

## **Health Insurance Research in the JRI and the Health Economy**

Rexford E. Santerre\*  
Professor of Finance & Healthcare Management  
Email: [rsanterre@business.uconn.edu](mailto:rsanterre@business.uconn.edu)  
Telephone: 860-486-6422  
Fax: 860-486-0634

and

James I. Hilliard  
Ph.D. Candidate  
Email: [jih@uconn.edu](mailto:jih@uconn.edu)  
Telephone: 860-798-0657  
Fax: 860-486-0634

Center for Healthcare & Insurance Studies  
Department of Finance  
School of Business  
University of Connecticut  
2100 Hillside Road, Unit 1041  
Storrs, CT 06269-1041

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### **ABSTRACT**

Articles in journals devoted to health insurance issues tend to be cited as often as the articles in some premier journals in finance and economics. But does the relatively extensive research on health insurance topics reflect rent-seeking behavior or an attempt to solve real world problems by faculty members? This paper addresses that question by investigating empirically if the prevalence of health insurance articles in the *Journal of Risk and Insurance (JRI)* can be explained by the state of the health economy. According to the findings, both the uninsured rate and health care spending share are directly related to the percentage of health insurance articles published in the *JRI*. The empirical results thus suggest that the research decisions of insurance economists are influenced at the margin by real world problems.

## **Introduction**

Articles in journals either partially or fully concerned with health insurance issues tend to be cited as much as those in premier journals devoted to finance or economics. For instance, the citation impact factors of the health policy journals, *Milbank Quarterly*, *Medical Care*, *Health Affairs*, *Health Services Research*, *Medical Care Research and Review*, *Health Economics* and *Journal of Health Economics* all exceeded 2.0 in 2006 and were within the neighborhood of prestigious general finance and economics journals such as *Quarterly Journal of Economics*, *Journal of Finance*, *Journal of Political Economy*, *Journal of Financial Economics*, and *American Economic Review*.<sup>1</sup> While the citation of these journals devoted to health insurance issues is impressive, it is unclear if health insurance research, or academic research in general for that matter, is aimed at solving real-world problems or an attempt by faculty members to secure economics rents.

The distinction is important. College professors typically expend a considerable amount of time, energy, and effort on academic research. This time spent on academic research may accomplish two objectives. One, scholarship may unmask some unknown truths about the real world around us. Armed with this information, institutions and policies can be designed or reformed to better direct society towards some common good. Two, scholarship may complement teaching. That is, research may keep faculty members up-to-date on new developments in their disciplines, which they can then share with their students.

Not all are convinced, however, that the net benefits of academic research are always significantly positive. Specifically, some believe that faculty research may be

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<sup>1</sup> Journal Citation Reports (2006)

wasteful because much of it generates little value and comes at the expense of less quality time spent in the classroom with students. For example, Laband and Tollison (2003), using a sample of 73 economics journals in 1974 and 91 economics journals in 1996, find, for both years, that 26 percent of all articles did not result in any citations. They propose that, perhaps, these “dry holes” reflect the rent-seeking behavior of faculty because “they would rather write two socially useless journal articles per year than teach two additional classes per year” (p. 168). And the evidence is not limited to economic research. For example, van Dalen and Henkens (2004) find that 24 percent of the articles in 17 demography journals published in the early 1990s remained without any citations even after 10 years.

Given these two contrasting views regarding the importance of faculty research, it might be useful and interesting to examine if environmental or external factors play any role in shaping the content of academic research. If it can be shown that faculty research is shaped by external factors, at least to some degree, these dry holes may not be as intentional as one might otherwise be led to believe. In addition, citations themselves may be imperfect indicators of the importance of faculty research. For example, various teacher-scholars may engage in intellectual gamesmanship whereby a seemingly never-ending stream of research, with little merit, perpetuates itself through initial paper and continual extensions and refinements, and, of course, repetitive citations.

Laband, Shughart, and Tollison (1990) provide the only empirical analysis of the relationship between environmental factors and the content of journal articles. Based upon Mitchell (1949), but in opposition to Stigler (1960), they argue that an environmental theory of the development of economics points to historical circumstances

in drawing the attention of economists to previously unsolved theoretical questions. Using information on the content of various articles from a sample of economic journals published over the years 1950 through 1988, they show empirically that the percentage of economic articles devoted to the topics of inflation and employment is directly related to the state of the economy as captured by inflation, unemployment, and real income growth. They conclude that “economists’ choices among competing research topics are driven at the margin by events taking place in the economy around them” (p. 711).

While Laband, Shughart, and Tollison offer some tantalizing evidence, clearly additional data points are needed before generalizations can be made about the relationship between environmental factors and the content of academic research. Thus, to extend our knowledge, this paper examines empirically whether the state of the health economy influences the percentage of articles devoted to health insurance related research in the *Journal of Risk and Insurance (JRI)*.

