

# DETERMINANTS OF ACCESS TO JOB-RELATED HEALTH INSURANCE

*Joe Timmerman*  
*SUNY Potsdam*

## INTRODUCTION

Given that employer-sponsored health insurance plans are the single largest source of private health insurance [Chollet, 1994], understanding the characteristics of those occupations that provide access to job-related health insurance may help researchers and policy makers focus on ways to broaden health insurance coverage. Existing research indicates that not only do specific occupational characteristics frequently relate to the existence of job-related health insurance, but characteristics of the workers within those occupations may also play a role.

In one of the more comprehensive studies on the determinants of job-related health insurance, Secombe [1993] used 1991 Current Population Survey (CPS) data and found that being a union covered job was the strongest occupation specific predictor for access to job related health insurance. Other significant occupation specific predictors included amount of pay, paying a salary rather than hourly rate, requiring a time-clock record of hours, and being a full-time job.

The finding that union coverage increases access to job-related health insurance is also reported by Shen and Zuckerman [2003] in their study of the variation of employer-sponsored insurance programs between states. They also note that racial and ethnic differences between states are a determinant of the differences in job-related insurance coverage. Zuvekas and Taliaferro [2003] further examine these racial differences and find that whites were more likely to have health insurance. They also found that singles were less likely to be offered health insurance on the job. Singles are also studied by Monheit and Primoff [1999], who find that singles may be less likely to have job-related health insurance due to weaker preferences for insurance coverage than the preferences held by married workers.

Other characteristics that have been related to the likelihood of having access to job-related health insurance are degree of self-employment, job training requirements, and degree of "job lock." Wellington [2001] presents findings that suggest that universal health coverage, in effect removing health insurance coverage from the employment realm, would increase self-employment by an amount from 2 to 3.5 percentage points. This reflects the fact that the self-employed are less likely to be covered by job-related health plans. Barron and Fraedrich [1994] note that occupations with more on the job training are more likely to offer job-related health insurance.

---

**Joe Timmerman:** Department of Business Administration, State University of New York at Potsdam, 44 Pierrepont Avenue, Potsdam, New York 13676. E-mail: [timmerja@potsdam.edu](mailto:timmerja@potsdam.edu).

Finally, finding some support for the theory that access to job-related health insurance may keep employees from changing jobs, also known as "job lock," Monheit and Cooper [1994] estimate that between one and two percent of workers may resist changing jobs in order to keep their job-related coverage.

The purpose of this paper is to assess whether occupational and worker characteristics explain access to job related health insurance. It also examines the significance of those characteristics on having the employer or union pay for at least part of any job related health insurance.

This study aggregates the CPS data on individuals into occupation level data to distinguish between jobs and occupations. While a given job may offer access to health insurance, that specific job may not be representative of the majority of jobs within its occupation. While most workers actively choose their occupation, or career, they are not as able to choose a specific job within that career. By identifying the characteristics of occupations that have a better likelihood of offering health insurance it becomes easier to choose a career in which any specific job will also be more likely to offer health insurance. Finally, by identifying occupational characteristics that are related to access to health insurance, policy makers may be better able to identify specific groups of workers, by occupation, that are in most need of innovative ways of obtaining insurance coverage.

## DATA AND METHODOLOGY

Data on 252 occupations come from the 1988, 1993, and 1998 CPS after removing data on persons under 18 years of age, those in the military, and those who are unemployed and not looking for a job. At least 50 un-weighted observations were required for an occupation to be included in the sample. Due to changes in the CPS, 400 occupations were available for study for 2003. As a result of these changes, many occupations with large numbers of workers were broken down into multiple, more specific occupations so a one-to-one matching of occupations from the earlier years to the 2003 data is not possible. While this increase did reduce the  $R^2$  measure for the 2003 regression covering access to job-related health insurance, the results of that regression appear more robust, with 50% more variables testing as significant than the average for the other three years. For the regression looking at access to employer/union paid health care the  $R^2$  measure actually increased from a three-year average of .309 to .742. This suggests that this variable may have been a factor in the re-categorization of occupations for the CPS. As with the primary regression, the results for 2003 were more robust with 120% more variables testing as significant than the average for the other three years. Additional variables were obtained from the Dictionary of Occupational Titles. For 2003, the 20 occupations most likely to provide access to job related health insurance are listed in Table 1. Also for 2003, the 20 occupations least likely to provide such access are listed in Table 2.

