Consumption Elasticities and Tax Policy in the Employer Provided Health Insurance Market

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Abstract

Most people in the United States purchase health insurance through their employer due to the tax subsidy on employer-provided health insurance premiums. A large literature has developed that looks at impact of reductions in this tax subsidy. Recent papers tend to focus on changes in offers, eligibility, and take-up as a result of changes in the tax subsidy. One might consider these as changes along the extensive margin. There has not been any recent work that examines changes in the amount of insurance employees consume as a result of changes in the tax subsidy. One might consider this as a change along the intensive (or consumption) margin. The purpose of this paper is to use new data and econometric techniques to examine changes along this consumption margin. A tax price elasticity of insurance consumption is estimated to be -2.18 using data from the 1987 National Medical Expenditure Survey (NMES). This consumption elasticity is larger than the offer, eligibility, and take-up elasticities found in the recent literature and may suggest that the biggest impact of a reduction in the tax subsidy is found along the consumption margin.

JEL classification: D10; I18; H24

Keywords: Adverse Selection; Employer-Provided Health Insurance; Tax Preference

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I. Introduction

There are many reasons why it makes sense for an individual to purchase health insurance through an employment-based group. One reason is economies of scale. Many of the costs associated with the provision of insurance are the same whether there are 1,000 or 10,000 people in the group. Second, group health insurance spreads risk among group members and may help to avoid adverse selection problems. In an employment-based group, adverse selection may be avoided by risk pooling in an environment (the workplace) where people are brought together for reasons exogenous to health.

The major reason why individuals purchase health insurance through their employer in the United States is the fact that employer-provided health insurance premiums are subject to special tax treatment. Any money spent on a group health insurance plan by employers can be deducted as a business expense. In addition, this money is not treated as part of an employee’s taxable income. Thus, an employee can choose between buying health insurance with pre-tax dollars or buying other goods and services with after-tax dollars. This special treatment creates a tax subsidy towards the purchase of health insurance.

Health economists have raised a number of issues regarding this tax subsidy as a method of encouraging the purchase of health insurance through employment-based groups. One issue is that there are reasons besides the tax subsidy (economies of scale, avoiding adverse selection) that make it beneficial to purchase employer-provided group insurance. A second issue is that the subsidy is a regressive one. It provides a larger subsidy to those who are in a higher tax bracket. A third issue is that state and local
governments, as well as the federal government, lose large sums of tax revenue each year due to the subsidy. The Congressional Budget Office estimated that this tax expenditure was $90 billion in 1994. Another issue associated with the subsidy is that it creates “job lock”, because workers who contemplate switching jobs must also consider the cost of switching employer-provided insurance policies. A final issue associated with the subsidy is that it may lead to welfare loss in the insurance market from the over-consumption of insurance. This in turn may lead to the over-consumption of medical care and rising nominal health care costs.

For these reasons, policymakers have debated reducing, eliminating, or in some other way restructuring this tax subsidy. There is a large literature that examines the potential impact of a reduction in the size of the tax subsidy. One way to characterize the literature is by looking at which response margin each study examines. Table 1 describes several different response margins that have been studied in the literature along with a list of the papers that examine each particular response.

As Table 1 illustrates, the recent papers in this literature tend to focus on changes in offers, eligibility, and take-up as a result of changes in the tax subsidy. One might consider these as changes along the extensive margin. There has not been any recent work that examines changes in the amount of insurance employees consume as a result of changes in the tax subsidy. One might consider this as a change along the intensive (or consumption) margin. The purpose of this paper is to use new data and econometric techniques to examine changes along this consumption margin. A tax price elasticity of insurance consumption is estimated to be -2.18 using data from the 1987 National Medical Expenditure Survey (NMES). This consumption elasticity is larger than the
offer, eligibility, and take-up elasticities found in the recent literature and may suggest that the biggest impact of a reduction in the tax subsidy is found along the consumption margin.

The remainder of the paper is organized as follows: Section II will describe in more detail some of the previous work mentioned in Table 1. Next, Section III will describe the empirical model estimated in this paper. The 1987 National Medical Expenditure Survey is described in Section IV and the estimated model is presented in Section V. Section VI will discuss the conclusions and possible extensions of this paper.

