

Exploring Why the Self-Employed Are Less Likely to Have Healthcare Coverage: An Empirical Analysis

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The United States currently faces record high levels of uninsured individuals, rising healthcare costs, and increasing self-employment. A new dataset was introduced, the American Community Surveys, to confirm whether the self-employed are at a disadvantage in terms of access to health insurance, and if so, what socioeconomic, family, demographic, and occupation factors may exacerbate the problem. Results indicate that the self-employed are in fact at a significant disadvantage regarding health insurance coverage. Family income level, marital status, having a self-employed spouse, age, ethnicity, migration status, and occupational industry were found to be associated with the likelihood that a self-employed individual would have health insurance coverage.

Reports released in 2010 indicate the number of uninsured Americans has reached a record high, with the number of individuals holding private insurance at its lowest reported level since the Census Bureau began tracking such data in 1987 (Wolf, 2010). Currently, the estimated number of uninsured individuals in the United States ranges from 50.7 million (United States Census Bureau, 2010) to 59 million (Cohen & Martinez, 2010). Holahan and Cook (2008) reported that between 2000 and 2006, the number of uninsured people in the United States grew by almost three and a half million, which was attributed to a decline in the availability of employer-sponsored insurance.

Although unemployment has been cited as a major contributing factor to the growing number of uninsured individuals, a recent report by the Kaiser Commission (2010) indicates that cost of coverage also likely serves as a major deterrent, given that workers currently pay approximately 47% more for family healthcare coverage than they did in 2005, and employers currently pay 20% more than they did in the same time period. Holahan and Cook (2008) contend that more than half of the increase in the number of uninsured workers between 2004 and 2006 came from the self-employed and wage earners in small firms of less than 25 people. This places the self-employed at a focus of concern since they serve as a major source of uninsurance rates, both personally and through a lack of insurance availability for their employees (Holahan & Cook, 2008; Perry & Rosen, 2001).

Lack of portability of employer-based insurance is often believed to reduce the level of business creation (Baumol, Litan, & Schramm, 2007; Egerstrom, 2007; Keen, 2005). Relatively few studies, however, have explored other factors, such as health, demographic, socioeconomic, and family factors which help explain uninsurance levels among the self-employed. Gumus and Regan (2007) note that high costs of private plans serve as the primary culprit of uninsurance for the self-employed; however, they argue that other factors likely also play an important role in decisions related to holding health insurance coverage.

Prior studies focusing on the importance of health, demographic, socioeconomic, and family factors have typically based their analyses on data from the Medical Expenditure Panel Surveys (MEPS) and Current Population Surveys (CPS). The MEPS provides both household and health components. The household component ranges in sample size from approximately 21,500 in 1996 to 34,920 currently. Due to this limited size, it is difficult to make robust comparisons between wage-earners and the self-employed. With the CPS data, larger samples are available (approximately 72,000 households), from

which equivalently sized random samples of the self-employed and wage-employed can be drawn. However, the CPS attempts to determine whether individuals were uninsured for the entire year. Despite this effort, CPS measures tend to represent point-in-time estimates rather than the intended full year-estimates (State Health Access Data Assistance Center, 2010). Thus, the most commonly used datasets have serious shortcomings. Use of a new dataset would provide confirmation/refutation of previously reported studies, as well as uncover new lines of research.

With recent concerns related to healthcare access, and the number of uninsured individuals rising, it is important to revisit the issue of health insurance coverage for the self-employed. This study serves a dual purpose. First, we introduce use of a large-sample dataset, the Integrated Public Use Microdata Series (IPUMS) American Community Surveys (ACS) data, which as far as we know has yet to be used as a data source for health insurance studies. Second, we explore demographic, family, and socioeconomic factors that may improve or limit the probability that the self-employed possess health insurance coverage, which has received only limited attention in the past.

We believe that several contributions can be made from such an analysis. First, we investigate the self-employed health insurance coverage question empirically with a random sample drawn from the largest available dataset that includes health insurance coverage information. We are also able to isolate demographic, family, and socioeconomic factors associated with the probability of health insurance coverage for the self-employed versus the wage employed. Comparisons between the self-employed and wage-employed with such a robust dataset will shed light on results that confirm or refute prior studies' findings; which will open the door for additional research in the area. Further, increased research on insurance rates and personal factors that may influence the decision to hold health insurance coverage may assist policymakers in better assessing the effectiveness of policies such as the Patient Protection and Affordable Care Act (PPACA) of 2010, by isolating family, demographic, and socioeconomic factors that are associated with lower insurance rates for the self-employed.

