Do the insured make greater use of medical services?

Gregg Girvan

Sven Wilson
sven_wilson@byu.edu

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Do the insured make greater use of medical services?

Gregg Girvan and Dr. Sven Wilson
Public Policy Program, Brigham Young University

Abstract
Conventional wisdom states if policy-makers set the goal of increasing the number of patients with health insurance, visits to the emergency room (ER) will decrease while visits to a usual source of care (USC), such as a general practitioner, will increase. In examining year 2007 of the Medical Expenditure Panel Survey, this study seeks to test this hypothesis by answering two questions: 1) whether having insurance affects ER and USC utilization, and 2) whether greater USC utilization affects ER utilization. The analysis accounts for endogeneity issues with insurance and USC utilization. In order to account for the disparities, nonmomographic nature of the dependent variable as well as endogenous variables, a Poisson regression with an instrumental variable framework is utilized. The estimators that, in general, the insured have lower ER utilization but higher USC utilization, but only USC utilization is statistically significant. Also, when considering the effect of USC utilization on ER utilization, ER visits increase albeit, with an increase in USC visits.

Introduction
Conflicting opinions emerge on how often emergency rooms across the nation are utilized by the insured versus the uninsured. As individual states have passed health reform measures, the fear is as more citizens are added to the ranks of the insured, emergency rooms will be better filled beyond their capacity. This could lead, at best, to a decrease in quality and at worst, a greater frequency of preventable death and illness.

Many researchers hypothesize a positive correlation of possessing insurance with the frequency of ER visits. One such hypothesis is how the acquisition and possession of insurance affects access to care across the US. USC, USCs, include primary care physicians (also general practitioners or GPs), as well as local clinics. An ongoing debate in Massachusetts is that the increase in insured residents and willingness to stretch ER departments to their limits because the sudden rise in the insured has not been matched by a USC capable of handling basic care of the insured. In other words, the increases in demand (created by mandating insurance) has not been met with an increase supply (the number of USCs), creating a supply shortage. In this scenario, residents would be forced to obtain basic care at ERs. If such a scenario existed, it would not prevent conventional wisdom, namely a greater number of uninsured increases ER utilization because it is the only source of care for the uninsured.

Stills others argue the problem already exists, and the next step is to find out how to reduce “excessively high” ER visits in the last study found that when attempting to alert the patient’s behavior by encouraging them to go elsewhere for care, ER departments should adopt standard practices become more appropriate for the patient.

As to implementing an empirical model to study potential correlations, previous studies hypothesized that the choice of insurance could be endogenous to the frequency of ER visits. If a patient has no other source of care, an ER visit is the only option.

Methods

The data and research questions present unique statistical challenges. First, the dependent variable, whether the frequency of ER visitation or the frequency of USC visitation, is a count variable, meaning that rates greater than or equal to 5 also follows a Poisson distribution, in which the distribution’s expected value is equal to the variance. Second, there is a significant issue in the independent variable, insurance, which measures whether or not a person possesses health insurance. Thus, when the frequency of USC visitation is regressed as an regressor on ER visitation, it is also assumed to be endogenous.

To deal with these challenges, I conducted a Poisson regression analysis within an instrumental variables framework. Sources of data and USC visitation and USC utilization include measuring whether or not the person was employed and whether they were insured or not.

The instrumental variable model is also helpful in deciphering potential reverse causality.

Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td># of ER visits</td>
<td>3.322</td>
<td>1.945</td>
<td>0.543</td>
<td>13.2</td>
</tr>
<tr>
<td># of USC visits</td>
<td>4.882</td>
<td>1.621</td>
<td>0.666</td>
<td>17.1</td>
</tr>
<tr>
<td>age</td>
<td>56.580</td>
<td>20.349</td>
<td>18</td>
<td>110</td>
</tr>
<tr>
<td>years of education</td>
<td>12.005</td>
<td>3.648</td>
<td>0.01</td>
<td>17</td>
</tr>
<tr>
<td>income</td>
<td>30.92</td>
<td>55.16</td>
<td>0.01</td>
<td>850</td>
</tr>
<tr>
<td>highest degree obtained</td>
<td>4.022</td>
<td>1.67</td>
<td>0.01</td>
<td>6</td>
</tr>
</tbody>
</table>
| This model is used to analyze the data from a random sample of the Medical Expenditure Panel Survey for 2007. The persons included in the sample are randomly assigned the self-reporting questionnaires (SARs), which features health-related questions that are used as controls for the study. The sample size is 3,067 individuals.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of USC visits</td>
<td>2.805***</td>
<td>1.952***</td>
<td>1.280***</td>
</tr>
<tr>
<td># of ER visits</td>
<td>0.325**</td>
<td>0.194**</td>
<td>0.133***</td>
</tr>
</tbody>
</table>

**Notes:****Significance level of 0.01; ***Significance level of 0.05; **Significance level of 0.10.

Results
According to regression results in the table to the left, insurance is negatively correlated with both of the study’s dependent variables. However, negative insurance increases ER visitation on its own while controlling for demographic, economic and health-related factors (specification 2). Possessing insurance does drive USC visits; those who are insured are likely to visit the doctor almost three times more per year, controlling for other factors (specification 1). Increasing utilization of a USC, such as a general practitioner, appears to increase ER utilization when including it with insurance as an endogenous regressor (specification 3). An increase in the number of visits increases; these persons may have nowhere to go for medical care other than the emergency room.

Income levels are significantly correlated with ER and USC visitation. As expected, visitation decreases as income increases. Many health variables are also significantly correlated with variation. As expected, a positive diagnosis of a health condition is positively correlated with visitation.

Conclusion
Using a novel approach to estimating the effect of insurance and access to a usual source of care on emergency room utilization, it is determined the number of ER visits is significantly correlated with the use of emergency care, but there is a possible indication of increased correlation of increased ER utilization if the increase in number of insured is abrupt, creating a shortage in general practice visits. However, in the number of doctor visits correlated with an increased in ER use.

Because of these results, examining data such as panel data residents in Massachusetts can shed light as to whether there is a causal effect of insurance and USC utilization on ER utilization, since the number of insured increased abruptly starting in 2006 as a result of health care legislation. In light of some health care legislation from Congress and a potential explosion in the number of insured, such an analysis could use techniques presented in this study, such as instrumental variables regression, to more accurately estimate causal effects on ER utilization.

References