II. Literature Review

In this section the approaches taken by a few of the papers mentioned in Table 1 are described and compared. Before describing these papers it may be of some use to describe the two data sources from which these papers build their data sets. Royalty (2000) and Gruber (2001) both combine several single year cross-sections of data from the March Current Population Survey. Some benefits of using the March CPS include having multiple years of data to control for changes over time and having a large number of observations in each year. One of the drawbacks associated with the March CPS is that it does not provide detailed information on health insurance policies. The CPS provides information on whether or not the individual’s employer offers insurance and whether or not the individual is covered by an employer-provided plan. With this information it is impossible to measure “how much” insurance the individual consumes.

Taylor and Wilensky (1983) and Bernard and Selden (2003) both use data from surveys conducted by the Agency for Health Care Research and Quality (AHRQ). Taylor and Wilensky (1983) use the cross-sectional 1977 National Medical Care Expenditure
Survey (NMCES) in their analysis. Bernard and Selden (2003) combine data from the cross-sectional 1987 National Medical Expenditure Survey (NMES) and the 1996 Medical Expenditure Panel Survey (MEPS). These surveys provide detailed information about employee insurance options and selections, such as premiums and coinsurance rates. They also provide detailed information about individual health status and health care expenditures. Finally, the surveys provide valuable information used to estimate individual and family marginal tax rates, such as information on home ownership and itemized deductions. Compared to the March CPS, the AHRQ surveys provide more variables of interest, but at the cost of reduced numbers of observations.

Because these studies are interested in examining how employee or employer behavior changes as the size of the tax subsidy changes, the key variable on the right hand side of the regressions is the individual worker (or family) “tax price”. Gruber (2001) and Bernard and Selden (2003) use the following tax price:

\[
\text{Tax Price} = \frac{(1 - t_{ss} - t_m - t_f - t_{st})}{(1 + t_{ss} + t_m)}
\]

- \(t_{ss}\) = marginal Social Security employee payroll tax rate
- \(t_m\) = marginal Medicare employee payroll tax rate
- \(t_f\) = marginal federal income tax rate
- \(t_{st}\) = marginal state income tax rate

If the tax subsidy were removed, then the tax price would simply be 1. Ignoring the Social Security and Medicare payroll tax rates reduces the employee tax price to \((1 - t_f - t_{st})\). Taylor and Wilensky (1983) use this version of the tax price, although it is not clear if they are using federal and state marginal tax rates or just federal marginal tax rates. Royalty (2000), Gruber (2001), and Bernard and Selden (2003) all use the NBER’s TAXSIM tax calculator to estimate individual or family federal and state marginal tax rates.
A. Taylor and Wilensky (1983)

Taylor and Wilensky (1983) use data from the 1977 NMCES to estimate a model of the following form:

\[ \text{Employer-Provided HI Premium} = f(\text{employee tax price, other employee characteristics, firm characteristics}) \]

In this model an employee’s premium is used as a proxy for the quantity of insurance the employee consumes. This is the only paper mentioned in this section that examines the impact of changes in the tax subsidy on the consumption margin.\(^1\) The authors find a tax price elasticity of consumption of - .21.

There are several issues with this approach that later work has attempted to address:

- A policy’s premium may not be the best proxy for the quantity of insurance provided. Other policy characteristics are not controlled for.
- The sample includes only those employees who have selected an employer-provided policy.
- Royalty (2000) points out that the tax price coefficient will be biased if there is some unobserved individual component of the demand for health insurance that is correlated with the tax price and is not controlled for by the employee and firm characteristics in the regression.
- In addition, the tax price is probably measured with error.
- This approach implicitly assumes that there will be no change in eligibility / firm offers of health insurance if the tax subsidy is reduced.
- Another implicit assumption in this approach is that there is one unrestricted market for employer-provided health insurance. Restricted employee choice is not considered.
- In addition, studies with employee level data such as this can’t really address the aggregation of employee preferences in firm-level insurance choices.

\(^1\) See Table 1 for other papers that examine changes in the consumption margin. Most of these papers represent an older strand of the literature.
B. Royalty (2000)

Royalty (2000) uses data from the 1988 and 1993 March CPS to estimate the following model:

**Employer Offers Insurance?**

\[ = f(\text{employee tax price, other employee characteristics, firm characteristics}) \]

A tax price elasticity of employer offers of - .74 is estimated in the paper.