The remainder of the paper is organized as follows. In the following section, a brief background on the literature and hypotheses are presented. Then data collection methods and justification are provided, along with discussion of the variables under analysis. Results from the logistic regression analysis are reported, and conclusions are drawn regarding the association of demographic, socioeconomic, and family factors with healthcare coverage for the self-employed, as well as potential avenues for future research.

BACKGROUND: FACTORS RELATED TO UNINSURANCE

Insurance markets exist because risk-averse individuals are willing to pay to mitigate the financial impact of undesirable circumstances in the future (Blumberg & Nichols, 2002). However, the situation of the self-employed appears more complex than simply existing as risk neutral individuals who see no value in health insurance coverage. Researchers have consistently reported that the self-employed report higher levels of uninsurance than the wage-employed (e.g., Allen & Park, 1999; Fairlie, Kapur, & Gates, 2011; Monheit & Harvey, 1993; Perry & Rosen, 2001), and have hypothesized that employer-sponsored health insurance may lead to suboptimal levels of business creation (Fairlie et al., 2011).

Most researchers have either explored employer-sponsored health insurance, also known as the "job lock" phenomenon (i.e., Bruce, Holtz-Eakin, & Quinn, 2000; Holtz-Eakin, Pendrod, & Rosen, 1996; Wellington, 2001) or health insurance tax subsidies, discussed in terms of price elasticity of demand (i.e., Gruber & Lettau, 2004; Gruber & Poterba, 1994; Gumus & Regan, 2008; Selden, 2009; Velamuri, 2005), as factors that likely have a large impact on new business creation. Both job lock and tax subsidy studies have reported mixed results; thus, indicating that the questions related to the relationship between business creation and employee sponsored health insurance or tax subsidies are left largely

unanswered. However, recent research by Fairlie et al. (2011) indicates that the self-employed have lower rates of insurance than even part-time workers and unemployed individuals. Further, their data indicates that business creation rates are much lower for wage employees who have access to employer insurance than those who do not have insurance or who are covered by their spouse. Thus, their results indicate that the prospect of no insurance may lower the rate of business creation in the United States.

The National Association of the Self Employed (Russo, 2008) report that over 65% of individuals responding to their survey related to health insurance costs indicated that premium costs were the single greatest impediment to providing health insurance. One entrepreneur cited in the report stated, "Access to healthcare is the single biggest issue facing the self-employed and the single biggest barrier to people joining and remaining in the ranks of the self-employed." America's Health Insurance Plans (AHIP, 2009) report that a nationwide survey indicates that during mid-2009 in the United States, average annual single coverage premiums were \$2,985, while for a family average annual premiums were reported at \$2,573 for policies including children under the age of 18. Based on the AHIP data, age of the respondent and increased premiums held a positive relationship. Researchers also indicate that the cost of premiums serves as a barrier to health insurance access for the self-employed (e.g., Fairlie et al., 2011). Although it is generally agreed that the self-employed have higher rates of uninsurance than the wage employed, the factors contributing to this difference are less clearly defined. In the following section, we develop hypotheses based on prior work in the area.

HYPOTHESIS DEVELOPMENT

While demographic, family, and socioeconomic factors have rarely served as the focus of research related to uninsurance levels of the self-employed, some agreement exists regarding how specific factors are expected to impact the insurance decision. We provide hypotheses related to insurance levels for the self-employed, employment status of the self-employed individual's spouse, family income levels, and family size/presence of children. In the analysis, we likewise explore additional factors, such as industry of occupation and the influence of relocation, which have received scant attention in the extant literature.

UNINSURANCE LEVELS FOR THE SELF-EMPLOYED

Researchers have constructed arguments related to the lack of health insurance coverage of the self-employed based on portability issues, tax issues, and costs for small business owners. Overall, there is relatively little agreement across the literature related to the relative influence of factors for their effect on health insurance coverage among the self-employed. Despite mixed results related to the factors that lead to lower rates of insurance for the self-employed, researchers agree that the self-employed are significantly less likely to carry insurance when compared to their wage or salary-earner counterparts (e.g., Cunningham & Ginsburg, 2001; Perry & Rosen, 2001; Selden, 2009; Starr-McCluer, 1996; Ziller, Coburn, Anderson, & Loux, 2008). Thus, we anticipate the data from the ACS will support the results found by previous researchers with regards to uninsurance levels of the self-employed.