The dependent variable for measuring access to job related health insurance is the percentage of workers in any given occupation " $j$ " ( $Occ_j$ ) that report having access

**TABLE 1****THE 20 OCCUPATIONS MOST LIKELY TO OFFER ACCESS TO JOB-RELATED HEALTH INSURANCE IN 2003 BY PERCENTAGE OF WORKERS REPORTING COVERAGE**

Rail and Subway Transportation Workers, Other	100 %
Metal Furnace and Kiln Workers	96
Sales Engineers	96
Supervisors of Fire Fighting and Prevention Workers	95
Locomotive Engineers	94
Managers: Engineering	93
Engineers: Chemical	92
Fire Fighters	91
Tire Builders	91
Supervisors of Police and Detectives	91
Aircraft Pilots and Flight Engineers	90
Computer Control Programmers and Operators	89
Meeting and Convention Planners	89
Eligibility Interviewers, Government Programs	89
Railroad Conductors and Yardmasters	88
Power Plant Operators, Distributors, and Dispatchers	87
Business Compliance Officers, Other	87
Network and Computer Systems Administrators	87
Transportation Attendants	87
Police and Sheriff's Patrol Officers	87

**TABLE 2****THE 20 OCCUPATIONS LEAST LIKELY TO OFFER ACCESS TO JOB-RELATED HEALTH INSURANCE IN 2003 BY PERCENTAGE OF WORKERS REPORTING COVERAGE**

Entertainers and Performers, Other	11 %
Plasterers and Stucco Masons	13
Food Service Counter Attendants	13
Fishers and Related Fishing Workers	14
Dishwashers	15
Barbers	16
Roofers	17
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	18
Farmers and Ranchers	18
Waiters and Waitresses	19
Pressers: Textile, Garment, and Related Materials	19
Crossing Guards	19
Service Station Attendants	20
Forest and Conservation Workers	21
Child Care Workers	22
Sales: Product Promoters, Models, and Demonstrators	22
Therapists: Massage	22
Sales: Door-to-Door and Street Vendors	23
Hairdressers, Hairstylists, and Cosmetologists	23
Carpet, Floor, and Tile Installers and Finishers	23

to employer or union provided health insurance. This measure can be interpreted as representing the probability that any randomly selected worker “*w*” from occupation “*j*” will have the choice of acquiring job related health insurance or  $Prob(w = h | j)$  such that:

$$(1) \quad Prob(w = h | j) = (\# \text{ of workers in } OCC_j \text{ with access to job related health coverage}) / (\text{total } \# \text{ of workers in } OCC_j)$$

Assuming that occupational and personal characteristics do play a role in the likelihood that an occupation will offer job-related health insurance, this probability can be expressed as equation 2:

$$(2) \quad Prob(w = h | j) = f(OC_j, W_{w,j})$$

where

$OC_j$  = the I-dimensional vector of occupational characteristics, other than related to health insurance coverage, fully describing  $OCC_j$ .

$W_{w,j}$  = worker *w*'s specific attributes relative to the expected level of human capital attributes in  $OCC_j$ .

Occupational characteristics included in this study include the following, which are calculated from CPS data for each occupation in each of the four years studied:

1. The average number of weekly hours reported for each occupation.
2. The average income reported for each occupation.
3. The percentage of workers in each occupation reporting a layoff in the prior year.
4. The percentage of workers in each occupation reporting an out of state move in the prior year.
5. The percentage of workers in each occupation covered by a union.
6. The percentage of workers in each occupation who are self employed.
7. The percentage of workers in each occupation who work for a government entity.

Two additional occupational variables were taken from the Dictionary of Occupational Titles in combination with CPS data and did not vary between years:

8. Whether or not an occupation is classified as a “supervisory” position.
9. Whether or not the occupation requires less than six months of training.