One may ask why the *JRI*? The *JRI* is a general purpose insurance journal with articles devoted to risk and insurance theory and to various types of private and public insurance (e.g., property and casualty, social security, and workmen compensation) in addition to health economics and insurance issues. Interestingly, the *JRI* has its roots in precursor journals dating back to the early 1930s when medical care had little meaningful impact on health, and therefore, medical expense insurance was of questionable value for consumers. For example, Thomasson and Treber (2004) analyze the shift of childbirths from homes to hospitals in the United States from 1927 to 1940 and find that increased operative infection by physicians and greater risk of infections caused greater maternal mortality in hospitals than homes prior to the introduction of sulfa drugs in 1937. After

the 1940s the marginal product of medicine grew significantly and not surprisingly the demand for health insurance accelerated as well (Frech, 2002).<sup>2</sup> Reflecting the growing marginal productivity of medicine and demand for health insurance, the size of the health economy increased from under 4 percent in the 1940s to approximately 16 percent of gross domestic product in 2005.

The general but changing significance of the health economy combined with the diversification of articles in the *JRI* offers a natural experiment for analyzing how environmental factors shape the content of academic research as it applies to health insurance.<sup>3</sup> Specifically, this paper examines the impact of the health economy, as captured by the uninsured rate and percentage of national income devoted to health care, on the percentage of articles and pages devoted to health economics and insurance in the *JRI* over the period from 1964 to 2005. The empirical analysis strongly suggests that both of these two barometers of the health economy are associated with an increased percentage of articles devoted to health economics and insurance issues in the *JRI*. This evidence indicates that environmental factors do shape academic research on health insurance and implies that faculty rent-seeking may be dominated by socially valuable research.

The second section of this paper provides descriptive information on the percentage of articles and pages devoted to health insurance in the *JRI* and precursor journals from 1933 to 2005. The content of the articles is shown to vary considerably over time and appears to relate to developments in the health insurance marketplace. The

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<sup>2</sup> As many economists have noted, the wage and price controls of the 1940s also helped shape the demand for health insurance in the United States.

<sup>3</sup> Given the close relation between health care and insurance it would be very difficult to perform the same experiment with journals devoted to health economics and health services research.

third section of the paper develops the empirical model used to test the relationship between the state of the health economy and the percentage of research devoted to health insurance in the *JRI*. Empirical results are provided and discussed in the fourth section. Finally, section five offers a summary and some conclusions.

### **Tracking Health Insurance Articles in the *JRI* and Precursor Journals**

To determine the percentage of articles and journal pages devoted to health insurance problems, the table of contents is examined for each issue of the *JRI* and precursor journals that evolved from the creation of the American Risk and Insurance Association (ARIA) in 1933. Precursor journals include the *Proceeding of the Annual Meeting of the American Association of University Teachers of Insurance (AAUTI)* from 1933 to 1935, the *Journal of the AAUTI* from 1937 to 1956, and the *Journal of Insurance* from 1957 to 1963. Only research articles and shorter papers are included in the count. For most articles, it is fairly evident whether or not they pertain to health economics or insurance because of the inclusion or omission of the words: health or medical. In a few cases, an inspection of the abstract and introduction is necessary to determine if the article relates to health economics or insurance. While medical malpractice is technically a property and casualty insurance topic, such articles are included in the sample because of the symbiotic relationship between medical malpractice insurance and the market for physician services. However, only 11 of the 132 health insurance articles over the entire 73 years relate to medical malpractice. Two workers' compensation articles are included in the sample because they are concerned with physician costs and physical health issues. A list of the various health care-related articles can be found in Appendix A.

Exhibit 1 shows the annual percentage of journal articles and pages devoted to health insurance in the *JRI* and precursor journals for each of the years from 1933 through 2005. Since a close correspondence exists between the percentage of articles and pages devoted to health insurance, the discussion concentrates solely on the former. Several observations are worth highlighting. First, the percentage of articles on health insurance issues ranges from zero in 22 of the years to a high of 40 percent in 1948. This percentage averages around 7 percent per year over the entire 73 year span. Interestingly, the percentage of articles relating to health insurance has remained above zero and has averaged 8.5 percent since 1986.

Second, the first health insurance article was not published until 1943 after which a flurry of articles followed. This increased coverage of health insurance issues in *ARIA* journals coincides closely to the mushrooming enrollment in private health insurance plans, which grew from 9.1 percent in 1940 to slightly over 50 percent in 1950 (HIAA, 1999). As Morrissey (2001) and others have pointed out, much of this explosion in health insurance membership can be explained by wage and price controls that were administered during World War II and the entry of commercial insurers with experience rated premiums. It is difficult to disentangle whether the increase in health insurance related articles during this time is random or a result of researchers focusing on socially productive research.

Third, according to Exhibit 1, large spikes in the percentage of articles devoted to health insurance issues also occurred during the mid-1960s and early 1980s. These spikes correspond with eras of significant policy discussion and regulatory change for the private health insurance industry. For example, Medicare and Medicaid were enacted in

1965 and the Medicare DRG system and encouragement of managed care organizations began in the mid-1980s. Again, univariate analysis does not allow us to determine whether the flurry of scholarship during these two time periods is a product of random effects or reflective of the health economy at those particular points in time.

Finally, decade averages since 1940 suggest that the percentage of health insurance articles in the *JRI* varies directly with the uninsurance rate. That is, the seven decade averages (e.g., 1940, 1950, etc.) for the percentage of health insurance articles are 9, 8.2, 8.2, 4.4, 6.4, 8.3, and 9.7 percent, respectively. Interestingly, the corresponding rates for the uninsured population are 74.3, 38.1, 25.6, 14.7, 13.7, 15.14, and 15.18 percent.<sup>4</sup> While the two data series do not perfectly track one another, they do provide some tentative support for the premise that the purpose behind faculty research is to solve real world problems rather than to pursue rent-seeking interests.