H1: The self-employed are less likely to have insurance than the wage-employed.

SPOUSE EMPLOYMENT STATUS

Insurance held by a spouse has also been cited as an important component to the self-employed having access to insurance. Monheit and Harvey (1993) found that when the spouse has access to alternative sources of coverage at a large firm, the likelihood that the self-employed individual would hold employment-related insurance him/herself significantly declines. Using CPS data, Wellington (2001)

reported that when a spouse holds employer-based insurance, the likelihood of business ownership improves between 2.3% and 4.4% for men and between 1.2% and 4.6% for women. Therefore, we hypothesize:

- H2: Having a self-employed spouse will decrease the likelihood that the self-employed will have health insurance.

FAMILY INCOME LEVEL

Low family incomes are often cited as a contributing factor to uninsurance. Holahan and Cook (2008) report that insurance coverage levels are drastically lower for low income individuals than for middle income or high income individuals. For adults with low income, the rate of uninsurance in 2006 was approximately 41.2%, which is a significant increase from the 2004 level of 39.4%. Monheit and Harvey (1993) found that higher levels of family income significantly increased the likelihood that both the self-employed and wage-employed would hold employment-related health insurance. Results of their study indicate that for the self-employed, an additional \$1,000 in family income increases the likelihood of having health insurance coverage by 25%. Cunningham and Ginsburg (2001) determined that lower family incomes were strongly related to lower probabilities for an individual being insured. In their study of health insurance coverage of the self-employed with no employees, Allen and Park (1999) reported that 63% of the self-employed with no employees, who reported family income under \$20,000, did not have access to health insurance. Of the self-employed with no employees, reporting \$20,000 to \$34,999 in family income, approximately 36% were uninsured. The percent self-employed with no employees who are uninsured drops dramatically to 16% when family income is reported at levels of \$35,000 or more. The Kaiser Commission (2010) reports that approximately 90% of the uninsured in the United States are from low or moderate income families. Similarly, we make the following hypothesis:

- H3: Higher levels of family income will improve the likelihood that a self-employed individual has health insurance coverage.

FAMILY SIZE AND PRESENCE OF CHILDREN

Family size and structure have also been associated with health insurance coverage. Monheit and Harvey (1993) determined that family size had a negative impact on the likelihood that the self-employed would hold employment-related health insurance. They reported that an increase in family size by one person, leads to a decrease of approximately 4.63% in the probability of health insurance coverage for the self-employed. According to Perry and Rosen (2001), when other factors are held constant, the probability of having coverage decreases by 1.4% for each additional person in the family. Ziller et al. (2008) reported that families under four people were significantly more likely to hold insurance than those with five or more members. Although family size has been shown to decrease the likelihood of health insurance coverage, within both the Monheit and Harvey (1993) and Ziller et al. (2008) studies, the presence of children significantly increased the likelihood of holding health insurance coverage by 18.4% for the self-employed. Based on these findings, we hypothesize:

- H4: Larger family sizes will decrease the likelihood of having health insurance for the self-employed.
- H5: Having children present in the household will increase the likelihood of having health insurance for the self-employed.

METHODOLOGY

The sample for this analysis was taken from the ACS 2009 dataset. The ACS is a general household survey, which annually collects information related to economic, social, demographic, and housing information for households and individuals in the United States. In its annual report, the ACS provides information related to approximately two million completed household surveys and interviews, representing more than four million individuals. Data are collected from households in all counties continuously via monthly mailings. The ACS has three modes of collection: mail, mail non-respondents called for a computer assisted telephone interview, and telephone non-respondents sampled for a face-to-face computer assisted personal interview. Regardless of data collection mode, respondents are asked to provide the same information (State Health Access Data Assistance Center, 2010).

