US-born Mexican Americans. However, unlike the insured, for uninsured Hispanics, living in areas populated by more Spanish speakers or Hispanic immigrants had a negative impact on access to care for US-born Mexican Americans, while for recent immigrants who are uninsured the positive effect remains. Texas has a large Hispanic population as well as several other minority groups.

It is clear that community level characteristics, such as surrounding racial and ethnic groups, can have an effect on access to care. We suspect that it would also have an effect on insurance coverage as well. Specifically, living with similar ethnic backgrounds and common language may promote stronger social networks and thus dissemination of resources and information. Positive association between the foreign born and Spanish speaking demonstrated for more recent immigrants suggesting that language at the community level plays an important role. The association was not positive for US-born Mexican Americans who were uninsured.

Cebula (2006) examined the female labor force participation rate, the percentage of the population that is unionized, the percentage of family units with a female head of household, median family income, the percentage of the population age 65 and over, and the percentage of the population identified as Hispanic across all 50 states. The study finds that the higher the median family income in a state, the lower the percentage of the population without insurance. Texas as a state has a lower median family income than the national average ($58,765 compared to $63,316) and thus, a higher percentage of uninsured in the state may be expected.

Similarly, other factors that increase or decrease the affordability of insurance tended to correlated in expected directions for insurance coverage across states (Cebula, 2006). Texas is also a young state, ranking the second youngest state in the nation, with a median age of 33 compared to 37 for the nation as a whole. Cebula (2006) also found that the larger the population age 65 and over, the smaller the percentage of uninsured in a state. Cebula (2006) placed special emphasis was on self-employment and independent contractors as a determinant of health insurance. The findings suggest that the greater the percentage of self-employed and independent contractors, the larger the degree of uninsured population in a state.

Several other studies have evaluated residential context on health of individuals (Robert, 1998; Robert, 1999; Boslaugh, et al., 2004; Cho, Park, & Echevarria-Cruz, 2005; Culhane & Elo, 2005; ; Ross & Mirowski, 2008). Overall, a body of research indicates that community-level variables impact health and access to health care. In this study, we provide a community-level context for health insurance which adds to the body of literature of health care access through insurance.

2. Data and Methodology

2.1 Data Description

The data used in this analysis are from the 5 percent Texas' Public Use Microdata Sample (PUMS) files from the 2008 American Community Survey (ACS) of the United States Census. This data set was used because it is fairly recent, includes specific variables about insurance, and allows for both individual and household characteristics by place. Sample weights, based on the Texas population totals are also included at the individual level to ensure a representative sample. All descriptive statistics and models presented in this paper reflect the use of this weighting. The dependent variable is private health insurance coverage. We limited our study to persons between the age of 18 and 65 since the majority of people under the age of 18 are not yet responsible for their insurance coverage and those over the age of 65 are by in large covered by Medicare (Hurd & McGarry, 1997).

Logistic models were run through SAS (level-1 analysis) and hierarchical linear models were run to determine community level impacts on health insurance coverage (level-2 analysis). Community (level-2) analysis used PUMAs, the primary geographic unit of the PUMS files. To ensure confidentiality, the minimum number of respondents included in each PUMA is 100,000. In general, PUMAs have a continuous boundary following a county, or city or urbanized area boundary, while sometimes it is composed of non-contiguous areas in order to obtain the 100,000-person minimum. While this poses some difficulties, it is the smallest geographic unit for analysis provided by the PUMS file, thus in this analysis community level characteristics are calculated by PUMA.

2.2 Level-1 Explanatory Variables

The independent variables included in the level-1 model include variables that, based on above mentioned literature as well as sociological concepts, generally influence insurance coverage. Again, age was restricted for the data set and an independent variable was included to control for ages 18 to 64. Dummy variables were created for other basic demographic information including marital status (married or not married) as well as race (Hispanic or not) and gender. Education was included in the form of a dummy variable as well as it has been shown to interact with several aspects that may influence insurance coverage including employment and income (Maitra, 2010). The dummy variable was created for those with a high school diploma or higher versus those without a high school diploma.

It was also important to control for individual SES as it is well documented that SES and health are correlated (Warren, 2009). Whether health impacts SES or SES impacts health can be debated, but it is important to control for individual level SES when accounting for health care coverage. In this analysis the log of personal income is used as indicators of individual SES. In addition, a dummy variable for whether one owns their own home was included as well. Not only is this variable used to control for personal wealth, but it also may indicates the level of commitment an individual has to a specific community.

