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Journal of Health Economics 24 (2005) 225–252

JOURNAL OF
HEALTH
ECONOMICS

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The effect of the availability of charity care to the uninsured on the demand for private health insurance

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Received 1 October 2001; received in revised form 1 July 2004; accepted 1 August 2004
Available online 22 December 2004

Abstract

The economic reasons why some people do not obtain health insurance are unclear. In this paper, I test the hypothesis that the availability of charity care to the uninsured reduces the likelihood of obtaining private coverage. I utilize variation in the availability of charity care across the different markets in the Community Tracking Study's Household Survey (CTS-HS) using an "access to care" measure of the uninsured's cost-related difficulties in obtaining medical care, to both aggregate across the various "safety net" providers and control for its potentially endogenous supply. I find evidence supporting this hypothesis for low-income people, in both the individual market and the employment-based group market. I also estimate a joint model of offer and take-up decisions for the group market sample and find that the availability of charity care reduces low-income workers' offer rates but not their take-up rates.

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JEL classification: D81; G22; I10

Keywords: Private health insurance; Charity care; Uninsured

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1. Introduction

Why do the uninsured in the United States fail to obtain private health insurance? There were almost 44 million people without health insurance in 2002, and various policies are currently under consideration to expand coverage. Despite the significant policy interest in the uninsured, there exists a fair amount of uncertainty about the economic determinants of whether people ineligible for public insurance purchase private insurance. What is known is that large subsidies for private health insurance premiums will likely be needed to induce a large number of the uninsured to obtain coverage (Gruber and Levitt, 2000; Pauly and Herring, 2001). Most policymakers focus on issues related to the magnitude of premiums and ways to reduce the net prices for insurance that people face, but an interesting underlying question is *why* is the willingness-to-pay for private coverage of the uninsured so low.

In this paper, I argue that it is not necessarily the *absolute* cost of health insurance that is prohibitive for many of the uninsured; instead, it is the cost of health insurance *relative* to the costs associated with remaining uninsured that is important for one to consider. Various “safety net” providers supply free or subsidized care to the uninsured due to altruistic concerns, which lowers the uninsured’s expected out-of-pocket expenses considerably. Rational economic actors will realize that the availability of charity care lowers the value of obtaining private health insurance coverage, and thus the relative likelihood of purchasing private coverage should decrease.

I present an empirical test of this hypothesis in this paper.¹ Testing this relationship between insurance coverage and the availability of charity care, however, is not clear-cut for two main reasons: there are many different safety net providers of charity care, and these providers may increase their supply of charity care in response to larger numbers of uninsured. To address these issues, I use a local-level “access to care” measure of the absence of cost-related difficulties in obtaining care reported by the area’s uninsured. I argue below that such a measure both appropriately aggregates across the different safety net providers (which serve as substitutes in different areas) and is not subject to reverse causality. I examine the likelihood of obtaining private coverage in the individual market and the employment-based group market separately. Since one must be offered coverage and take up offered coverage to be insured in the employment-based group market, I estimate a simultaneous model of offer and take-up decisions for people in the group market.

Section 2 of the paper reviews some theory regarding the demand for insurance and presents a simple theoretical model to illustrate my hypothesis. Section 3 of the paper details the amount of charity care available to the uninsured by examining medical expenditure data. Section 4 of the paper presents the empirical model and its results for the demand for private insurance as influenced by the availability of charity

ity care; the beginning of the paper verifies that it well-specified empirical models for insurance decisions.

2. What does theory predict?

2.1. Standard models of insurance

Individuals face a great deal of uncertainty with medical utilization. Standard models of insurance for individuals facing uncertainty generally predict a decrease in insurance with the purchase of insurance, or non-purchase of insurance, or coinsurance so that the marginal costs of decreasing insurance (not the marginal costs of decreasing private coverage resulting from private coverage) exists) is characterized (not by the marginal costs of decreasing insurance separating into insurance and charity care, 1976).² Faced with high administrative costs of coverage rather than an excessively high will to insure, the market’s relatively-low administrative costs amount that most Americans receive an excess of expected benefits.

The discussion of the theory of insurance financial risk for the costs of insurance is thought that many of the uninsured (Buchanan (1975) noted early on) are not able to commit to not purchasing insurance enduring a financial loss. Charitable transfers that even ex ante unconditional transfers cause the poor to purchase insurance, or ex post charitable transfers shows that ex ante in-kind transfers reduce wealth.