This approach addresses several of the problems present in the Taylor and Wilensky (1983) analysis. For example, the author handles the unobservables problem and the measurement issues surrounding each worker’s marginal tax rate by using average levels of state income tax rates to instrument for individual employee tax prices. Another improvement is to use two different cross-sections in order to capture changes over time. Because this paper focuses on offer elasticities, there is no need to worry about measuring insurance consumption. As mentioned above, the March CPS does not contain insurance premiums, which may be used as a proxy for the quantity of insurance consumed.

Despite these improvements, there are still some issues with the Royalty (2000) approach. As mentioned above, the March CPS does not provide as much information useful in estimating marginal tax rates as the AHRQ surveys. Therefore, the author does not have as much data to input into the TAXSIM tax calculator as does Bernard and Selden (2003). Gruber (2001) points out that the instrument used in Royalty (2000), average state marginal tax rates, may not be independent of firm-level insurance offering decisions. Finally, like Taylor and Wilensky (1983), Royalty (2000) can’t really address the aggregation of employee preferences in firm-level insurance choices.
C. Gruber (2001)

Gruber (2001) uses data from the 1988, 1993, 1995, 1997 and 1999 March CPS to estimate a model similar to that of Royalty (2000). A tax price elasticity of employer offers of - .65 is estimated in the paper. In addition, Gruber (2001) runs a variety of coverage regressions and estimates the following tax price elasticities:

- The tax price elasticity of own employer-provided coverage
- The tax price elasticity of employer provided dependent coverage
- The tax price elasticity of non-employment based private insurance
- The tax price elasticity of public insurance
- The tax price elasticity of being uninsured

The author’s basic result is that “tax policy matters for insurance coverage, but almost all of its influence is through the employer’s decision to offer insurance.” The argument here is that there is not much change in take-up as a result of a reduction in the tax subsidy, so any loss of employer-provided coverage is due to employer’s deciding to limit offers to their employees.

Gruber (2001) improves upon Royalty (2000) by using more years of data to better exploit variation over time and constructing an employee tax price instrument that varies over income, state, and time to deal with the unobservables problem. The author also attempts to estimate other components of taxable income, such as itemized deductions.

The conclusion that the key margin of change is employer decisions to offer insurance seems to be open to interpretation. Even if employee take-up is constant after a reduction in the tax subsidy, each employee may still switch to a smaller policy. Because Gruber (2001) does not have data on the quantity of insurance consumed, this margin of change is ignored. The previous empirical literature on changes in insurance
consumption provides mixed results. Taylor and Wilensky (1983) estimate a tax price  
elasticity of insurance consumption of - .21, whereas Phelps (1986b) estimates a  
consumption elasticity of - 1.82. Thus the extent to which families change their  
consumption as the tax subsidy changes is still an open question that has not been  
addressed by the more recent literature. New estimates of changes along the  
consumption margin, such as the one presented here, will compliment this recent work by  
providing a more complete look at the response to a change in the tax subsidy.


Bernard and Selden (2003) use data from the 1987 NMES and the 1996 MEPS to  
estimate the following models:

**Employer Offers Insurance?**

\[
= f(\text{employee tax price, other employee characteristics, firm characteristics})
\]

**Employer covered by ANY Insurance?**

\[
= f(\text{employee tax price, other employee characteristics, firm characteristics})
\]

The authors use an instrumental variables approach similar to Gruber (2001) in order to  
handle the endogeneity of the tax price. They find a tax price elasticity of employee  
offers of - .556 and a tax price elasticity of employee coverage of - .582.

The primary innovation of this paper is that the data provided by the AHRQ allow  
for more accurate estimates of marginal tax rates and other individual characteristics.  
One potential innovation that the authors did not use was the fact that, unlike the 1977  
and 1987 AHRQ surveys, the MEPS survey is a panel survey that follows the same  
individuals over time. Exploiting the panel nature of this dataset would allow researchers  
to control for individual or family level fixed effects that might bias the results.
III. Model

Consider the Taylor and Wilensky (1983) model of insurance consumption. Their model restricts attention to employees that hold an employer-provided policy and is estimated by OLS. This approach ignores employees that were offered employer-provided insurance, but did not take it. By restricting their attention to employees that hold insurance, the authors may be biasing down their consumption elasticity estimates.