But of course, other factors influencing the prevalence of health insurance articles have also changed over time. Consequently, controls must be made for these other factors before the pairwise correlation between the health economy and the prevalence of health insurance articles can be isolated. In the next section of the paper, an empirical model is developed to test whether faculty publications are driven, at least in part, by the external conditions teacher/scholars face.

## **Development of the Empirical Model**

Articles published in a particular journal can be thought of as representing an equilibrium of the supply of manuscripts,  $S$ , from authors and the demand for manuscripts,  $D$ , by

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<sup>4</sup> Uninsured data are based on Santerre (2004) and other sources.

editors; the latter acting as agents for the readers of the journal. The supply of manuscripts is likely to be driven by factors unique to each author,  $A_i$ , as well as a set of exogenous factors common to all authors,  $Z_A$ . Similarly, the demand for manuscripts can be treated as a function of various determinants unique to each editor,  $E_j$ , but also a set of similar external conditions,  $X_E$ . It is possible that  $Z_A$  and  $X_E$  share some common elements. Consequently, the equilibrium number and the content of articles published in a particular journal,  $Q^*$ , can be expressed as:<sup>5</sup>

$$Q^* = S(A_i, Z_A) = D(E_j, X_E), \quad (1)$$

with the reduced form version stated as:

$$Q^* = Q^*(A_i, Z_A, E_j, X_E) \quad (2)$$

Within this framework,  $Q^*$  represents the percentage of articles devoted to health insurance issues. With sufficient data, a time-series version of equation (2) could be used to explain the variation in the percentage of articles devoted to health insurance in the *JRI*, as depicted from 1964 to 2005 in Figure 1.<sup>6</sup> Unclear at this point, however, are the specific internal and external factors driving the behavior of both authors and editors.

One likely key factor affecting the behavior of both authors and editors is their interest or taste for particular areas of research within the insurance area. Unfortunately, this type of information is not perfectly observable for authors. But the tastes and interests of the various editors of the *JRI* can be reasonably captured with a set of editor dummy variables in the empirical analysis. As a result, six editor dummy variables are created for the various *JRI* editors since William Beadles held the position from 1964 to 1974.

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<sup>5</sup> Of course, we won't be able to observe the characteristics of the rejected or withdrawn papers.

<sup>6</sup> Only the content of the articles in the *JRI* can be examined because the necessary data are unavailable for health care spending and AFA membership before that point.

In addition, editors may feel marginally pressured to produce a balanced mix of articles in their journals, especially if they want to satisfy a diverse audience of readers. Thus, we may witness a reduction in the percentage of health insurance articles when a relatively large proportion of those articles had been previously published. As a result, lagged values of the dependent variable are included in the empirical analysis to control for this hypothesized balancing act on the part of editors.

The number of alternative journals to which a prospective author might submit an article represents a factor influencing the supply of health insurance articles to the *JRI*. In particular, the expectation is that fewer health insurance articles are submitted to the *JRI* as more health economics and health services journals enter the market over time, all other factors remaining constant.<sup>7</sup> Consequently, the list of journals in the *Journal of Economic Literature* is consulted to determine which health economic and health services journals might have been available during each year. Only general health economic and services journals are considered, ruling out journals such as the *Journal of Mental Health Policy and Economics* or *Journal of Pharmaceutical Finance, Economics, and Policy*. The website for each health economics journal was then visited to determine its first year of publication. The nine alternative journals (and their initial year of publication) are *Applied Health Economics and Health Policy* (2002), *Health Care Management Science* (1998), *Health Economics* (1996), *Health Services Research* (1966), *Inquiry* (1963), *International Journal of Health Care Finance and Economics* (2001), *Journal of Health Economics* (1982), *Journal of Health Politics, Policy and Law* (1975), and the *Journal of*

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<sup>7</sup> A variable reflecting the number of insurance journals, such as the *Journal of Risk and Uncertainty*, *Risk Management and Insurance Review*, and *Geneva Risk and Insurance Review*, at each point in time was initially included in the empirical model but it proved to be statistically insignificant. In any case, the relationship between the number of insurance journals and composition of insurance articles at the *JRI* is not very clear.

*Human Resources* (1965). Thus, the number of alternative prospective outlets of health insurance articles grew from one, during the first year of the *JRI*, to nine by 2006.

The number of prospective authors is another factor affecting the supply of health insurance articles to the *JRI*. Laband, Shughart, and Tollison (1990) include a similar measure in their study of the determinants of articles devoted to inflation and unemployment. Unfortunately, a flood destroyed the early ARIA membership data so those figures could not be used.<sup>8</sup> Instead, membership data for the American Economic Association (AEA) and the American Finance Association (AFA) are used in the empirical analysis to control for the number of potential suppliers. Membership data for the AEA are available at the organization's website and David Pyle, treasurer of the AFA, provided that organization's membership data.