¹ In the context of this paper, I consider “charity care” from the patient’s perspective rather than the provider’s perspective, and I define charity care as any medical care for which an uninsured person is not required to pay the full cost. Providers of such care may be reimbursed from other direct or indirect sources, so this medical care may not necessarily be considered “charity” from their perspective. Moreover, I examine the provision of charity care to those who are uninsured and not the provision of public insurance such as Medicaid or SCHIP.

² An extension of the Rothschild-Stiglitz model of insurance plans offered (instead of each individual purchasing insurance, low-risk people subsidize high-risk people) shows that high-risk willingness-to-pay for the reduction in risk is lower than low-risk willingness-to-pay for the reduction in risk.

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ity care; the beginning of Section 4 describes the access measure that I use and verifies that it well-specified, while the latter portion of Section 4 estimates various empirical models for insurance coverage. Section 5 of the paper discusses my findings.

2. What does theory predict?

2.1. Standard models of insurance

Individuals face a great deal of uncertainty regarding the random financial losses associated with medical utilization. The theoretical implication of this is quite clear: risk-averse individuals facing uncertain levels of future-period wealth prefer the certainty associated with the purchase of insurance (Arrow, 1963). More complex models of insurance demand generally predict a decrease in the generosity of insurance obtained rather than predict the non-purchase of insurance. Faced with moral hazard, consumers will demand a level of coinsurance so that the marginal benefits of reducing inefficient consumption are offset by the marginal costs of decreased risk reduction (Pauly, 1968). Faced with adverse selection resulting from private consumer information about one’s risk level, the equilibrium (if it exists) is characterized (not by low-risks being uninsured but instead) by low-risk individuals separating into insurance plans with less generous coverage (Rothschild and Stiglitz, 1976).² Faced with high administrative loading, consumers will generally decrease the generosity of coverage rather than forego obtaining any coverage at all. Only when the load is excessively high will individuals fail to obtain any coverage at all; however, the group market’s relatively-low administrative loading coupled with the tax subsidy implies that the amount that most Americans would be required to pay for health insurance is not far in excess of expected benefits.

The discussion of the theory to this point has assumed that the uninsured are at full financial risk for the costs associated with their medical utilization. However, it is generally thought that many of the uninsured receive charitable medical care at no or a reduced cost. Buchanan (1975) noted early that the rich face the “Samaritan’s dilemma” in which they are not able to commit to not providing ex post transfers of wealth to the unfortunate poor enduring a financial loss. Coate (1995) formalizes this idea in a theoretical model showing that even ex ante unconditional transfers of wealth from the government do not necessarily cause the poor to purchase private insurance; instead, the poor will still rely on additional ex post charitable transfers of wealth from rich Samaritans if a loss is realized. He also shows that ex ante in-kind transfers of insurance are more efficient than ex post transfers of wealth.

² An extension of the Rothschild–Stiglitz model in which insurers are constrained to earn zero profits over all plans offered (instead of each individual plan) results in an equilibrium with one moderate coverage plan in which low-risk people subsidize high-risk people (Wilson, 1977). Low-risk people still obtain coverage because their willingness-to-pay for the reduction in risk exceeds the amount of their subsidization of the high risks.

2.2. Insurance purchasing when charity care exists

I present a simple theoretical model formalizing this idea that a person's incentive to purchase private insurance is diminished due to the presence of charity care. Consider the following expression for the expected indirect utility of a risk-averse person i facing an uncertain total cost of medical care:

$$EU_i \equiv I_i - EX_i - R_i \quad (1)$$

where I_i is person i 's income, X_i the total amount paid for medical care, and R_i is i 's ex ante valuation of the risk due to variation in the realization of X_i . Let R_i equal to $\frac{1}{2}AP_i \text{var}(X)$, where AP_i is the traditional Arrow–Pratt relative risk-aversion coefficient and $\text{var}(X)$ is the variance of X . Finally, assume that i faces a random distribution of total medical expenditures independent of cost-sharing with a mean equal to M_i and a standard deviation equal to σ_i .