In order to incorporate employees who choose not to take up employer-provided coverage, I propose estimating the demand for employer-provided insurance as a Tobit model. The idea here is that the utility maximizing premium (PremD*) is observed for employees that select an employer-provided plan. For those that do not, their utility maximizing premium is not observed and instead they are assigned a premium equal to 0. Including these censored observations in the regression and using OLS will produce biased results. Estimating the regression as a Tobit model adjusts for these censored observations. The demand equation estimated in this paper is presented below. In this model, PremO denotes the lowest observed insurance premium.

\[
\text{PremD*}_i = \alpha_0 + \alpha_1 (1 - \text{mtr}_i) + \alpha_2 \text{bad health}_i + \sum_{j=3}^{5} \alpha_j \text{region dummy}_i + \alpha_6 \text{age}_i + \alpha_7 \text{female}_i + \alpha_8 \text{income}_i + \alpha_9 \text{non-white}_i + \alpha_{10} \text{family size}_i + \nu_i
\]

where

\[
\begin{align*}
\text{PremD}_i &= \text{PremD*}_i & \text{if } \text{PremD*}_i & \geq \text{PremO} \\
\text{PremD}_i &= 0 & \text{if } \text{PremD*}_i & < \text{PremO}
\end{align*}
\]
Like other papers in the insurance consumption elasticity literature, the quantity of insurance consumed is measured by the premium of the policy selected. This approach implicitly assumes that one dollar of coverage from one plan is the same as one dollar of coverage from another plan. As mentioned in the previous section, there is a potential endogeneity problem associated with a family’s marginal tax rate. An employee’s “true” marginal tax rate is endogenous because they can choose a larger insurance premium and this in turn will lower their taxable income and their marginal tax rate. As in Feldstein (1975), Long and Scott (1982), and Kingma (1989), the solution to this endogeneity problem used here is to use the marginal tax rate on the first dollar of insurance coverage.

The key variable in the demand for insurance equation is \((1 - mtr_i)\), which, as mentioned, is a proxy for the price of insurance. This is a simplified version of the tax price estimated in Gruber (2001) and Bernard and Selden (2003). The tax price estimated in this paper considers only federal marginal tax rates, so it is an underestimate of the overall tax price for an individual or family. In order to isolate the price effect, gender, age, income, race, and family size are controlled for. In addition, any regional variation in insurance demand is controlled for using a series of regional dummies.

IV. Data – The 1987 National Medical Expenditure Survey

The dataset used to estimate the Tobit model described above is the 1987 National Medical Expenditure Survey (NMES), collected by the Agency for Healthcare Research and Quality (AHRQ). The 1987 NMES contains detailed information on demographics, the consumption of health care, and the financing of health care expenditures for over 13,000 households in the United States.
One of the key features of the 1987 NMES is the 1987 Health Insurance Plans Survey (HIPS). The 1987 HIPS verifies the health insurance status of the households in the 1987 NMES and collects detailed supplementary information about their private health insurance coverage. It collects data directly from the employers, unions, insurance companies, and other sources of private health insurance of the households in the 1987 NMES. Unlike the March CPS, the 1987 NMES provides information on insurance premiums.

The sample used in this paper consists of 1,118 families offered at least one employer-provided health insurance policy, holding at most one plan, and not being covered by any form of public insurance (Medicare, Medicaid, or CHAMPUS) or non-employment related insurance. In addition it is required that the policyholder be an active (non-government) employee of the firm providing the insurance and that they be between the ages of 18 and 64. Any observations with missing values for the dependent or explanatory variables used in the analysis are eliminated. Out of the 1,118 families in the sample, 888 hold a major health insurance policy and 230 choose no coverage. Table 2 briefly describes each variable.

An accurate estimate of each family’s marginal tax rate is necessary for an accurate price elasticity estimate. In order to derive the marginal tax rate variable, the portion of the family’s premium that is tax excludable is added to the family taxable income variable (only available in the AHRQ data center) to create a new family income variable. The family marginal tax rate is then defined to be the federal marginal tax rate based on this new definition of family income. As mentioned before, this estimate of the

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2 The final parts of the 1987 HIPS were not released until 1996.
family marginal tax rate may be exogenous since it is based on the first dollar of insurance coverage.