Prior studies have used the CPS from the United States Census to report health insurance rates. Both the ACS and the CPS contain health insurance related questions; however, the health insurance measurement differs across datasets. The ACS measures uninsurance at a point in time; whereas, the CPS data attempts to measure whether an individual has been uninsured all year. According to the State Health Access Data Assistance Center (2010) report, research indicates that despite this effort, the CPS measure estimates tend to represent point-in-time estimates rather than full year. Thus, since the ACS has advantages in sample size, the ACS dataset was selected for this analysis.

MEASURES

A random sample was drawn, which yielded a total sample for this study of 1,746,190 respondents ages 18 and older. Since the interest of this study is at the individual level, the person weight (PERWT) variable was included for statistical analysis to approximate the number of people in the US represented by a given individual in the ACS sample. Of the 1,746,190 respondents, 187,096 individuals reported themselves as primarily self-employed and 1,559,094 individuals reported their primary source of work as wage-employment. Once the sample had been drawn from ACS, equal random samples were drawn of 1000 self-employed and 1000 wage-employed individuals, yielding a full sample of 2000 observations. The smaller subsample was drawn to avoid estimation problems caused by large samples (Hair, Black, Babin, & Anderson, 2010). Table 1 provides all variables and descriptions included for the sample, along with descriptive statistics for each variable reported.

Table 1. *Descriptive Statistics*

Variable	Description	Self -Employed	Wage - Employed	Full Sample
		Mean (SD)	Mean (SD)	Mean (SD)
FAMSIZE	Number of family members	2.66 (1.52)	2.71 (1.58)	2.68 (1.55)
NCHILD	Number of children in the household	0.73 (1.15)	0.72 (1.06)	0.72 (1.11)
AGE	Age	50.94 (13.49)	43.11 (14.37)	47.02 (14.47)
FAMINC	Total family income (\$) (logged)	10.73 (1.94)	10.80 (1.50)	10.76 (1.73)
		%	%	%
FEMALE	Female	32.90	52.90	42.90
MARR	Married	69.10	56.30	62.70
SEPDWID	Separated, Divorced, or Widowed	16.90	17.00	16.95
SINGLE	Single (reference)	14.00	26.70	20.35
LATINO	Hispanic origin	8.50	10.90	9.70
NONWHITE	Other race not white	12.70	18.00	15.35
WHITE	White (reference)	87.30	82.00	84.65
NE	Lives in the northeast region	16.50	20.00	18.25
SO	Lives in the southern region	36.00	34.70	35.35
WE	Lives in the western region (reference)	26.00	22.50	24.25
NC	Lives in the north central region	21.50	22.80	22.15
LHIGH	Has less than high school education (reference)	9.20	8.30	8.75
HIGH	Has a high school education	34.70	31.70	33.20
SCOLL	Has some college education	21.90	24.50	23.20
COLL	Has a college education or higher (4+ years)	34.20	35.50	34.85
WORKED26	Worked 26 weeks or less last year	23.60	19.30	21.45
MOVED	Has moved within the last year	9.30	15.80	12.55
SELFEMPS	Has a self-employed spouse	17.10	4.90	11.00
MANAGE	Management	17.40	10.10	13.75
BUSINESS	Business, finance, legal, social services	8.40	8.80	8.60
ENGINE	Engineering, computer, math, and architecture	3.00	5.60	4.30
HEALTH	Health and health support services	5.20	8.30	6.75
EDUCTN	Education	1.90	8.30	5.10
FOOD	Food preparation and service, arts, and entertainment	7.20	11.50	9.35
PERSONAL	Personal care and service	8.60	3.10	5.85
OFFICE	Office, administrative support, and cleaning	9.40	18.80	14.10
CONSTRUCT	Construction, maintenance, repair transportation, and farming	22.90	13.10	18.00
SALES	Sales (reference)	16.00	12.40	14.20

Dependent Variable

The dependent variable under analysis, INS, has the value ($Y=1$) if the individual carries any type of health insurance coverage, and ($Y=0$) if uninsured. This allows for all forms of insurance to be accounted for in the analysis. Further, since types of insurance cannot be ranked in terms of effectiveness, a dichotomous variable provides the most information for exploring our research question. Monheit and Harvey (1993) explored the impact of various factors on the likelihood of holding employment-related health insurance, in which the dependent variable was whether or not an individual held employment related health insurance. Perry and Rosen (2001) likewise assessed the probability of being insured ($Y=1$) to being uninsured ($Y=0$) in their regression analysis.