Suppose that if uninsured, i expects to receive an amount of charity care from medical providers equal to a proportion, C , of the total expense, and that there are no supply-side limits on the availability of charity care from providers. I assume that the magnitude of C is known with certainty but discuss relaxing this assumption below. Expected uninsured out-of-pocket expense therefore equals $(1 - C)M_i$. For simplicity, I assume that a competitive market for full insurance exists, that the premiums insurers charge are proportional to individual risk level, and that administrative loading equal a fixed percentage of expected benefits; if L_i is the net loading that i faces, i 's premium therefore equals L_iM_i .³

Now consider i 's choice of whether to purchase insurance. This choice is a matter of maximizing expected utility: i will purchase private health insurance if $EU_{I,i} > EU_{U,i}$. Person i 's "propensity" for purchasing private insurance—defined as the difference between person i 's expected utilities—can be expressed as

$$Y_{I,i}^*(C) \equiv EU_{I,i} - EU_{U,i}(C) = (1 - C)M_i + \frac{1}{2}AP_i((1 - C)(\sigma_i)^2) - L_iM_i, \quad (2)$$

given the assumptions made above. This expression implies that individuals will purchase insurance if their reservation price exceeds the premium; the reservation price is the sum of expected uninsured out-of-pocket expense and the valuation of risk associated with fluctuations in this expense.

Differentiating Eq. (2) with respect to C produces the testable hypothesis that $dY_{I,i}^*/dC < 0$; i.e., as the availability of charity care increases, the propensity for purchasing insurance decreases. Because both the absolute magnitude of uninsured out-of-pocket expense and the variation in uninsured out-of-pocket expense decrease with increases in charity care, expected uninsured utility increases with increases in charity care. Interestingly though, the marginal effect of the amount of charity care C on the propensity for purchasing insurance will be smaller in magnitude for larger values of C . Mathematically, this is because the second derivative of Eq. (2) with respect to C is positive. Intuitively, this is

³ Since this model assumes non-zero loading, the optimal insured state would actually not be full insurance, but instead include some level of cost-sharing; this would add an expected insured out-of-pocket expense term. For simplicity, however, I assume here that the insurance chosen is full insurance.

driven by the increasingly insured out-of-pocket expense (paper.)

Although the simplicity of the effect of extending this charity care is noteworthy,⁴ we be uncertain from the provider's subsidy policy is unknown. This uncertain out-of-pocket expense remains when C is uncertain, there mathematically in Herring (the downside of receiving the upside of receiving a great all else equal, people who from their family, friends, a health insurance. (The relevant well.)

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⁴ Two other extensions of this model care and insured medical care and to

⁵ Many of the uninsured at any point only 69.7% of people in the MEPS; eleven subsequent months. More detail. A caveat that one should keep in mind receives (observed in the MEPS data a shorter spell.

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driven by the increasingly negative effect that charity care has on the variance of uninsured out-of-pocket expense. (The relevance of this point will be more apparent later in the paper.)

Although the simplicity of this model makes this intuitive relationship rather apparent, the effect of extending this model to incorporate uncertainty about the availability of charity care is noteworthy.⁴ While the amount of charity care that is made available may not be uncertain from the provider's perspective, patients will likely have imperfect knowledge about the actual magnitude of charity care they will receive—either because a known provider's subsidy policy is unknown or because the actual availability of a specific provider is unknown. This uncertainty will increase the propensity for insurance. While expected out-of-pocket expense remains the same, the variance of out-of-pocket expense increases when C is uncertain, thereby decreasing uninsured expected utility; this result is shown mathematically in Herring (2000). Intuitively, diminishing marginal utility of wealth makes the downside of receiving a less-than-anticipated amount of charity care worse than the upside of receiving a greater-than-anticipated amount of charity care. This implies that, all else equal, people who are less uncertain about the availability of charity care (e.g., from their family, friends, and neighbors) will be relatively less likely to purchase private health insurance. (The relevance of this point will be more apparent later in the paper, as well.)

I present an empirical test of the hypothesis that the availability of charity care has a negative effect on the demand for private health insurance in Section 4 below. However, such an analysis would be moot if the uninsured only receive trivial amounts of charity care. For this reason, I first examine data regarding the magnitude of charity care provided to the uninsured—analogueous to the term C above. These results are shown in Section 3 below.

