The level of hospital charges and the income of the uninsured patient

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Abstract   It is a commonly held belief that full billed charges for hospital services, when submitted to uninsured patients, constitute such an extraordinary payment burden that hospitals' attempts to collect full payment are irrational. We examine that proposition with data on the joint distribution of hospital charges and uninsured incomes, guided by prevailing standards on the concept of ability-to-pay. We find that there is in fact a substantial intersection of charges and incomes in which full payment from the uninsured, or at least substantial partial payment, is a reasonable commercial expectation. When we quantify the estimated extent of charge collectability, we conclude that there is empirical support for current hospital collection practices.

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JEL Classifications   I11 · I18

Introduction

Hospital billing and reimbursement controversies come in various forms, all of which appear to be erupting with increasing frequency.[1] The particular controversy of interest here concerns the intersection of:

- The presentation of the standard billed charge as a valid price for hospital services, when there is no contract with the hospital specifying some other price; and

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[1] For a recent overview of some of the issues see the symposium papers in *Health Affairs* (2006). And for a sense of some of the litigation that these billing controversies have provoked see Becker (2006).

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- The billing of that charge to, and collection from, uninsured hospital patients of varying income levels.

These are two distinct concepts. The first concept—the standard charge as a legitimate price—is not limited to the uninsured, but also applies to health insurers that have no contract with the hospital in question.[2] And the second concept—the hospital's approach to the payment obligations of its uninsured patients—can be debated even when the full charge is irrelevant because the hospital has conceded that a particular uninsured patient is simply unable to pay the entire bill.

The obligation of the buyer to pay the bill presented by the seller is not ordinarily a matter of controversy in markets generally; if the seller sets the price and the buyer takes the product, the buyer is obligated to pay the seller at that price. That common principle has become controversial when the seller is a hospital and the buyer is an uninsured individual, however, for a number of reasons. The most important such reason is the pervasive intermediation in the buyer–seller relationship of the institution of health insurance, along with the fact that different payors in the market are able to (and do) bargain for substantially different prices.[3] Since greater patient volume appears to be at least roughly associated with lower negotiated net prices across payors (all else equal), and because an individual uninsured patient has the weakest possible volume-related bargaining position, the result is that uninsured individuals are expected, at least provisionally, to pay the highest prices in the market.[4] Hence the controversy *here* about payment obligations that elsewhere are not controversial at all.

We can set the boundaries of the issue by sketching two hypothetical polar positions within which fall the various actual positions in the debate. The hypothetical boundary position at one extreme is that hospitals should stop pursuing their uninsured patients to pay what they've been charged, and simply write those charges off as a routine cost of doing business. That polar position is logically composed of two underlying stylized claims. One is that the standard billed charge is simply too high. The evidence offered is usually that *billed charges* are typically two to four times some of the *net prices* that the hospital has negotiated (or accepted) in advance with insurers and other payors who have contracts with the hospital.[5] The second claim is that the members of the uninsured population have incomes so low that attempting

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[2] To define terms here, a hospital's "charges" are sometimes referred to as "gross charges," "billed charges," "standard billed charges," or "full billed charges;" occasionally referenced as "list price" or "retail price;" and, when added up across all of a hospital's patients, constitute the hospital's "gross revenue." Those terms mean just what they sound like: The "charge" is the total dollar amount billed, which results from summing up the line-item subcharges for all of the individual products and services that a patient receives during his hospital stay. The subcharges for each of these line items—drugs, bandages, diagnostic images, daily room rates, and so on—are determined by the hospital, and maintained on a master list of hospital services called the "chargemaster." In the absence of a contract specifying an agreed-upon lower discounted net price, the hospital's charges for its services as reflected on the itemized hospital bill are what the hospital would at least provisionally expect to receive from the patient, from the insurer (if any), or from both combined. For a discussion of these concepts and terminology see Fedor (2004) ("Without a contract, payment will be expected at the hospital's full charges.").

[3] For example, "in 2001 the prices hospitals were actually paid by private health insurers serving the Federal Employees Health Benefits Program varied by 'only' 259% across the United States." Reinhardt (2006, p. 57).

[4] To put it colorfully, "what prevailing distributive ethic in U.S. society, for example, would dictate that uninsured patients be billed the highest prices for hospital care and then be hounded, often mercilessly, by bill collectors? What prevailing distributive ethic dictates that large insurance carriers with market muscle be granted steeper discounts off charges by hospitals than smaller insurance carriers with less buying power?" Reinhardt (2006, p. 64).

[5] Anderson (2007, pp. 781–782).

to collect all of the billed charge is an irrational exercise in futility. The evidence offered is often a handful of compelling anecdotes about bill collection nightmares, and sometimes also the contention that virtually all of the middle-income and upper-income patients have health insurance so therefore, by subtraction, virtually all of the uninsured must necessarily be low-income.[6]

Across the void at the other extreme is the opposing hypothetical position that, in effect, a bill is a bill, and anyone who incurs a bill incurs a corresponding obligation to pay it in full no matter how burdensome it is. That polar "hard-line" position would logically rest on stylized claims that are essentially denials of the opposing "soft-line" claims: that the standard full billed charges for hospital services are not all *that* high, and the uninsured have incomes (or assets) that are high enough that they can usually cover those charges.

Nobody openly argues either of these extreme polar positions. Soft-liners on payment obligations generally concede that there are at least some circumstances (hospital stays with modest charges, uninsured patients with substantial incomes) in which full payment is certainly possible and (perhaps) warranted. And hard-liners can not (and do not) deny that there are circumstances in which the idea of full—or even any—payment is commercially preposterous. By default, therefore, reality lies somewhere in the interior between these two boundary positions. Thus the relevant facts have to do with the distribution of uninsured patient incomes and the distribution of hospital charges that are billed to them. And the relevant question is whether there is, or is not, an appreciable intersection of the two distributions for which payment—in full, or at least in major part—is a reasonable business expectation. It is that question that our study answers.