As insurance is still largely impacted by employment, several variables were included to determine type of employment. First, whether or not one is employed is controlled for. Second, self-employed and government employed are both controlled for. Health is also controlled for through the creation of an additive index containing five variables in the ACS including whether or not the individual had a disability, cognitive difficulty, self car

difficulty, independent living difficulty, or ambulatory difficulty. A factor analysis was performed with an alpha of .85. The index is such that a higher number indicates a greater number of health difficulties.

Finally, variables were included to control for immigration status. One was a dummy variable for foreign born measuring those born in the US contrasting those born outside the US (including now naturalized citizens). Descriptive statistics of both level-1 and level-2 variables can be found in Table 1.

Table 1: Descriptive Statistics of the 2008 ACS Variables

Variable	Definition	Range	Mean (SD)
LEVEL 1: INDIVIDUALS, *N=141,950*			
Dependent Variable			
Private	Have Private Insurance = 1	0-1	.68 (.47)
Key Independent Variable			
Hispanic	Hispanic = 1	0-1	.30 (.46)
Demographic			
Age	Continuous variable of age	18-64	41.0 (13.1)
Gender	Male = 1	0-1	.49 (.50)
Married	Married = 1	0-1	.60 (.49)
Military	Military = 1	0-1	.09 (.30)
Health	Index of five measures of health	0-5	.26 (.84)
Non-Citizen	Not a US citizen or naturalized = 1	0-1	.18 (.39)
Socioeconomic			
HS Diploma	Have a high school diploma = 1	0-1	.84 (.37)
Employed	Employed = 1	0-1	.72 (.45)
Self Employed	Self employed = 1	0-1	.10 (.30)
Govt Employed	Government employee = 1	0-1	.16 (.37)
Home Owner	Own a home = 1	0-1	.73 (.44)
Income	Log of continuous income variable	-.69 – 13.76	8.74 (3.74)
LEVEL 2: PUMA, *N=153*			
Percent Non-Citizen	Percent in PUMA non-citizen		.21 (.13)
Percent Employed	Percent in PUMA employed		.72 (.06)
Tenure	Percent in PUMA in house at least 10 yrs		.28 (.07)
Percent Hispanic	Percent in PUMA Hispanic		.36 (.24)
Average Income	Average income in PUMA		8.59 (.54)

2.3 Level-2 (PUMA)- Explanatory Variables

The level-2 data set was constructed by taking the average of the level-1 data for variables of interest within each PUMA. The level-2 data continues then to be restricted by age and level-1 weights apply. The mean for level-2 variables then represents the average across all PUMAs. As level-2 variables represent the percent of the variable in a particular PUMA, they are all continuous and thus centered around the grand mean. The variables of interest include the percent foreign born, the percent Hispanic, the average income, the percent employed, and the percent who have lived in their home for ten years

or greater. By allowing these characteristics of an area to influence the effects of having private insurance, the hope is to generate greater clarity into the possible geographic characteristics of an area that manipulate an individuals' propensity to be insured.

3. Analysis and Results

3.1 Multilevel Models

Because the data for this analysis are multileveled, with individuals and households nested within PUMAs, the analyses presented here are based on multilevel models using the Hierarchical Linear Model (HLM) software. Through HLM, one simultaneously estimates micro-level and macro-level equations. The overall hypothesis tested here is that people nested within the same group will share some similar characteristics or effects from that group that may further explain insurance coverage, above and beyond individual characteristics.

To assess the potential correlates of private insurance at the individual level, we use the ACS PUMs data and run a binary logistic regression model using SAS with private insurance as the dependent variable with the other discussed level-1 variables as controls. For the analysis of individual and PUMA-level data, a Bernoulli in HLM was used. The analysis uses level-1 variables and level-2 variables aggregated for each PUMA. Through multilevel modeling, we attempt to explain how community-level factors impact individual factors when it comes to health insurance coverage. Therefore, the model simultaneously measures the impact of both level-1 and level-2 data. The level-1 analysis is represented by the following model:

log[P/(1-P)] = B0 + B1*(AGEP) + B2*(MARRIED) + B3*(MILITARY) + B4*(HSDIPL) + B5*(GENDER) + B6*(EMPLOYED) + B7*(SELFEMP) + B8*(GOVEMP) + B9*(HMOWNER) + B10*(HISPANIC) + B11*(FOREIGN) + B12*(HEALTH) + B13*(LINCOME)

Where log[P/(1-P)] equals private insurance of an individual and *B0* is the level-1 intercept. There are also coefficients for each of the individual variables (for example *B1*AGEP*). The variables AGEP, HEALTH, and LINCOME are all centered around the group-mean.