Worker characteristics were also calculated from CPS data for each occupation in each of the four years studied. They are:

1. The percentage of an occupation's workers that are white males<sup>1</sup>.
2. The percentage of an occupation's workers that are black males.

3. The percentage of an occupation's workers that are white females.
4. The percentage of an occupation's workers that are black females.
5. The average age of workers in each occupation.
6. The average level of educational attainment in each occupation.
7. The percentage of workers in each occupation who are married.
8. The percentage of workers in each occupation with children living at home.

Additional regressions were run replacing the probability that an occupation offered access to health insurance with the percentage of those so reporting that also reported that at least some portion of the insurance premium was paid for by either the employer or a union.

Originally, the percentage of each occupation reporting coverage by a job related pension plan was also included. Due to severe multicollinearity, the pension variable was dropped from the model. Tests for heteroskedasticity indicated corrective measures were needed to obtain accurate significance tests, so chi<sup>2</sup> significance was measured using White's standard errors.

## **EMPIRICAL RESULTS**

### ***Access to Job-Related Health Insurance***

Just as Secombe [1993] found using 1991 CPS data, the 1988 regression found union coverage to be the strongest predictor of access to job-related health insurance. A one percentage point increase in union coverage led to a 1.125 percentage point increase in the likelihood of having job-related health insurance. By 1993 the union related increase was down to .654 percentage points, which was only the fourth strongest predictor of access to job-related health insurance in that year. In both 1998 and 2003, however, the union variable did not test as significant.

For the first three years studied, average income followed the same trend as union coverage as a predictor of job-related health insurance coverage. In 1988 a \$1,000 increase in average income for an occupation increased the likelihood of that occupation providing access to health insurance by 1.085 percentage points. By 1993 the likelihood was down to .965 percentage points and, like the union measure, tested as insignificant in 1998. By 2003 income again tested as significant but a \$1,000 increase in average income only resulted in an increase in the likelihood of access to job-related health insurance of .131 percentage points.

The most consistently strong predictor of access to job-related health insurance was average hours worked. In 1988, every additional hour of work per week raised the likelihood of having job-related health insurance by .979 percentage points. This number was .911 percentage points in 1993, 1.772 percentage points in 1998 and 1.235 percentage points in 2003. For 1998 and 2003 hours worked was the second strongest predictor of access to job-related health insurance with only average education level showing a stronger relationship. Along with percent married, average hours was the only characteristic to test as both positive and significant at the 1% confidence level in all four years studied.

TABLE 3

**PERCENTAGE OF AN OCCUPATION COVERED BY AN EMPLOYER/UNION  
SPONSORED HEALTH PLAN(SAMPLE SIZES:  
1988 - 1998 = 252 OCCUPATIONS; 2003 = 400 OCCUPATIONS)**

Variable <sup>1</sup>	1988 r <sup>2</sup> = .836 Coefficient <sup>5</sup> (p value <sup>4</sup> )	1993 r <sup>2</sup> = .836 Coefficient (p value)	1998 r <sup>2</sup> = .807 Coefficient (p value)	2003 r <sup>2</sup> = .739 Coefficient (p value)
constant	6.57	-32.641	-79.861	-41.470
% white male	-.139 (.561)	.301 (.252)	.118 (.489)	.128 (.142)
% black male	.029 (.907)	.510* (.075)	.235 (.374)	.131 (.362)
% white female	-.041 (.856)	.348 (.175)	.055 (.746)	.051 (.571)
% black female	-.030 (.916)	.709** (.039)	.543** (.019)	.465*** (.003)
average hours	.979*** (.000)	.911*** (.001)	1.772*** (.000)	1.235*** (.000)
average income <sup>2</sup>	1.085*** (.000)	.965*** (.000)	.109 (.266)	.131** (.040)
% laid off last year	1.123* (.052)	.685 (.164)	.198 (.806)	.437*** (.000)
% moved out of state last year	-.558 (.170)	-.693* (.064)	-1.160*** (.002)	-.605** (.012)
% covered by a union	1.125*** (.000)	.654*** (.001)	.244 (.532)	.028 (.531)
supervisor position	-.282 (.893)	-2.092 (.270)	-1.199 (.645)	1.251 (.492)
less than six months training	-.288 (.864)	-.762 (.675)	-.804 (.628)	-4.435*** (.008)
% self employed	-.578*** (.000)	-.599*** (.000)	-.697*** (.000)	-.712*** (.000)
% government workers	-.063 (.133)	-.016 (.658)	-.026 (.576)	.050* (.095)
average age	-.463 (.258)	-.410 (.191)	.010 (.973)	.257 (.286)
average education level <sup>3</sup>	2.511 (.145)	1.235 (.454)	9.598*** (.000)	5.193*** (.000)
% that are married	.480*** (.001)	.458*** (.000)	.315*** (.006)	.325*** (.000)
% with kids at home	-.370*** (.001)	-.337*** (.002)	-.037 (.810)	-.231*** (.001)