Descriptive statistics are reported in Table 3. Employees purchasing health insurance are on average older with a higher income. Among those with an insurance policy, the average premium is $1,871.21. Those choosing not to purchase insurance are more likely to be female, non-white, and single. In addition, the average firm / group size of those without insurance is much smaller.

V. Analysis

Table 4 presents estimates of the demand for health insurance equation. The Tobit Model specification (described in Section III) is presented in the second column. In addition the demand equation is estimated as a censored quantile regression at the median (column three) and using OLS (column four).

Consider the Tobit specification. The price elasticity of demand at the mean quantity and price in the Tobit specification is –2.18. This is a much more elastic estimate than Taylor and Wilensky (1983) and is more in line with the high end estimates in the consumption elasticity literature, such as the estimate in Phelps (1986b)). The sign on age is positive and the coefficient is significant. As expected, marital status has a positive, significant effect on the demand for insurance. The positive sign on family size is expected, but the coefficient is not significantly different from zero. Bad health and non-white both have an insignificant effect on the demand for insurance. Among the regional variables in the equation, both south and west have a negative, significant effect. Being female also has a negative, significant effect on the demand for insurance. This

3 An attempt to replicate Taylor and Wilensky (1983) was made by restricting the sample to those who purchased insurance and running a similar regression to the one in their study. Although they report a price elasticity of –0.21, the result of the replication was a price elasticity of –1.90.
result is consistent with Taylor and Wilensky (1983), who claim that this may reflect the tendency of women to be in occupations with smaller benefit plans and wages. The only somewhat troubling sign in the equation is the negative sign on income. However, the magnitude of the coefficient is very small. This sign may reflect the fact that people with higher income may be able to purchase more health care out of pocket, so do not demand as much health insurance.

The censored quantile demand regression at the median presented in column three of Table 4 is used to ensure that the results found with the Tobit specification are not driven by a few outlying observations. Because there is no statistically significant difference between the quantile estimates of the coefficients and the Tobit specification coefficient estimates, the results of the Tobit specification are not driven by a few outlying observations.

VI. Conclusions and Extensions

The purpose of this paper is advance the literature on consumption elasticities in the employer-provided health insurance market by using new data and econometric techniques to estimate how insurance consumption (measured by insurance premiums) changes as the tax price of insurance changes. Although the 1987 NMES may seem to be somewhat dated, none of the previous studies in the consumption elasticity literature make use of this detailed data set. Besides using a different data source, another innovation of this paper is to incorporate into the analysis employees that were offered employer-provided coverage and turned it down. A Tobit regression model is used for this reason. The preliminary price elasticity estimate found in this paper, -2.18, is much more elastic than previous cross-sectional studies, such as Taylor and Wilensky (1983).
How does this result fit in with the recent estimates offers, eligibility, and take-up elasticities found in Royalty (2000), Gruber (2001), and Bernard and Selden (2003)? As mentioned previously, the consumption elasticity estimate found here is much larger than the offers, eligibility, and take-up elasticities reported in these other papers. Such a large elasticity may suggest that the biggest impact of a reduction in the tax subsidy is found along the consumption margin. This would contradict the assertion in Gruber (2001) that the biggest impact is along the offers margin. Because Gruber (2001) has no measure of the quantity of insurance consumed, the author cannot address changes along the consumption margin. A large insurance consumption elasticity can be consistent with the constant take-up rates found in Gruber (2001). Reductions in the tax subsidy may not drive employees to drop their employer-provided coverage, but instead cause them to select smaller plans.

What is the significance of this result? If consumer demand for health insurance is extremely elastic, then eliminating the tax subsidy on employer-provided health insurance premiums would cause a large decrease in the level of insurance consumed in the United States. This would have a major impact on the U.S. health care sector. In addition, the increase in tax revenue caused by this policy change would be relatively small compared to the extremely inelastic demand for insurance case.