A priori, it is unclear whether a direct or inverse relation holds between the number of prospective authors and the percentage of articles devoted to health insurance. On one hand, if a greater number of individuals concentrate on health insurance issues, then the proportion of health insurance articles in the *JRI* should rise with a greater number of prospective authors. On the other hand, as the group size grows, diversity of interests may contribute to less attention paid to any one issue. Thus, the percentage of health insurance articles in the *JRI* falls in the latter case.

Examining how the state of the health care economy shapes the prevalence of health insurance articles in the *JRI* is of central importance to this study. The state of the health care economy likely impacts the percentage of articles devoted to health insurance through both  $Z_A$  and  $X_E$  in equation 2. Prospective authors may be influenced by the state of the health care economy for a number of reasons. First, articles which are more timely

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<sup>8</sup> Email communication with Tony Biacchi on September 25, 2006.

and of real-world consequence may have an easier time getting published. Knowing that the motivation behind a paper will be readily apparent to reviewers makes it much easier to write. Second, prospective authors may wish to gain some regional or national public recognition through their research. Recognition may be important in terms of tenure and/or promotion but also with regard to acquiring consulting opportunities. Research that corresponds to events discussed in the popular press and other news media may offer an opportunity for greater exposure. Notice that researchers derive personal utility from their actions in both cases, but these actions are consistent with enhancing societal well-being. Thus, the pursuit of personal utility does not necessarily imply rent-seeking behavior.

Editors, as well, may be driven by external factors such as the state of the health care economy when making marginal decisions regarding acceptance or rejection of manuscripts. As Laband (1990, p. 343) points out: “editors are, in part, residual claimants to the product that appears in their journals”. Editors often invest a sizeable amount of their human capital into a journal. While they typically gain no direct monetary benefits, editorship of a well-respected journal may generate sufficient psychic utility (from prominence, prestige, expected future merit adjustments, etc.) to cover the cost of the invested human capital. A journal that keeps abreast of real-world events is likely to be held in high regard by both the academic and business communities and generate more utility for editors.

In the empirical analysis, the percentage of the U.S. population without health insurance coverage and health care spending as a percentage of gross domestic product (GDP) are specified to capture the state of the health economy. If the environmental

theory is correct, the expectation is that the percentage of journal articles pertaining to health insurance in the *JRI* changes when the uninsured rate and health care spending share also change. Indeed, in a very early article titled: “Medical Care Costs and Voluntary Health Insurance” in the *Journal of Insurance*, Klarman (1957) addresses both of these concerns of a health economy. He points out that the health care spending as a percentage of income increased from 4 to 5 percent and that two-thirds of the civilian population had obtained hospitalization insurance from the 1930s to the mid-1950s. Today, researchers and policy-makers continue to treat the uninsured and health care spending rates as quantity and price barometers of the health economy.

Data for national health care spending and GDP are available from the Centers for Medicare and Medicaid Services (CMS) for the period from 1960 to 2004. Systematic data for the uninsured rate are not available from a single source for that same time period. However, Santerre (2004) spliced several series of private health insurance data from HIAA (1999), CMS, and the Bureau of the Census (2006) along with data on Medicaid and Medicare coverage rates to produce a relatively consistent series for the uninsured rate from 1940 to 2003. Revising the data for the more recent years and adding data for 2004 and 2005 produces a series for the uninsured rate from 1960 to 2005. The estimated uninsured rates are shown in Exhibit 2.<sup>9</sup> Descriptive statistics can be found in Table 1 for all of the variables used in the empirical analysis.

Thus, the general function to be estimated is:

$$PCHI = f(V_{ED}, PPCHI, NHEJ, AEA, AFA, U, H/Y) \quad (3)$$

where:

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<sup>9</sup> Of course, the health insurance product has changed over time. This was even true during the 1960s (see Johnson (1967)). Thus it may be best to think of the uninsured figure as representing the percentage of the population without hospital insurance.

PCHI = annual percentage of health insurance articles or pages in the JRI;  
 $V_{ED}$  = vector of editor dummy variables;  
 PPCHI = previous period percentage of health insurance articles or pages in the JRI;  
 NHEJ = number of health economic journals available in each year;  
 AEA = annual membership in the American Economic Association;  
 AFA = annual membership in the American Finance Association;  
 U = annual uninsured rate; and  
 H/Y = national health care spending divided by GDP in each year.

The first step in the estimation process is to ensure that all of the variables in equation (3) are stationary. Application of the unit root test reveals that NHEJ, AFA, and H/Y are nonstationary. Therefore, first differences of these three variables are specified in the estimation equation.

The second step is to determine the appropriate lag length for each of the various independent variables. Because journal articles typically appear in print one year after acceptance, contemporaneous values of the independent variables make little sense. As a result, the specification begins with a one year lag for each independent variable and then, following standard practice, a second year lag is added if the Akaike information criterion is lowered. Experimentation shows that the specification of any additional lags beyond two introduces serial correlation into the analysis. Two years seem appropriate as successful articles are typically about one year in the initial authorship and revision process before submission.

The modified version of equation (3) is estimated by the Tobit procedure, which considers that the dependent variable (percentage of articles and pages) is left centered at zero. The Q-statistic test fails to find any evidence of serial correlation for the adopted specification. The regression results for the two estimated equations are reported in Table 2.