<sup>1</sup> Percentages and averages are at the occupation level

<sup>2</sup> Coefficient scaled by 1,000

<sup>3</sup> Average educational attainment is calculated using the following index:

- |                                     |                               |
|-------------------------------------|-------------------------------|
| 1-Did not finish elementary school; | 2-Finished elementary school; |
| 3-Finished middle school;           | 4-Finished high school;       |
| 5-Finished Associate's Degree;      | 6-Finished Bachelor's Degree; |
| 7-Finished Advanced Degree          |                               |

<sup>4</sup> Using White's Standard Errors to correct for heteroscedasticity

<sup>5</sup> \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

At the opposite extreme, but also as expected, the most consistent predictor of an occupation not providing access to job-related health insurance was the percentage of an occupation reporting self-employment. In 1988 a one percentage point increase in the likelihood of a worker in an occupation being self-employed reduced the likelihood of a worker in that occupation having access to job-related health insurance by .578 percentage points. The reduction in that likelihood was .599 percentage points in 1993, .697 percentage points in 1998, and .712 percentage points by 2003.

As a test of the "job lock" theory, the percentage of an occupation that reported a job related out-of-state move in the prior year was included. In 1993, 1998, and 2003 the coefficient on the move variable tested as significant and negative. In 1993, a one percentage point increase in the likelihood of a worker in a given occupation having moved in the prior year was associated with a .693 percentage point decrease in the likelihood of having job-related health insurance. This decrease was 1.16 percentage points in 1998 and .605 percentage points in 2003. For both 1993 and 1998, the probability of an out-of-state move was the strongest predictor of an occupation not providing access to health insurance. For 2003 it was second only to the characteristic of requiring less than six months of training. This suggests that even during the relatively good economy of the 1990s, the people most likely to move were those without job-related health insurance, providing support for the job lock theory.

Reflecting the conventional wisdom that "good jobs" increasingly require more education, the relationship between access to job-related health insurance and education level went from insignificant in both 1988 and 1993 to significantly positive, and strong, in both 1998 and 2003. In 1998 an increase in completed education by one level (for example graduating from a four year college instead of a two year college) increased the likelihood of access to job-related health insurance by 9.598 times. This increase was 5.193 times in 2003.

Except for black females, the race/gender composition of an occupation showed no impact on the likelihood of an occupation offering access to health insurance. Supporting the findings of DiNatale and Boraas [2002], black females were the one race/gender group whose concentration was positively related to job-related health insurance. In 1993 a one percentage point increase in the likelihood a worker in an occupation was a black female increased the likelihood that occupation would provide access to health insurance by .709 percentage points. This likelihood was down to .543 percentage points in 1998 and .465 in 2003.