3. How much charitable medical care do the uninsured receive?

I examine the magnitude of charitable medical care provided to the uninsured using the household survey data from the Medical Expenditure Panel Survey (MEPS) for years 1996–2000. The data include annual dollar amounts classified both by the type of medical care and by the source of the payment. Since the MEPS expenditure data are annualized, I limit my sample to those under 65 who were uninsured for the entire survey year by using the monthly insurance status information.⁵ I present mean values for both total utilization and total out-of-pocket spending for a sample of 17,725 year-long uninsured individuals; all expenses are inflated to year 2000 US dollars. The total utilization variable represents

⁴ Two other extensions of this model would be to include a valuation of the difference in quality between charity care and insured medical care and to include a measure of the "stigma" from being a charity case.

⁵ Many of the uninsured at any point in time lack private health insurance for only a few months. For instance, only 69.7% of people in the MEPS who were uninsured in January of 1996 were uninsured for the each of the eleven subsequent months. More detail about short "spells" of uninsurance can be found in Swartz et al. (1993). A caveat that one should keep in mind here is that the amount of charity care a "year-long" uninsured person receives (observed in the MEPS data that I present) may be somewhat higher than that received by a person during a shorter spell.

Table 1
Uninsured out-of-pocket expenses: by income and by utilization^a

Utilization	Percent of the uninsured (%)	Total utilization ^b	Out-of-pocket expense ^b	Percent out-of-pocket (%)
All income levels (N = 17,725)				
Mean value	n/a	923	336	36.4
Low income ^c (N = 13,830)				
Mean value	n/a	923	305	33.1
With no utilization	48.1	0	0	n/a
With US\$ 0–250 utilization	24.7	99	76	76.7
With US\$ 250–2500 utilization	20.6	809	525	64.9
With US\$ 2500–10,000 utilization	5.0	5059	2313	45.7
With US\$ >10,000 utilization	1.6	29638	3880	13.1
High income ^c (N = 3895)				
Mean value	n/a	923	412	44.7
With no utilization	44.6	0	0	n/a
With US\$ 0–250 utilization	25.2	107	89	83.4
With US\$ 250–2500 utilization	23.6	787	610	77.6
With US\$ 2500–10,000 utilization	4.7	5061	3000	59.3
With US\$ >10,000 utilization	1.9	24902	5483	22.0

Source: 1996–2000 Medical Expenditure Panel Survey household components.

^a The sample includes all people under age 65 without private or public insurance for the entire year. Observations are weighted to be nationally representative.

^b Amounts are in year 2000 US dollars.

^c Low and high income are defined as having total family income below or above 300% of the federal poverty level.

the dollar value of all medical care consumed regardless of whether the provider received an actual payment.⁶

The first row of Table 1 shows results for total “insurable” expenditures of the uninsured using this MEPS data.⁷ Somewhat surprisingly, the results indicate that the uninsured paid out-of-pocket only US\$ 336 per year in year 2000 US dollars; this amount averages 36.4% of the total medical care they received.⁸ I also split this sample to examine the effect of income on the provision of charity care to the uninsured. I express total family income as a

⁶ For instance, an office visit provided to a low-income uninsured patient in which the physician did not actually bill the patient is also included in this definition of utilization. Likewise, the “full” value of a visit to a community health center offering a discounted fee to the uninsured is included, as well. However, “discounts” are relevant for a second reason, since the “list price” for most healthcare providers is in excess of what any patient would pay. Thus, I want to express this total utilization measure as the full payment that would be expected in the absence of any provision of charity care. I therefore define total utilization as 75% of the AHRQ-defined charge, making the assumption that the discount for individual patients is slightly smaller than the average group discount of 68% observed in the MEPS data for the insured sample.

⁷ I examine only expenditures that are traditionally covered by private health insurance to focus on the difference in medical care if uninsured. Total expenditures in the MEPS data already exclude over-the-counter medicine and alternative care. I also exclude dental, vision, and chiropractor expenses.

⁸ There is a large difference between the total utilization of the uninsured and the privately insured. While the annual utilization of the uninsured averages US\$ 923, the annual utilization of the insured averages US\$ 1416. While some of this discrepancy may be attributed to both adverse selection and moral hazard, this disparity between

percentage of the U.S. Census and above 300% of poverty, and the percentage of poverty, and the percentage of poverty. Results for the low-income sub-sample for the high-income sub-sample show the magnitude of out-of-pocket spending for the low-income uninsured and low-income people. The low-income uninsured receive total medical care they receive one-half of the care they receive.