A number of implications can be drawn from the empirical findings regarding the various factors affecting the prevalence of health insurance articles in the *JRI*. First, all of the editors, except Brockett and MacMinn, have tended to publish about the same percentage of articles and pages on health insurance topics as William Beadles (the default editor), for a given set of the other factors. In fact, during their position as editors thus far, Brockett and MacMinn have been responsible for publishing about 10 percentage points more articles and 9 percentage points more pages per year on health insurance than each of the previous editors. It would be interesting to know why these two editors have emphasized more publishing of articles on health insurance issues than their predecessors; particularly given their tendency to specialize in other lines of insurance research.<sup>10</sup> In any case, it seems clear that these two editors have placed a sizeable premium on the publishing of health insurance articles, even after controlling for the state of the health economy.

Second, the negative and statistically significant coefficient estimates on the lagged values of the dependent variables in both equations suggest that the *JRI* editors, in general, attempt to balance the percentage of articles devoted to particular lines of research. It apparently takes a little time to notice or correct the imbalance given that the coefficient estimate on the second year lagged term is of a greater magnitude than the first year lagged term. Third, the *JRI* evidently faces some competition from health economics journals for articles relating to health insurance. According to the regression results, the entry of a new health economics journal leads to nearly 4 percentage points fewer health insurance articles and pages published in the *JRI*, *ceteris paribus*.

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<sup>10</sup> Information based on their curriculum vitas and/or scholar search on Google.

Third, somewhat surprisingly, AEA and AFA membership have opposite impacts on the prevalence of health insurance articles in the *JRI*. Apparently, increased AEA membership has a marginally positive impact (with a two-year lag) but a change in AFA membership has a slightly lower negative effect on the percentage of health insurance articles published in the *JRI*. This result may indicate that the typical AFA member tends to have a wider interest in insurance issues than the representative AEA member. That is, when it comes to insurance, AEA members are more likely to specialize in health insurance or economics.

The final implication deals with the findings for the environmental factors. The results in Table 2 provide strong support for the environmental theory of faculty research. Both the uninsured rate and changes in health care spending as a percent of GDP are shown to directly influence the percentage of articles in the *JRI*. More specifically, the findings suggest that a one percent increase in the uninsured rate is associated with a 2 percentage point increase in the percentage of health insurance articles and pages in the *JRI*. In addition, the results indicate that a one percentage point increase in the share of national income devoted to health care raises the percentage of health insurance articles in the *JRI* by 6 percentage points but with a two-year lag.