The findings of Monheit and Primoff [1999] that singles are less likely to be offered health insurance on the job are supported in all four years of this study. For 1988 a one percentage point increase in the probability a worker in a given occupation is married increases the likelihood that the occupation provides job-related health insurance by .480 percentage points. This measure was .458 percentage points in 1993, .315 percentage points in 1998 and .325 in 2003. While marriage tended to be a positive predictor of job-related health insurance, the presence of children in the home was a negative predictor of job-related health insurance in 1988, 1993, and again in 2003. In 1988 a one percentage point increase in the probability that a worker in a given occupation had children living at home was related to a .370 percentage



**TABLE 4**  
**PERCENTAGE OF THOSE COVERED BY AN EMPLOYER/UNION**  
**SPONSORED HEALTH PLAN WITH AT LEAST SOME OF THE PREMIUM**  
**PAID FOR THEM(SAMPLE SIZES: 1988 - 1998 = 252 OCCUPATIONS;**  
**2003 = 400 OCCUPATIONS)**

Variable <sup>1</sup>	1988 r <sup>2</sup> = .310 Coefficient <sup>5</sup> (p value <sup>4</sup> )	1993 r <sup>2</sup> = .298 Coefficient (p value)	1998 r <sup>2</sup> = .319 Coefficient (p value)	2003 r <sup>2</sup> = .742 Coefficient (p value)
Constant	104.04	99.380	69.701	-39.563
% white male	-.112 (.373)	-.144 (.183)	.152* (.095)	.100 (.243)
% black male	-.134 (.378)	-.083 (.506)	.213 (.083)	.067 (.625)
% white female	-.113 (.384)	-.096 (.371)	.137 (.140)	.014 (.868)
% black female	-.174 (.384)	-.349** (.371)	.111 (.140)	.468*** (.868)
Average hours	-.142 (.222)	.327** (.020)	.110 (.431)	1.245** (.000)
Average income <sup>2</sup>	.146** (.023)	-.038 (.524)	-.044 (.298)	.128** (.043)
% laid off last year	.281 (.307)	.423** (.030)	.807** (.037)	.410** (.000)
% moved out of state last year	-.197 (.212)	-.056 (.752)	-.163 (.439)	-.715*** (.003)
% covered by a union	.161** (.028)	.156** (.044)	-.036 (.648)	-.049 (.278)
Supervisor position	.139 (.904)	.745 (.265)	2.331*** (.004)	1.681 (.365)
less than six months training	-.076 (.930)	.837 (.388)	2.002 (.112)	-4.042** (.011)
% self employed	-.150*** (.000)	-.088*** (.004)	-.126*** (.001)	-.721*** (.000)
% government workers	-.026 (.112)	.009 (.587)	-.001 (.957)	.062** (.029)
Average age	.101 (.538)	-.246 (.190)	-.361 (.203)	.207 (.374)
Average Education level <sup>3</sup>	.687 (.301)	.843 (.320)	2.503** (.032)	5.249*** (.000)
% that are married	-.048 (.357)	.089 (.125)	.214*** (.009)	.332*** (.000)
% with kids at home	.037 (.497)	-.091* (.065)	-.086 (.212)	-.241*** (.001)

<sup>1</sup> Percentages and averages are at the occupation level

<sup>2</sup> Coefficient scaled by 1,000

<sup>3</sup> Average educational attainment is calculated using the following index:

- |                                     |                               |
|-------------------------------------|-------------------------------|
| 1-Did not finish elementary school; | 2-Finished elementary school; |
| 3-Finished middle school;           | 4-Finished high school;       |
| 5-Finished Associate's Degree;      | 6-Finished Bachelor's Degree; |
| 7-Finished Advanced Degree          |                               |

<sup>4</sup> Using White's Standard Errors to correct for heteroscedasticity

<sup>5</sup> \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.



point decrease in the likelihood that occupation provided access to health insurance. This decrease was .37 percentage points in 1993. Although in 1998 the coefficient on the child variable was insignificant, by 2003 it was again significantly negative with a coefficient of -.231 percentage points.

### ***Access to Employer or Union Paid Job-Related Health Insurance***

There were fewer consistent findings when looking at the likelihood that the premiums for job-related health insurance were at least partially paid for by either the employer or a union. The most consistent variable was the negative relationship between self-employment and access to paid job-related health insurance, a finding that is expected. Of perhaps more interest, the percentage of workers reporting an increase in reported layoffs was related to a .423 percentage point increase in access to a paid health plan for 1993. For 1998 this was .807 and for 2003 it was .410. These findings suggest that the cost of providing health insurance is one factor in the decision to lay off workers.