Table 1 also shows the magnitude of out-of-pocket spending, broken down by income level, that while the magnitude of out-of-pocket spending is higher for the low-income uninsured than for high-income uninsured, the proportion paid out-of-pocket is higher for the low-income uninsured than for high-income uninsured. For all levels of income, the magnitude of out-of-pocket spending is higher for high-income uninsured than for low-income uninsured; the low-income uninsured pay 22.0% of their total medical care out-of-pocket in a given year, while high-income uninsured pay 22.0% of their total medical care out-of-pocket. Income level is not a significant determinant of out-of-pocket spending. Income level is not a significant determinant of out-of-pocket spending. Income level is not a significant determinant of out-of-pocket spending.

I present the empirical results and review some related empirical literature detailing the specification I use to show the results from the model for the sub-samples described below.

4. Estimating private insurance coverage

4.1. Related studies

Kunreuther et al. (1978) find that private insurance coverage reduces private insurance coverage.

average total utilization implies that the magnitude of out-of-pocket spending is higher for high-income uninsured than for low-income uninsured.

⁹ More detail regarding the difference in the type of reimbursement these providers receive is provided in the appendix.

Out-of-pocket expense ^b	Percent out-of-pocket (%)
	36.4
	33.1
	n/a
	76.7
	64.9
	45.7
	13.1
	44.7
	n/a
	83.4
	77.6
	59.3
	22.0

for the entire year. Observations

at or above 300% of the federal poverty

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percentage of the U.S. Census poverty threshold by family size and split the sample below and above 300% of poverty; the median income for all household in the U.S. is roughly 300% of poverty, and the poverty threshold was US\$ 13,738 for a family of three in 2000. Results for the low-income sub-sample are shown in the middle panel of Table 1, and results for the high-income sub-sample are shown in the bottom panel. As one might expect, both the magnitude of out-of-pocket expense and its proportion of total utilization are lower for the low-income uninsured—demonstrating that relatively more charity care is available to low-income people. The low-income uninsured on average pay for about one-third of the total medical care they received, while the high-income uninsured on average pay for almost one-half of the care they received.⁹

Table 1 also shows these values for low-income and high-income uninsured out-of-pocket spending, broken down by the magnitude of total utilization. These results indicate that while the *magnitude* of out-of-pocket expense increases as total utilization increases, the *proportion* paid out-of-pocket decreases considerably as utilization rises. For example, the low-income uninsured with non-zero utilization less than US\$ 250 paid 76.7% out-of-pocket, while those with utilization between US\$ 2500 and US\$ 10,000 paid 45.7% out-of-pocket. For all levels of utilization, out-of-pocket expenses are lower for low-income uninsured than for high-income uninsured, with the biggest difference for those with the highest utilization; the low-income uninsured pay 13.1% out-of-pocket while these high-income uninsured pay 22.0%. Although less than 2% of the uninsured face such high utilization in a given year, an out-of-pocket expense of US\$ 3880 is hardly trivial to a low-income person. Income for a single person at twice the poverty line would be about US\$ 17,500, so this out-of-pocket expense would equal 22% of income. The purchase of private health insurance with an upper limit on out-of-pocket spending would lower this amount considerably. Nevertheless, this substantial amount of charity care available to the uninsured (relative to paying all out-of-pocket) is expected to provide a strong disincentive towards the purchase of private health insurance coverage.

I present the empirical test of this hypothesis in the following section. In Section 4.1, I review some related empirical studies. In Section 4.2, I outline my empirical framework, detailing the specification I use to measure the availability of charity care. In Section 4.3, I show the results from the model of the demand for insurance—particularly for four relevant sub-samples described below.

4. Estimating private insurance coverage

4.1. Related studies

Kunreuther et al. (1978) provide anecdotal evidence that the availability of charity reduces private insurance coverage; they observe that 30% of Americans lacking insurance

average total utilization implies that there probably exists some level of disutility associated with obtaining charity care such as stigma and queues, or perhaps an outright refusal of providers to supply care.

⁹ More detail regarding the different types of medical providers supplying charity care to the uninsured and the type of reimbursement these providers do receive can be found in Herring (2000).