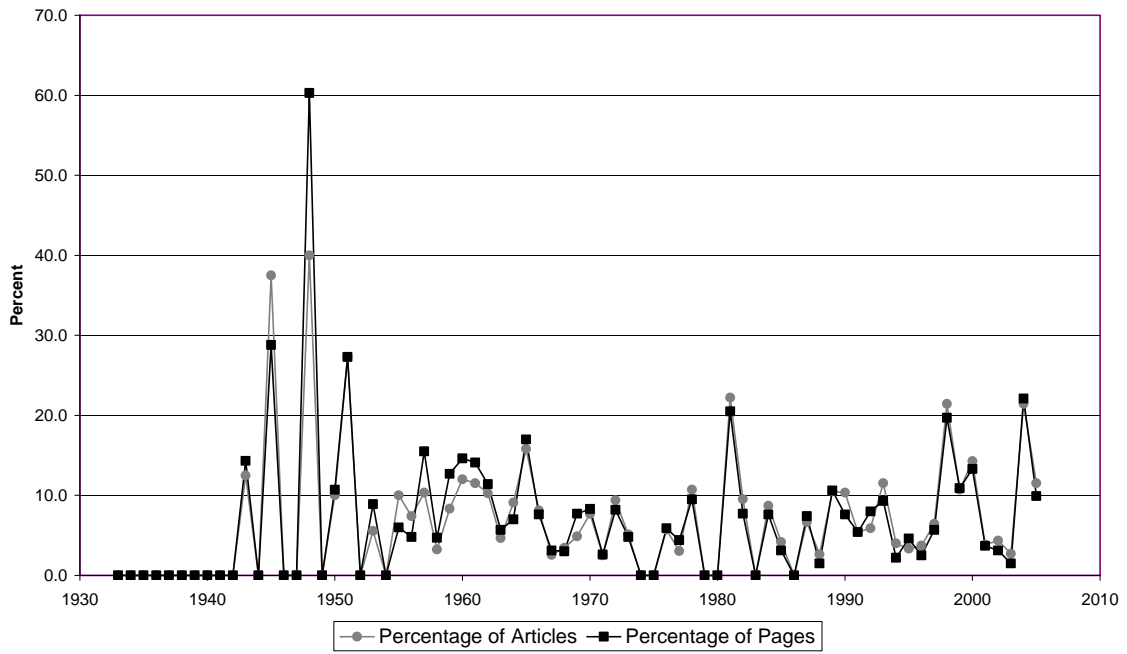
## **Conclusion**

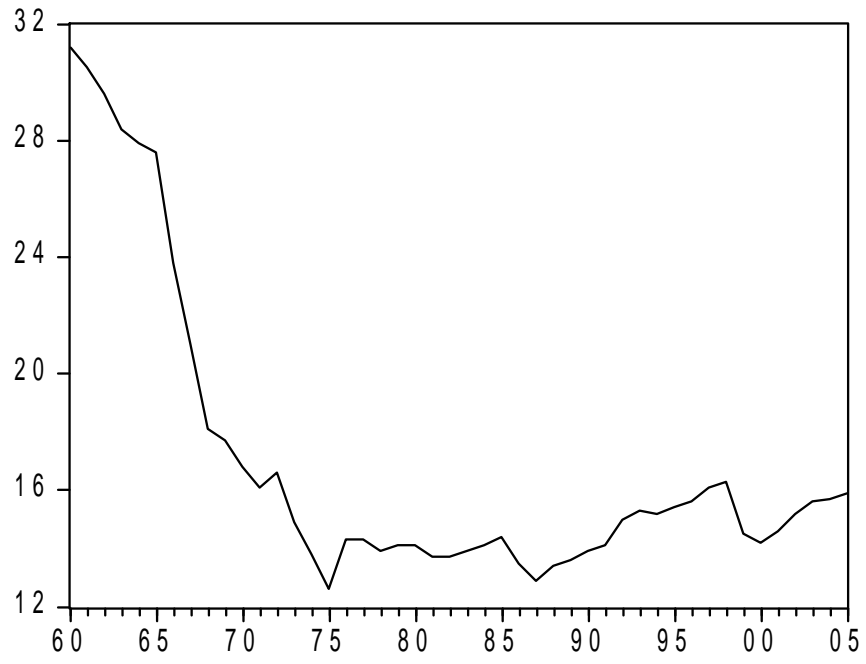
Following Laband, Sughart, and Tollison (1990), this paper asks if faculty research on health insurance issues is wasteful and indicative of rent-seeking behavior or faculty members engage in meaningful research because they wish to address real-world problems. This paper answers this question by testing the relationship between external

stimuli and research on health insurance and economics published in the *JRI*. The stimuli, in this case, are the uninsured rate and the percentage of national income devoted to health care. Analysts and policy-makers have consistently considered both of these measures as strong barometers of the state of the health economy.

Controlling for a host of other factors, the empirical results indicate that the percentage of health insurance articles in the *JRI* is influenced by the state of the health economy. Both a greater share of health care spending and an increased uninsured rate are shown to directly impact the prevalence of health-related articles. This finding suggests that the research decisions of academic insurance economists are shaped by external factors at the margin when choosing among competing types of research. In short, the empirical results support the environmental theory of faculty research.

**Exhibit 1: Percentage of Articles and Pages Devoted to Health Insurance in the JRI and Precursor Journals**





— Exhibit 2: Percentage of the US Population without Health Insurance

**Table 1: Descriptive Statistics for the Variable Used in the Empirical Analysis**

Variable	Mean	Standard Deviation	Minimum Value	Maximum Value
Percentage of Health Insurance Articles	6.84	5.67	0	22.22
Percentage of Health Insurance Pages	6.58	5.50	0	22.10
R. Mehr, Editor	0.14	0.35	0	1
C.A. Williams, Editor	0.14	0.35	0	1
S.T. Pritchett, Editor	0.12	0.32	0	1
J.D. Cummins, Editor	0.14	0.35	0	1
P. Brockett and R. MacMinn, Editors	0.19	0.39	0	1
Number of Health Economic Journals (NHEJ)	4.79	2.01	1	9
Members in the American Economic Association (AEA)	18,988	2,301	11,973	22,005
Members in the American Finance Association (AFA)	3,527	629	1,845	4,697
Percent Uninsured (U)	16.09	3.87	12.6	28.4
Percentage of GDP Devoted to Health Care Expenditures (H/Y)	10.56	3.25	5.70	16.0
Sample	1960 to 2005			

**Table 2: Multiple Regression Results**

Independent Variable	Dependent Variable: Percent of Health Insurance Articles		Dependent Variable: Percent of Health Insurance Pages	
	Coefficient Estimate	Z-statistic	Coefficient Estimate	Z-statistic
Constant	-75.99522	-2.717071	-70.77220	-2.684124
R. Mehr	3.764708	1.089808	3.369426	1.031271
C. A. Williams	5.200423*	1.659315	3.052880	1.021276
S. T. Pritchett	4.222580	1.262311	2.893821	0.901430
J. D. Cummins	-3.441394	-0.876304	-4.330924	-1.142944
P. Brockett/ R. MacMinn	10.45707***	3.584474	9.067347***	3.287603
PCHI <sub>T-1</sub>	-0.287536**	-1.979493	-0.263978*	-1.874583
PCHI <sub>T-2</sub>	-0.496714***	-3.234317	-0.466665***	-3.058003
D(NHPJ) <sub>T-1</sub>	-3.671426*	-1.810833	-3.970031**	-2.030753
AEA <sub>T-1</sub>	-9.17E-05	-0.080625	-9.38E-05	-0.085850
AEA <sub>T-2</sub>	0.002452*	1.892571	0.002282*	1.843657
D(AFA) <sub>T-1</sub>	-0.008304*	-1.917695	-0.007612*	-1.864453
U <sub>T-1</sub>	2.448258***	3.952130	2.327891***	4.009122
D(H/Y) <sub>T-1</sub>	0.658418	0.182631	0.112056	0.032506
D(H/Y) <sub>T-2</sub>	6.021257*	1.775165	6.859579**	2.107642
Adjusted R <sup>2</sup>	0.297		0.316	

Sample 1964 to 2005

\*\*\* Statistically significant at the 1 percent level.