There is a great deal that can be done to improve this paper. These improvements will be the subject of future research. The AHRQ recently released the health insurance portion of the 1996-1999 MEPS. One obvious improvement would be to take advantage of the panel nature of the MEPS data to estimate a fixed effect model of health insurance demand. This type of approach would control for unobservable person or family level
fixed effects that may be present in the 1987 NMES. Another improvement would be to use policy characteristics, such as coinsurance rates and deductibles, to control for differences in coverage provided by different plans. Firm characteristics can be incorporated into the demand equation as well.

Other innovations of the recent eligibility, offers, and take-up literature can be used to improve upon the approach used in this paper. For example, the endogeneity of family marginal tax rates and associated measurement issues can be addressed using an instrumental variables approach similar to Gruber (2001). In addition, the family’s tax price can be more completely specified to include state taxes, Social Security taxes, and Medicare taxes. Finally, the measures of family health status used in Bernard and Selden (2003) are much more complete than the self reported health status used in this paper.
Bibliography


Gruber, J. and Lettau, M., 2000, How Elastic is the Firm’s Demand for Health Insurance?, mimeo, Economics Department, Massachusetts Institute of Technology.


**Table 1: Possible Responses to a Reduction of the Tax Subsidy**

<table>
<thead>
<tr>
<th>Firms may stop offering insurance or alter eligibility rules within the firm.</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Firms may alter the size of the policies they offer.</th>
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<tbody>
<tr>
<td>● Gruber and Lettau (2000)</td>
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</table>

<table>
<thead>
<tr>
<th>Employees may alter the size of their employer-provided plan.</th>
</tr>
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<tbody>
<tr>
<td>● Phelps (1986b)</td>
</tr>
<tr>
<td>● Taylor and Wilensky (1983)</td>
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</table>

<table>
<thead>
<tr>
<th>Employees may drop their employer-provided coverage (possible switching to some substitute).</th>
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</thead>
<tbody>
<tr>
<td>● Bernard and Selden (2003)</td>
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<tr>
<td>● Gruber (2001)</td>
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Table 2: Variable Description, 1987 NMES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>prem&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is the total premium for the insurance policy that covers family i. Again, this should be interpreted as the quantity of insurance consumed, not the price.</td>
</tr>
<tr>
<td>income&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is family i’s economic (total) income.</td>
</tr>
<tr>
<td>mtr&lt;sub&gt;i&lt;/sub&gt;</td>
<td>As mentioned, this is the marginal tax rate on the first dollar of insurance coverage for family i.</td>
</tr>
<tr>
<td>bad health&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is a dummy variable that equals one if the policyholder reported their health status as poor or fair and equals zero for good or excellent health.</td>
</tr>
<tr>
<td>northeast&lt;sub&gt;i&lt;/sub&gt;</td>
<td>A dummy variable that equals one if the policyholder lives in the northeast and zero elsewhere.</td>
</tr>
<tr>
<td>south&lt;sub&gt;i&lt;/sub&gt;</td>
<td>A dummy variable that equals one if the policyholder lives in the south and zero elsewhere.</td>
</tr>
<tr>
<td>west&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is a dummy variable that equals one if the policyholder lives in the west and zero elsewhere. The omitted region is the midwest.</td>
</tr>
<tr>
<td>age&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is the age of the policyholder.</td>
</tr>
<tr>
<td>female&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is a dummy variable equaling one if the policyholder is female and zero elsewhere.</td>
</tr>
<tr>
<td>family size&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is the size of the policyholder’s family.</td>
</tr>
<tr>
<td>non-white&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is a dummy variable that equals one if the policyholder is classified as non-white and zero elsewhere.</td>
</tr>
<tr>
<td>married&lt;sub&gt;i&lt;/sub&gt;</td>
<td>This is a dummy variable that equals one if the policyholder is married and zero elsewhere.</td>
</tr>
<tr>
<td>group size&lt;sub&gt;i&lt;/sub&gt;</td>
<td>The number of employees policyholder i’s firm has at i’s location.</td>
</tr>
<tr>
<td>industry dummies</td>
<td>There are eleven industry dummies used: agriculture / forestry / fishing, mining, construction, manufacturing, transportation / communication, sales, finance / insurance, repair services, personal service, entertainment / recreation, and professional service. The omitted industry dummy is public administration.</td>
</tr>
</tbody>
</table>
Table 3: Means and Frequencies, 1987 NMES