In order to assess impact of PUMA level characteristics on individual private insurance coverage we add the PUMA level variables to the model and specifically address their impact on the slope for HISPANIC, as it is our key variable of interest. The slope equation for Hispanic is as follows:

B10 = G100 + G101*(PFOREIGN) + G102*(PEMPLOY) + G103*(PHS10YRS) + G104*(PHISPAN) + G105*(PLINCOME) + U10

Where *B10* is the slope for Hispanic and G*100* is the level-2 intercept. PFOREIGN is the percentage of foreign born persons in a PUMA, PEMPLOY is the percent employed in a PUMA, PHS10YRS is the percent in a PUMA who have lived in their current home for ten years or more, PHISPAN is the percent of Hispanics at the PUMA level, and PLINCOME is the average income by PUMA. Finally, *U10* is the error term which is allowed to vary while the error terms of all other individual level control variables remained fixed. The level-2 variables are all centered on the grand-mean.

3.2 Results: Level-1

To assess the relationship between reported private health insurance coverage and level-1 predictors, we used a binary logistic regression model. The overall model was significant at the <.0001 level. All the independent variables in the model were significant and in the expected direction. Increased age, marriage, education, being female, having a full time job, owning a home, and having more income were all positively correlated with having private insurance coverage. In contrast being in the military and self employed were negatively correlated as was being Hispanic or foreign born. The literature supports these findings.

In addition, as the health index increased (which signified more health problems) the likelihood of having private insurance decreased. Due to a large N, some of these findings were considerably small, even while still significant. Table 2 shows the coefficients for each of the independent variables. In particular, Hispanics with a coefficient of -.84 and an odds ratio of .43 are 2.32 times less likely to have insurance coverage compared to other races. Similarly, foreign born individuals (of any race/ethnicity) have a coefficient of -.64 and an odds ratio of .53 making them 1.90 times less likely to have private health insurance. Based on the current and future demographic outlook of Texas, both these variables (and particularly Hispanic) are important to understand.

Table 2: Logistic Regression Equation for Effects of Individual Level Predictors on Private Health Insurance Coverage, N=120,012

Variables	b (se)	
Intercept	-2.8 (.004)	**
Key Independent Variable		
Hispanic	-.84 (.002)	**
Demographic		
Age	.02 (.000)	**
Gender	-.13 (.002)	**
Married	.77 (.002)	**
Military	-.02 (.003)	**
Health	-.28 (.001)	**
Non-Citizen	-.64 (.002)	**
Socioeconomic		
HS Diploma	1.11 (.002)	**
Employed	.75 (.002)	**
Self Employed	-.96 (.002)	**
Govt Employed	1.11 (.003)	**
Home Owner	.81 (.002)	**
Income	.11 (.000)	**
	Pseudo R^2 =.237	

*$p < .05$. **$p < .01$.

3.3 Results: Level-2

The level-2 analysis expands on the level-1 analysis by controlling for PUMA level characteristics while predicting the likelihood of private health coverage as well as the likelihood of Hispanic private health coverage (further explaining the level-1 Hispanic slope). Using the Bernoulli model of hierarchical linear modeling, the dependent variable again is the binary variable of private insurance coverage.

The coefficients from the Bernoulli model represent the log odds. Odds ratios are also presented along with the coefficients. Thus positive numbers increase the odds of having private insurance coverage while negative numbers decrease the odds for any particular slope. The results for the full HLM model are presented in Table 3.

Among the control variables, the findings are largely similar to the individual level logistic model, although whether one is in the military or not drops from being significant. However, all other level-1 variables remain significant and in the expected direction.

Overall, the level two models indicate that only housing tenure and income at the PUMA level have a significant effect on health insurance coverage for all individuals. To make the model simpler, all level-1 variables except our main variable of interest (Hispanic) were modeled as a fixed slope without random effects.