Independent Variables

Five independent variables are considered in the logistic regression analysis for their association with the likelihood of having insurance coverage: self-employment status, spousal self-employment status, family income level, family size, and number of children in the household.

Self-Employment Status. Prior research indicates that the self-employed are less likely to have any form of health insurance coverage than the wage-employed (Monheit & Harvey, 1993; Perry & Rosen, 2001). Perry and Rosen (2001) specified self-employment as an independent variable in the full model, where ($X=1$) for the self-employed. Monheit and Harvey (1993) created two separate models, with one dedicated to the self-employed and another for the wage-employed. In this study we analyze a full model in which self-employment status serves as an explanatory variable, and run two additional models in which all factors are tested for association with health insurance coverage for only the self-employed and only the wage-employed.

Self-employment Status of Spouse. Since relatively few studies have explored the impact of the employment status of the spouse, we designate a variable for self-employed spouse ($X=1$). Monheit and Harvey (1993) accounted for whether the individual's spouse was a wage earner at a large firm, a full-time wage earner, or in a high insurance industry. These variables indicate that the spouse likely has access to work-related insurance, with the reference being self-employed and all others. We analyze the impact of a self-employed spouse relative to all other possible types of employment.

Family Income Level. Previous researchers have determined that income level does appear to have a real impact on the likelihood of an individual having health insurance coverage (Monheit & Harvey, 1993; Holahan & Cook, 2008; Kaiser Commission, 2010). For the purposes of this analysis, we report total family income (logged) in dollars reported in the ACS, which is consistent with other studies employing the use of family income level from other data sources.

Family Size and Number of Children. Family size is most often reported as the number of family members living in the household. Perry and Rosen (2001) and Monheit and Harvey (1993) designated family size as a continuous variable, which included the number of adults and dependents. In alignment with prior studies, we report family size as a continuous variable representing the number of adults and dependents. In the past, few studies have analyzed the impact of the number of children on whether or not an individual has health insurance coverage. Monheit and Harvey (1993) measured the impact of children via a dichotomous variable indicating that children were either present ($X=1$) or not present ($X=0$) in the household. In this analysis, the impact of children is measured through a continuous variable in which the number of children in the household is reported since continuous data is available through the ACS dataset.

Control Variables

Several control variables are included to account for other demographic, socioeconomic, and occupational factors that may pose significant impacts on the likelihood that an individual has health insurance coverage. To control for family impact, in addition to family size and the total number of children in the household, we consider marital status. With regards to demographic variables, we control for age, gender, ethnicity, and education. In an attempt to account for work-related factors, we test the connection of whether or not the individual worked 26 or fewer weeks last year, whether the individual had moved in the past year, occupational industry, and census region.

RESULTS

Table 2 provides a snapshot of health insurance coverage for the self-employed, wage-employed, and full sample. The self-employed sample has a higher percentage of individuals who are uninsured (19.60%) compared to 15% of the wage-employed who are uninsured. When the self-employed held insurance, they were more likely than the wage employed to have direct, public, Medicare, or veterans insurance. An interesting note is that 24.7% of individuals had two or more types of insurance¹.

Table 2. *Types of Health Insurance*

Type	Self-Employed N=1000		Wage-Employed N=1000		Full Sample N=2000	
	Frequency	%	Frequency	%	Frequency	%
Private	689	68.90	783	78.30	1472	73.60
Employer	408	40.80	706	70.60	1114	55.70
Direct	316	31.60	108	10.80	424	21.20
Tricare	20	2.00	28	2.80	48	2.40
Public	256	25.60	133	13.30	389	19.45
Medicaid	73	7.30	63	6.30	136	6.80
Medicare	175	17.50	70	7.00	245	12.25
Veterans Affairs	52	5.20	19	1.90	71	3.55
Indiana Health Service	2	0.20	6	0.60	8	0.40
No Insurance	196	19.60	150	15.00	346	17.30

Note: Types of insurance will sum to more than 100% because many respondents had more than one type of insurance (i.e. everyone who had employer insurance had private insurance).

A logit analysis was used to determine the likelihood that an individual would have health insurance coverage. Three models were analyzed. Model 1 assessed only the self-employed, model 2 analyzed only the wage-employed, and model 3 assessed the full sample of self- and wage- employed. Results of moderating and control variables for all models are shown in Table 3. All three models were statistically significant with χ^2 values at $p < 0.001$ and had pseudo R^2 of 0.28, 0.28, and 0.25, respectively.