<table>
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<tr>
<th>Variable</th>
<th>Pooled Sample</th>
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<th>Without Insurance</th>
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<tr>
<td>prem&lt;sub&gt;i&lt;/sub&gt;</td>
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<td>$1,871.21</td>
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<td>income&lt;sub&gt;i&lt;/sub&gt;</td>
<td>$38,388.84</td>
<td>$40,473.22</td>
<td>$30,341.35</td>
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<td>mtr&lt;sub&gt;i&lt;/sub&gt;</td>
<td>21%</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>bad health&lt;sub&gt;i&lt;/sub&gt;</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
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<td>20%</td>
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<td>female&lt;sub&gt;i&lt;/sub&gt;</td>
<td>44%</td>
<td>42%</td>
<td>53%</td>
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<tr>
<td>family size&lt;sub&gt;i&lt;/sub&gt;</td>
<td>2.97</td>
<td>2.90</td>
<td>3.25</td>
</tr>
<tr>
<td>non-white&lt;sub&gt;i&lt;/sub&gt;</td>
<td>24%</td>
<td>20%</td>
<td>38%</td>
</tr>
<tr>
<td>married&lt;sub&gt;i&lt;/sub&gt;</td>
<td>50%</td>
<td>55%</td>
<td>34%</td>
</tr>
<tr>
<td>group size&lt;sub&gt;i&lt;/sub&gt;</td>
<td>739</td>
<td>856</td>
<td>500</td>
</tr>
<tr>
<td># of observations</td>
<td>1,118</td>
<td>888</td>
<td>230</td>
</tr>
</tbody>
</table>
Table 4: Demand for Health Insurance Equation

(dependent variable: Health Insurance Premium)

<table>
<thead>
<tr>
<th></th>
<th>Tobit Model</th>
<th>Censored Quantile Regression at the Median</th>
<th>OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4075.239** (451.2975)</td>
<td>2744.437** (365.9863)</td>
<td>3544.493** (384.9097)</td>
</tr>
<tr>
<td>(1 – mtr)</td>
<td>- 4362.2** (504.2481)</td>
<td>- 2746.001** (408.1872)</td>
<td>- 3462.851** (415.414)</td>
</tr>
<tr>
<td>Income</td>
<td>- .0030996** (.0011475)</td>
<td>- .0016659 (.000984)</td>
<td>- .0024983* (.0009907)</td>
</tr>
<tr>
<td>Bad health</td>
<td>- 43.42015 (122.5795)</td>
<td>35.71728 (92.95166)</td>
<td>- 62.99625 (105.3372)</td>
</tr>
<tr>
<td>Age</td>
<td>19.31606** (3.105942)</td>
<td>12.83242** (2.690395)</td>
<td>16.31287** (2.74686)</td>
</tr>
<tr>
<td>Female</td>
<td>- 316.3824** (78.76736)</td>
<td>- 250.9013** (60.14634)</td>
<td>- 307.1013** (66.4268)</td>
</tr>
<tr>
<td>Non-white</td>
<td>- 78.07371 (94.86461)</td>
<td>37.35742 (70.91499)</td>
<td>- 16.1925 (77.2243)</td>
</tr>
<tr>
<td>Married</td>
<td>713.8485** (92.88584)</td>
<td>985.8016** (70.06558)</td>
<td>666.2957** (80.09743)</td>
</tr>
<tr>
<td>Family size</td>
<td>50.24484 (29.08394)</td>
<td>42.49675* (21.20737)</td>
<td>51.56115* (24.11807)</td>
</tr>
<tr>
<td>Northeast</td>
<td>17.61695 (107.0251)</td>
<td>77.01087 (85.32413)</td>
<td>11.74351 (95.58952)</td>
</tr>
<tr>
<td>South</td>
<td>-294.8639** (94.48495)</td>
<td>- 117.7433 (73.86073)</td>
<td>- 281.4757** (81.89085)</td>
</tr>
<tr>
<td>West</td>
<td>- 248.7892* (116.4769)</td>
<td>- 133.29 (90.06097)</td>
<td>- 207.775* (99.80994)</td>
</tr>
</tbody>
</table>

Notes:

- Let * denote coefficients significant at the 5% level, ** denote coefficients significant at the 1% level.
- Robust standard errors are in parenthesis.