We are particularly interested in how the PUMA level characteristics affect Hispanic individuals. For this we look specifically at the slope model for Hispanic. We see that, being Hispanic, in light of PUMA level characteristics is still significant and negative. The estimates show that -0.62 is the expected log-odds of private insurance coverage for Hispanics. Indicating that the estimated odds of having private insurance for a Hispanic is about 54% of the odds of non-Hispanics having private health insurance. In other words, Hispanics are 1.86 times less likely to have private health insurance coverage.

More specifically, the analysis demonstrates that PUMA level characteristics do impact the Hispanic population in Texas with all PUMA level characteristics being significant. In particular, Hispanics that live in an area with more foreign born are even less likely to have private insurance as are those that live in areas with a greater Hispanic population. Also further decreasing a Hispanic's odds of having insurance is living in a higher income area.

All these findings are contrary to what we expected, which will be discussed in more detail below. Living in areas with a greater percentage of the people employed increases the likelihood of a Hispanic having health care coverage as does living in an area with a greater percent of people who have lived in their home for ten years or more (a proxy for neighbourhood stability).

What seems to positively impact the Hispanic slope is both employment and housing tenure. Both measures are significant and positive and greatly impact the odds that a Hispanic will have private insurance in Texas.

Table 3: Results from Bernoulli HGLM Regression Evaluating Characteristics of Individuals and Communities as Predictors of Private Health Insurance Coverage. Level 1 N=141,950; Level 2 N=153

Unit-Specific Model Fixed Effects	γ (se)	odds ratio
PUMA Private Insurance Mean		
Intercept	-1.25 (.05) **	.29
Percent Non-Citizen	.25 (.38)	1.29
Percent Employed	.49 (1.49)	1.64
Tenure	-2.37 (.64) **	.09
Percent Hispanic	-.01 (.23)	.99
Average Income	.41 (.17) *	1.51
Hispanic		
Intercept	-.62 (.03) **	.54
Percent Non-Citizen	-1.34 (.38) **	.26
Percent Employed	3.89 (1.36) **	48.7
Tenure	2.12 (.65) **	8.34
Percent Hispanic	-.73 (.24) **	.48
Average Income	-.64 (.15) **	.53
Individual-Level Variables		
Age	.02 (.00) **	1.02
Gender	-.13 (.02) **	.88
Married	.80 (.03) **	2.22
Military	-.03 (.04)	.97
Health	-.26 (.02) **	.77
Non-Citizen	-.74 (.03) **	.48
HS Diploma	1.04 (.03) **	2.82
Employed	.79 (.03) **	2.20
Self Employed	-.97 (.03) **	.38
Govt Employed	1.18 (.04) **	3.24
Home Owner	.88 (.03) **	2.41
Income	.10 (.01) **	1.11

Random Effects	Variance Components	*df*
Between PUMA Private Insurance, *u*	.09997 **	147
Hispanic Slope, *u*	.09264 **	147

*$p < .05$. **$p < .01$.

4. Summary and Conclusion

4.1 Findings

Knowing who has health insurance and what impacts people from obtaining health insurance is critical to health services, public policy, overall health, and the economy. Recently passes legislation will take years to implement, and when the process begins,

understanding individual and community characteristics that have been barriers to health insurance coverage will be an important part of the progression. Texas, a large and growing state, has a particularly high percentage of people without health insurance when compared to other states across the nation. Based on past literature, this may be partly due to the states demographic makeup, particularly that of a large Hispanic population.

Similar to past literature, this study found that Hispanics in Texas are significantly less likely to have health insurance. This confirmation lent to further analysis of factors that may impact Hispanic health care coverage on a community level. This was tested through the use of HLM which estimated the impact of several higher level variables on the likelihood of private health care coverage for Hispanics. Overall, what we found was contrary to much of the health access literature that indicates that access to care increases for different ethnic groups or income levels by living near similar ethnic groups or income levels (Kirby, 2008 and Gresenz, Rogowski, & Escarce, 2009). It is theorized that similar language and cultural beliefs help to build social networks that then work to inform people of health care options. This does not seem to be the case for Texas Hispanic health care coverage.

Findings in our model indicate that living around more Hispanics or foreign born in fact decrease the likelihood of health care coverage. Certain income characteristics may be playing a role in those findings. However, living in higher income areas for Hispanics also seems to be negative, not the direction seen for other ethnic populations. This seems to point to the conclusion that Hispanics are less likely to have health care coverage even despite living in a higher income area. Thus for the Hispanic population in Texas, while community level characteristics are significant and make a difference, the Hispanic population is less likely to have coverage despite some of the characteristics thought to have a positive impact.