\*\* Statistically significant at the 5 percent level.

\* Statistically significant at the 10 percent level.

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**Appendix A: List of Articles Devoted to Health Care Topics in the JRI and Precursor Journals 1933- 2005.**

Year	Title(s)
1943	1. The War and Accident and Health Insurance
1945	1. Group Accident and Health Insurance 2. Long-Term Disability Insurance 3. Prepayment Medical Care Organizations 4. Non-Profit Health Service Plans
1948	1. Cost, Supply and Demand Problems of Medical Care 2. Commercial Group Medical-Hospitalization Covers 3. Medical Society and Hospital-Sponsored Plans 4. Non-Governmental Medical Care Programs
1950	1. Statistical Problems and Methods of Pre-Paid Blue Cross and Blue Shield Hospital and Medical Plans
1951	1. The British Health Experiment: The First Two Years of the National Health Insurance (N. H. I. 2. Alternate Solutions: Voluntary and Compulsory Medical Care Insurance 3. Welfare Implications of Alternative Methods of Financing Medical Care
1953	1. The Deductible in Medical Expense Insurance
1955	1. Review of Accident and Sickness Insurance
1956	1. Paying For Medical Care 2. Recent Developments in Sickness and Accident Insurance
1957	1. Meeting Health Care Costs through Insurance 2. Medical Care Costs and Voluntary Health Insurance 3. Canadian Programs for Meeting the Sickness Risks
1958	1. Advertising and Public Relations Activities of Insurance Companies: With Special Emphasis on Health Insurers
1959	1. Health Insurance for Retired Persons 2. The Problem of Overutilization in Health Insurance 3. Control of Abuses under Credit Life and Health Insurance 4. A Comparison of Mortality Rates of Insured Lives with Those of the General Population
1960	1. Current Developments and Problems in Health Insurance 2. Credit Life and Health Insurance in Texas 3. The Status of Self-Insured Employee Benefit Plans Under the Insurance Laws 4. Some Medico-Economic Trends 5. Rising Medical Care Costs with Special Reference to Hospital Expenses 6. Exploration of a New Area of Insurance: Dental Insurance
1961	1. Potential Innovations in Health Insurance 2. Potential Innovations in Health Insurance 3. Measuring the Macroeconomic Effects of Life and Health Insurance 4. Effects of Coverage of Home and Office Calls in a Physician-Sponsored Health Insurance Plan

- 5. Blue Cross and the Community Health Problem
- 6. The Development of Voluntary Health Insurance in the United States
- 1962
  - 1. Health Insurance and the Government
  - 2. Financing Medical Care for the Aged
  - 3. The Fundamental Nature of Blue Cross and Blue Shield
  - 4. Experience Rating vs. Community Rating
- 1963
  - 1. Collectively Bargained Health Insurance Plans in Milwaukee County
  - 2. Inter-Insurer Arrangements to Provide Over-65 Medical Care Coverage
  - 3. The Life and Health Insurance Handbook
  - 4. Inter-Insurer Arrangements to Provide Over-65 Medical Care Coverage
- 1964
  - 1. Special Risks Health Insurance: Partial Solution to Growing Bodily Injury Awards?
  - 2. Health Insurance for Impaired Risks
  - 3. An Actuarial Appraisal of Congressional Proposals for Hospital Insurance for the Aged
  - 4. Standard Hospitalization Insurance Contracts
- 1965
  - 1. The Growth of Group Health Insurance
  - 2. Financing Senior Citizen Health Care: An Alternative Approach
  - 3. Major Medical Expense Insurance
  - 4. Overinsurance in Health Insurance
  - 5. Rate Philosophy and Health Insurance Competition
  - 6. What Would Medicare Cost?
- 1966
  - 1. An Actuarial Appraisal of Congressional Proposals for Hospital Insurance for the Aged: Comment
  - 2. Deductibles in Health Insurance: An Evaluation
  - 3. Major Policy Provisions in Guaranteed Renewable Major Medical Expense Insurance
- 1967
  - 1. Prepaid Drug Plans Sponsored by Pharmacists
- 1968
  - 1. Medicare after One Year
- 1969
  - 1. Minimum Premium Health Plans: Insured Non-Insurance
  - 2. Medicare and the Hospitals: Issues and Prospects
- 1970
  - 1. A Note on the Urban Crisis, Health Care, and Health Insurance
  - 2. Post-Payment Health Coverage: Contributions and Limitations
  - 3. Minimum Premium Health Plans: Insured Non-Insurance: Comment
- 1971
  - 1. A New Type of Hospital Insurance
- 1972
  - 1. True Catastrophe Medical Expense Insurance
  - 2. The Measurement of Moral Hazard
  - 3. Florida Relative Values for Surgical and Medical Procedures
- 1973
  - 1. Payment Plans and the Efficient Delivery of Health Care Services
  - 2. Total Insurance Costs and the Frequency of Premium Payments
- 1976
  - 1. Economic Class and Risk Avoidance: Experience under Public Medical Care Insurance
  - 2. Regulatory Tests in the Life and Health Insurance Industry
- 1977
  - 1. Some Issues in Limiting Hospital Cost Reimbursement: A Maryland Experience
- 1978
  - 1. Social Aspects of the Rate Structure of Medical Malpractice Insurance