As with the more general access regression, access to paid health insurance was also positively related to education in 1998 and 2003. For 1998 completion of one additional level of education increased the likelihood of access to paid health insurance by 2.503 times and by 5.249 times in 2003.

As with the prior regressions, union coverage was positively related to paid health insurance in both 1988, when a one percentage point increase in union coverage related to a .161 percentage point increase in the percentage of those with job-related insurance having their premiums at least partially paid, and 1993 when that relationship related to a .156 percentage point increase. By 1998, and again in 2003, the coefficient on the union variable tested as insignificant.

For 2003, the results of the “paid” regression were very similar to those for the more general “access” regression reflecting the fact that most people with access to job related-health insurance (57% of workers) have at least a portion paid for them (53% of workers).

**TABLE 5**  
**PERCENTAGE OF WORKERS REPORTING JOB RELATED ACCESS TO**  
**HEALTH INSURANCE BY TYPE OF EMPLOYER (2003)**

TYPE OF EMPLOYER (%OF TOTAL)	PERCENTAGE
Private (74.87%)	.57
Federal government (2.46%)	.77
State government (4.15%)	.75
Local government (7.98%)	.73
Self-employed-incorporated (3.48%)	.47
Self-employed-not incorporated (6.99%)	.20
Without pay (0.07%)	.14

## CONCLUSION

This paper highlights some general trends in the characteristics of both occupations and workers that relate to the likelihood that an occupation will provide access to health insurance. As expected, in the first two periods studied, union membership was strongly and positively related to the percentage of an occupation offering job-related health insurance. Given that one purpose for unions is to improve their member's benefit plans, the apparent decline in the importance of union membership in obtaining access to health insurance deserves further study. Hours worked was significantly and positively related to job-related health insurance, pointing to a need for policy makers to address the health insurance needs of those working less than full time. The negative relationship between having children at home and having access to health insurance through the job also point to an area for further study, especially as most insureds continue to gain access to their insurance through the workplace.

## NOTES

1. Although there was some multicollinearity related to the worker concentration variables, tests indicated that it was not strong enough to materially affect which variables were statistically significant.
2. I would like to thank Marsha Goldfarb, the referees, and the discussants and participants at the 2004 Eastern Economics Conference.

## REFERENCES

- Barron, John M. and Fraedrich, Ann.** The Implications of Job Matching for Retirement Health Insurance and Leave Benefits. *Applied Economics* May 1994, 425-435.
- Chollet, Deborah.** Employer-based Health Insurance in a Changing Work Force. *Health Affairs* Spring 1994, 315-327.
- DiNatale, Marisa and Boraas, Stephanie.** The Labor Force Experience of Women From 'Generation X'. *Monthly Labor Review* March 2002, 3-15.
- Monheit, Alan C. and Cooper, Philip F.** Health Insurance and Job Mobility: Theory and Evidence. *Industrial and Labor Relations Review* October 1994, 68-85.
- Monheit, Alan C. and Vistnes, Jessica Primoff.** Health Insurance Availability at the Workplace: How Important are Worker Preferences? *Journal of Human Resources* Fall 1999, 770.
- Olson, Craig A.** Do Workers Accept Lower Wages in Exchange for Health Benefits? *Journal of Labor Economics* April 2002, 91-114.
- Secombe, Karen.** Employer Sponsored Medical Benefits: The Influence of Occupational Characteristics and Gender. *The Sociological Quarterly* Fall 1993, 557-580.
- Shen, Yu-Chu and Zuckerman, Stephen.** Why is there State Variation in Employer-Sponsored Insurance? *Health Affairs* January/February 2003, 241.
- Wellington, Alison J.** Health Insurance Coverage and Entrepreneurship. *Contemporary Economic Policy* October 2001, 465-478.
- Zuvekas, Samuel H. and Taliaferro, Gregg S.** Pathways to access: Health Insurance, the Health Care Delivery System, and Racial/Ethnic Disparities 1996-1999. *Health Affairs* March/April 2003, 139