¹ This number excludes the individuals who have employer insurance because 100% of them had private insurance.

Table 3. *Logistic Regression for Probability of Having Health Insurance*

Variable	Model 1 Self-Employed (N=1,000)		Model 2 Wage-Employed (N=1,000)		Model 3 Full Sample (N=2,000)	
	Estimate	Odds	Estimate	Odds	Estimate	Odds
SELFEMP					-0.79***	0.45
SELFEMPS	-0.59 [†]	0.56	-0.48	0.62	-0.66*	0.51
FAMINC	0.15 [†]	1.16	0.37**	1.45	0.23***	1.25
FAMSIZE	0.02	1.02	-0.36***	0.70	-0.17	0.84
NCHILD	0.11	1.11	0.45**	1.57	0.29*	1.33
FEMALE	0.15	1.16	-0.28	0.76	-0.08	0.92
MARR	1.29***	3.62	1.31***	3.71	1.23***	3.41
SEPDWID	0.05	1.06	0.10	1.10	-0.02	0.98
AGE	-0.37***	0.69	-0.15*	0.86	-0.19***	0.83
AGE2	0.00***	1.00	0.00*	1.00	0.00***	1.00
LATINO	-1.08**	0.34	-1.32***	0.27	-1.07***	0.34
NONWHITE	-0.46	0.63	0.03	1.03	-0.20	0.82
HIGH	-0.46	0.63	0.23	1.26	-0.05	0.95
SCOLL	0.13	1.13	0.44	1.55	0.30	1.36
COLL	0.66	1.93	1.46**	4.32	1.05**	2.85
WORKED26	0.41	1.51	-0.40	0.96	0.09	1.09
MOVED	-0.82**	0.44	-0.44	0.65	-0.51*	0.60
MANAGE	0.39	1.48	-0.09	0.91	0.36	1.43
EDUCTN	2.17 [†]	8.77	1.85*	6.36	1.82*	6.14
HEALTH	-0.01	0.99	-0.25	0.78	-0.015	0.86
PERSONAL	-0.21	0.81	0.64	1.90	0.18	1.20
OFFICE	-0.55	0.57	0.31	1.36	0.11	1.12
BUSINESS	0.37	1.44	2.38**	10.78	1.023*	2.79
ENGINE	0.52	1.68	0.45	1.57	0.71	2.03
CONSTRCT	-0.48	0.62	-0.62	0.54	-0.51 [†]	0.60
FOOD	-0.85 [†]	0.43	-0.13	0.88	-0.42	0.66
NE	0.64	1.89	-0.54	0.58	0.10	1.11
NC	0.51	1.67	-0.75 [†]	0.47	0.03	1.03
SO	-0.03	0.97	-0.79*	0.46	-0.21	0.81
CONSTANT	6.07***		0.95		2.45*	
PSEUDO R2	0.28		0.28		0.25	

† p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

As hypothesized, type of employment is associated with the likelihood of having health insurance. In model 3, *SELFEMP* is negative and statistically significant (-0.79, p<0.001) which indicates that self-employed individuals are less likely to have health insurance than wage-employed individuals. Therefore, H1 is supported. Further, having a self-employed spouse (*SELFEMPS*) is negative and statistically significant for model 1; indicating self-employed individuals with self-employed spouses are less likely to have health insurance than those with wage-employed spouses. This result supports H2 (-0.590, p<0.10). Even though having a self-employed spouse is negative for the wage-employed, it is not statistically significant. This is to be expected as wage-employed individuals are more likely to have employer sponsored health insurance than the self-employed.

Overall, the family variables have an impact on the probability of carrying health insurance. Family income (*FAMINC*) is positive and statistically significant in all three models. Thus, H3 is supported for the self-employed (0.15, $p < 0.10$). The results indicate that the higher a family's income level, the higher the likelihood that the self-employed will have health insurance. Analysis on family size and children did not support H4 or H5. However, having children increases the likelihood of having health insurance for the wage-employed, just not at a significant level.