Several limitations of this study may play a role in the findings. The main limitation being that the PUMA was the smallest geographic unit available. It may be that it is not small enough to capture the true effect of community for the Hispanic population. Additionally, while the survey met many of the study needs in terms of geography and sample, it is based upon self reported data. Davern et al. (2008) describes many of the issues with self reported data on insurance coverage, yet find that surveys are indeed a reasonable point-in-time estimate of the uninsured, although they did find some reporting errors particularly for public coverage. Therefore, while some validity issues may be introduced by using a self reported survey of health insurance coverage, we believed the benefits of other variables offered were essential for a community level study. In addition, this survey asked about multiple sources of coverage (private, public, military, VA etc).

References

Angel, R. J., Angel, J. L., & Montez, J. K. (2009). The Work/Health Insurance Nexus: A Weak Link for Mexican-Origin Men. *Social Science Quarterly* 90(5):1112-1133.

Boslaugh, S.E., Luke, D.A., Brownson, R.C., Naleid, K.S., & Kreuter, M.W. (2004). Perceptions of Neighborhood Environment for Physical Activity: Is It "Who You Are" or "Where You Live"? *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 81(4):671-681.

Cebula, R. J. (2006). A Further Analysis of Determinants of Health Insurance Coverage. *International Advances in Economic Research* 12:382-389.

Cho, Y., Park, G., & Echevarria-Cruz, S. (2005). Perceived Neighborhood Characteristics and the Health of Adult Koreans. *Social Science & Medicine* 60:1285-1297.

Culhane, J.F. & Elo, I.T. (2005). Neighborhood Context and Reproductive Health. *American Journal of Obstetrics and Gynecology* 192:S22-S29.

Davern, M., Call, K. T., Ziegenfuss, J., Davidson, G., Beebe, T. J., & Blewett, L. (2008). Validating Health Insurance Coverage Survey Estimates: A Comparison of Self-Reported Coverage and Administrative Data Records. *Public Opinion Quarterly* 72(2):241-259.

Gresenz, C. R., Rogowski, J., & Escarce, J. J. (2009). Community Demographics and Access to Health Care Among US Hispanics. *Health Services Research* 44(5): 1542-1562.

Hurd, M.D., & McGarry, K. (1997). Medical Insurance and the Use of Health Care Services by the Elderly. *Journal of Health Economics* 16:129-154.

Kail, B. L., Quadagno, J., & Dixon, M. (2009). Can States Lead the Way to Universal Coverage? The Effect of Health-Care Reform on the Uninsured. *Social Science Quarterly* 90(5):1341-1360.

Kirby, J. B. (2008). Poor People, Poor Places and Access to Health Care in the United States. *Social Forces* 87(1):325-355.

Maitra, S. (2010). Can Patient Self-Management Explain the Health Gradient? Goldman and Smith's "Can Patient Self-Management Help Explain the SES Health Gradient?" (2002) Revisited. *Social Science & Medicine* XXX11.

Portes, A., Light, D., & Fernandez-Kelly, P. (2009). The US Health System and Immigration: An Institutional Interpretation. *Sociological Forum* 24(3):487-514.

Robert, S.A. (1998). Community-Level Socioeconomic Status Effects on Adult Health. *Journal of Health and Social Behavior* 29:18-37.

Robert, S.A. (1999). Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context. *Annual Review of Sociology* 25:489-516.

Rosenau, P. V. (2009). Health Policy and Healthy Populations: An Introduction to a Special Issue of the Social Science Quarterly. *Social Science Quarterly*, 90(5):1039-1050.

Ross, C.E. & Mirowsky, J. (2008). Neighborhood Socioeconomic Status and Health: Context or Composition? *City & Community* 7(2):163-179.

Shi, L. (2001). The Convergence of Vulnerable Characteristics and Health Insurance in the US. *Social Science & Medicine* 53:519-529.

Warren, R. J. (2009). Socioeconomic Status and Health Across the Life Course: A Test of the Social Causation and Health Selection Hypotheses. *Social Forces* 87(4):2125-2154.

Wight, R. G., Cummings, J. R., Miller-Martinez, D., Karlamangla, A. S., Seeman, T. E., & Aneshensel, C. S. (2008). A Multilevel Analysis of Urban Neighborhood Socioeconomic Disadvantage and Health in Late Life. *Social Science & Medicine* 66:862-872.