- 2. Drawing Inferences from Medical Malpractice Closed Claim Studies
- 3. Supplementary Health Insurance and Cost-Consciousness Strategy
- 1981 1. The Relation between the Blue Cross Market Share and the Blue Cross "Discount" on Hospital Charges
- 2. Some Statistical Evidence on Merit Rating in Medical Malpractice Insurance
- 3. Rising Hospital Costs and Service Intensity
- 4. The Tax Treatment of Workers Compensation Costs and Safety and Health Incentives
- 5. Risk Analysis of an Employee Health Benefit Decision under Hospital Reimbursement
- 6. Community Rating and Cross Subsidies in Health Insurance
- 1982 1. An Econometric Analysis of the Effects of Regulation in the Private Health Insurance Market
- 2. Limitations and Exclusions in Two Provider Systems with Comprehensive Care
- 1984 1. On the Surprisingly Low Cost of State Catastrophic Health Insurance Programs
- 2. An Analysis of Selected Hospice Programs
- 1985 1. The Impact of Competition and Regulation on Blue Cross Enrollment of Non-Group Individuals
- 1987 1. Health Insurance in the United States: Is Market Failure Avoidable?
- 2. Economics of Oligopoly: Medical Malpractice Insurance as a Classic Illustration
- 3. An Evaluation of Three Payment Strategies for Capitation for Medicare
- 1988 1. Experience Rating in Medical Professional Liability Insurance
- 2. Long-Term Catastrophic Care: A Financing Planning Perspective
- 1989 1. A Historical Perspective on the Present Value Assessment of Medical Care
- 2. The Impact of Medical Malpractice Insurance Rate Regulation
- 3. The Distribution of Claims for Professional Malpractice: Some Statistical and Public Policy Aspects
- 1990 1. Should Medical Professional Liability Insurance Be Experience Rated?
- 2. A Blended Sector Rate Adjustment for the Medicare AAPCC When Risk-Based Market Penetration is High
- 3. Effect of Ambulatory Surgery Policy Provisions on Medical Expense Insurance Claims
- 1991 1. Medical Cost Development in Workers' Compensation
- 2. Implications of Uncollectibles for Hospitalization Coinsurance Rates
- 1992 1. Evidence of Adverse Selection in the Individual Health Insurance Market
- 2. Predictability of Individual Health Care Expenditures
- 1993 1. The Impact of Liabilities for Retiree Health Benefits on Share Prices
- 2. The Effect of Health Insurance Cost Sharing within Episodes of Medical Care
- 3. Information Asymmetries and Adverse Selection in the Market for Individual Medical Expense Insurance
- 1994 1. Workers' Compensation Cost Containment and Health Care Provider Income Maintenance Strategies
- 1995 1. State Insurance Regulation and Employers' Decisions to Self-Insure
- 1996 1. Workers' Compensation Medical Expenditures: Price vs. Quantity

- 1997 1. Two Approaches to Subsidizing a Given Level of Charitable Hospital Care: Welfare Implications for the Insured  
2. Payment Systems for Providers in Health Insurance Markets
- 1998 1. Long-Term Care Insurance in a Two-Generation Model  
2. Influence of the Introduction of a Per-Visit Copayment on Health Care Use and Expenditures: The Korean Experience  
3. A Policy Perspective on "Mixed" Health Care Financial Systems of Business and Economics  
4. On the Value of a Checkup: Adverse Selection, Moral Hazard, and the Value of Information  
5. The Economics of Incentive-Based Health Care Plans  
6. Medical Malpractice Insurance: The Reputation Effect and Defensive Medicine
- 1999 1. Industry Segmentation and Predictor Motifs for Solvency Analysis of the Life/Health Insurance Industry  
2. The Effect of Firm Traits on Long-Term Care Insurance Pricing  
3. Economic and Market Predictors of Insolvencies in the Life-Health Insurance Industry
- 2000 1. Risk Selection and Optimal Health Insurance-Provider Payment Systems  
2. A Statistical Analysis of Mandatory Pooling across Health Insurers  
3. Information Costs and Health Insurance Contracts  
4. Is Public Long-Term Care Insurance Necessary?
- 2001 1. In Sickness and in Health: An Annuity Approach to Financing Long-Term Care and Retirement Income
- 2002 1. Adverse Selection and the Capped Premium Subsidy in the Federal Employees Health Benefits Program
- 2003 1. Forecasting Medical Net Discount Rates
- 2004 1. Why Are Managed Care Plans Less Expensive: Risk Selection, Utilization, or Reimbursement?  
2. The Effects of Uncertainty on the Demand for Health Insurance  
3. The Impact of the Health Insurance Market on Small Firm Employment  
4. An Analysis of the Effect of Tax Policy on Health Insurance Purchases by Risk Group  
5. Pure Versus Mutual Health Insurance: Evidence From Swedish Historical Data  
6. Temporal Profitability and Pricing of Long-Term Care Insurance
- 2005 1. Subsidization and Choice in the Group Health Insurance Market  
2. Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance  
3. The Cost of Firearm Deaths in the United States: Reduced Life Expectancies and Increased Insurance Costs