Several demographic control variables have a statistically significant effect on both self-employed and wage-employed individuals carrying health insurance coverage. Married individuals are more likely to have health insurance than single individuals. Age is negative and age squared is positive indicating a u-shaped curve on the likelihood of having health insurance. Latinos are less likely than Whites to have health insurance across all three models. Where an individual resides and works has an important effect on the likelihood of having health insurance. An individual who moved within the last year is less likely to have health insurance than those who did not, particularly for the self-employed. Interestingly, occupation industry also has an effect on the likelihood of having health insurance coverage. The results are not consistent across the three models, which imply that the industry of occupation has varying effects on health insurance coverage, depending on whether the individual is wage-employed or self-employed. For example, when sales occupations serve as the reference, individuals involved in business-related (*BUSINESS*) occupations are more likely to have health insurance across models 2 (wage-employed) and 3 (full sample). Yet, if an individual works in an educational occupation then he/she is more likely to have health insurance than an individual in sales across all three models.

DISCUSSION AND CONCLUSIONS

The results of our study concur with prior studies and reports that argue the self-employed are less likely to have health insurance than the wage-employed. Two of our hypothesized factors, having a self-employed spouse and family income level, pose significant effects on whether or not a self-employed individual possesses health insurance. However, we find just as insightful, the hypotheses that were not upheld related to family size and the number of children. Further, several controlling factors such as marital status, age, ethnicity, migration status and occupation industry play a major role in predicting whether or not a self-employed individual has health insurance coverage.

We believe the contributions of our study to be many, both related to the findings themselves and the additional information this may provide researchers who approach this topic in the future. First, we confirm prior studies' findings on the high rates of uninsurance for the self-employed with the ACS dataset. This may be a particularly relevant result since Holahan and Cook (2005) report that over the past decade there has been a large shift from employment in medium and large firms to both self-employment and employment in small firms. Although it is generally accepted that the self-employed have lower levels of health insurance coverage, it has also been documented that small firms provide lower rates of insurance to their employees (Monheit & Harvey, 1993; Morrissey, 2003; Holahan & Cook, 2005). When this shift in employment is coupled with rising healthcare coverage costs for both individuals and employers, higher rates of uninsurance may be yet to come. However, the wage-employed do not appear to have caught up to the uninsurance levels experienced by the self-employed at this point.

Interestingly, for the self-employed, being married poses a significant boost to insurance rates; however, this is not true when the self-employed individual's spouse is also self-employed. Aligned with the results of Monheit and Harvey (1993), this indicates that larger firms capable of providing reduced-cost health insurance coverage to its employees and their families may be subsidizing health insurance coverage for the self-employed. Although being married positively influences wage earners' rates of health insurance coverage as well, having a self-employed spouse did not pose a significant impact on

whether or not a wage earner had health insurance coverage. From a policy perspective, targeting healthcare policies towards families where the husband and wife are both self-employed would likely improve the rate of insurance coverage among the self-employed. In their study related to health insurance availability and labor contracts for small firms, Li, Liu, Kuo, and Yang (2011) recommend that allowing the self-employed to form pools to pay lower premiums may be a viable solution to this problem.

Our results show that the higher a family's income, the higher the likelihood that individuals will have health insurance regardless of employment type. However, family size and number of children in the household were not statistically significant for the self-employed. The lack of significance for family size and the presence of children with the self-employed may indicate that many other factors complicate the relationship between self-employment status and the decision to carry health insurance coverage. We will address this issue later in the section, when we propose the design and development of a valid instrument targeted at gaining a better understanding of self-employment uninsurance levels.

Demographics, geographic area, and occupation are important control factors affecting the likelihood of the self-employed carrying health insurance. Age has a u-shaped curve, which begins to curve upward at age 48. This indicates that middle aged individuals and those closer to retirement age are more likely to have health insurance than younger individuals, which would suggest that the Medicare program improves the insurance rate of retirement aged individuals and may help promote business creation among older Americans (Zissimopolous & Karoly, 2007). Additional research related to whether access to healthcare coverage allows retirement aged Americans the flexibility of being self-employed would provide insight into whether the subsidization of business creation is greater among wage firms (spouse employment) or through government-sponsored programs, such as Medicare.

The significance of the geographic variable, is important because as more Americans migrate in an effort to seek employment, the implication is that if they had health insurance coverage, they will most likely lose it. Interestingly, individuals in certain types of occupations are less likely to have health insurance than others. This is a notable result because it provides evidence that certain occupations are less likely to have health insurance, particularly occupations more likely to be held by self-employed individuals, such as food service. However again, more specifically targeted, descriptive data of the self-employed could provide more insightful analyses of migration, work, and location information.

Our results diverge from traditional studies of health insurance coverage for the self-employed regarding the effect of family size and the presence of children within the household. This is surprising, since the family business literature tends to depict the family and family business as having a large interface. Future research in entrepreneurship and small business development should explore why family impacts would be stronger in a family where the household head is wage-employed. This result may also imply that individuals who have children are self-selecting into wage-employment. Additional factors, such as size of the firm providing wage employment to the individual may be instrumental in better understanding this relationship. Perhaps insights from the study of Holahan and Cook (2005) regarding low insurance offerings from small businesses could assist researchers in developing instruments gauged at capturing this type of information.

Research on health insurance access is increasingly relevant at a time when the topic of healthcare is at the forefront of the nation's attention. Both this and prior research work conclude that the self-employed are at a significant disadvantage with regards to access to healthcare. However, with the recent Small Business Jobs and Credit Act, new data will become available, along with opportunities to assess the relative effectiveness of such policies. For example, it would be useful to compare insurance rates for the self-employed during the Small Business Jobs and Credit Act, which provided a one-year window for the self-employed owners of sole proprietorships, single-member LLCs, or sole-owner S-

corps to fully deduct health insurance premiums. Future research on insurance rates and effectiveness of government policies could also include the Patient Protection and Affordable Care Act (PPACA) if it becomes fully implemented. The PPACA would provide variable tax credits for small businesses paying at least 50% of total premiums for employees. PPACA would also make health insurance more portable which would decrease the negative affect on health insurance rates that migration now has on the self-employed. Future research may be able to determine the relative effectiveness of such programs, especially since tax advantages for health insurance premiums have been shown to be effective in promoting higher rates of health insurance coverage. Such information could assist in forming more efficient and effective future policies related to healthcare access for small business owners; thus, reducing the uninsurance rate of the self-employed.

Our study is clearly not without limitation. With such a large dataset, some detailed information is sacrificed for sample size. For example, characteristics of the business, such as size and duration were unavailable for analysis, as was specific information related to the health status of the individual. Monheit and Harvey (1993) found that both form of ownership for the business and size of the firm were important predictors of health insurance coverage. Although these factors would have been interesting to include in the analysis, the results of our study align with those of previous studies related to employment status, spouse employment status, and family income. Further, health status would have been an interesting variable to test; however, these factors have typically not been found to hold significance in prior empirical studies (Perry & Rosen, 2001; Monheit & Harvey, 1993).

Limitations of our study, and those before us on this topic, highlight a great need for a more specific exploration of the health insurance situation of the self-employed. Although secondary datasets provide researchers with low-cost analyses, there is a large amount of personal information lost, such as the deterrence attributed to cost of coverage, risk aversion level of the individual, and health insurance preferences. Development of a survey instrument targeted to obtaining such data would be helpful to academics exploring the job-lock hypothesis and elasticity of demand for health insurance, as well as the demographic, family, business and socioeconomic factors that impact health insurance coverage decisions. Such information also holds the potential to assist policymakers by attempting to determine the root of the self-employed health insurance coverage problem and proposing best possible policy solutions targeted at the most basic issues.

Healthcare is at the forefront of concern for the self-employed and small businesses. The passage of the PPACA in 2010 demonstrates that this issue is clearly also a concern of the government (Li et al., 2011). Further, with the recent Supreme Court hearings related to the constitutionality of the mandate, it is likely that interest in this issue will continue. Introducing the ACS to health insurance studies, we confirm the findings of previous researchers which indicate that the self-employed are at a major disadvantage in terms of health insurance coverage when compared to their wage earner peers. Our analysis indicates that self-employment status, self-employment status of the spouse, family income level, and several controlling factors, such as migration status and occupation industry impact the likelihood that a self-employed individual will have health insurance coverage. However, our results diverge from prior studies for the effects of family size and number of children in the household. As this topic grows increasingly relevant, we believe that our results, as well as those of the limited number of studies before us call for the development of an instrument targeted specifically at understanding rates of uninsurance among the self-employed. Better understanding the factors which assist in the insurance/uninsurance decision will assist both researchers and policymakers in their attempt to develop feasible solutions to this problem.

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