To illustrate current practice in this area, imagine a hospital considering a batch of 100 roughly identical hospital bills—say, all at around $15,000—that the hospital has just sent to uninsured patients. Assume that the hospital initially knows nothing reliable about the financial circumstances of any of these patients.[7] In that case, the most practical way in which to develop reliable information is to initiate collection proceedings for each bill.[8] Those proceedings, as they escalate, will separate those who can pay from those who can not: those who have the ability to pay the bill (and who value their credit ratings) will pay up, and those who lack the ability to pay will necessarily default, in whole or in part, on the bill. This approach to bill collection splits the pool of 100 uninsured patients into three camps: (1) those who can pay in full; (2) those who can pay in part; and (3) those who can't pay at all.[9]

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[6] A collateral spinoff of this position is the claim that dunning the uninsured to pay up doesn't make much sense as an exercise in bill collection, but it makes sense to the hospital for other reasons. Those might include, for example, bolstering the concept of the standard charge as a meaningful price in negotiations with health plans, or scaring off uninsured patients by developing a reputation for particularly hard-nosed aggressiveness in payment extraction.

[7] Requesting financial information from the patients and ordering up credit reports can in principle allow the hospital to size up patients' payment capabilities, but that information development is not costless and in any event ordinarily occurs later rather than earlier in the bill collection process. We will see later in this analysis that reliable patient income information is (not surprisingly) potentially helpful in focusing hospital bill collection efforts.

[8] The hospital bill collection process for the uninsured typically includes the calculation and submission of the bill; counseling the patient about possibilities for financial aid, such as signing up for the state's Medicaid program; subsequent initiatives by the hospital to reach an understanding or settlement with the patient (letters, phone calls, perhaps a meeting); followed by delegation of the account to a collection agency; and then, if necessary, referral to a lawyer authorized to commence litigation.

[9] This is obviously (and intentionally) a severe abstraction of the way that the bill collection process actually works. In particular, we would note that although discussions of this process (including ours) often seem to

The business merits of this approach to bill collection depend in part upon the relative sizes of these camps. If this approach generally results in 50 out of the 100 uninsured patients eventually reaching for their wallets, then the approach makes some sense. But if instead the hospital is lucky to find one paying patient out of the 100, then it's less clear whether the financial benefit is worth the collection cost and effort. The principal objective of our analysis is to develop some estimates of these "can-pay" proportions.

Our first step in this analysis is to examine the available data on the distribution of family income levels within the uninsured population. Next, we examine data on the distribution of hospital charges for inpatient admissions. Finally, comparisons of these two distributions, moved along by a number of assumptions and simplifications, help to shed some light on the empirical content of the conflicting hypotheses about payment potential. In particular, we estimate the proportion of billed charges that is realistically collectable from the uninsured population.

The distribution of income among the uninsured

Estimates of the uninsured fraction of the population vary; a recent tabulation by the Agency for Healthcare Research and Quality ("AHRQ") pegs the uninsured rate in 2003 at 18.8% of the nonelderly (i.e., non-Medicare) U.S. population.[10] That's a significant slice of the population, but the rate at which the uninsured are hospitalized is lower than the hospitalization rate of the general population.[11] Both of these factors determine the percentage of all hospital patients who lack insurance, recently estimated to be about 4.5% in 2003.[12] For our purposes here, however, the percentage of all hospital patients who are uninsured is not centrally important. Instead, the relevant question for our analysis is this: of all of those who are both uninsured and hospitalized, what proportions of that universe are low-income, middle-income, and high-income?

The standard source of data on this question is the Census Bureau's annual comprehensive Current Population Survey ("CPS").[13] We have obtained and analyzed the underlying data files from the CPS, which allows us to examine the complete family income distribution of the individuals in the CPS sample, broken out by insurance status.[14] The family income distribution of the uninsured population in 2003 is presented in summary form in Table 1; we focus on 2003 because that seems to be the year in which public concern over the hospital

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Footnote 9 continued

focus on the idea of full payment—paid in full, or not paid at all—this dichotomy is usually softened quite a bit in practice by compromise arrangements such as stretched-out payment schedules, negotiated partial-payment settlements of the bill, and charity writeoffs. We develop the distinction between full payment and partial payment later in this analysis.

[10] Rhoades (2004). The same tabulation estimates the overall uninsured rate (i.e., all ages) at 16.6% of the total population. Unless otherwise specified, our references below to "population" are to the *nonelderly* segment of the general population, and also exclude those individuals covered by the Medicaid program.

[11] Elixhauser and Russo (2006).

[12] Elixhauser and Russo (2006) ("Even though about 16.6% of the [total] U.S. population was uninsured in 2003, only 4.5% of the hospital stays were uninsured.").

[13] See Fronstin (2000–2005) for summaries of recent CPS findings.

[14] We are indebted to Paul Fronstin of the Employee Benefit Research Institute for his guidance and assistance in interpreting these files. When we tabulate our data in the same way that Fronstin does, we replicate his results exactly; see Fronstin (2004, Fig. 13).

Table 1 The distribution of the uninsured and insured population by family income 2003

Family income bracket ($000)	Average family income	Income distribution			
		Uninsured population		Insured population	
		Percent	Cumulative	Percent	Cumulative
$ <5	$862	11.4%	11.4%	1.8%	1.8%
$5–10	7,459	5.9	17.3	1.4	3.2
$10–15	12,257	10.0	27.3	2.2	5.3
$15–20	17,088	9.8	37.1	3.0	8.4
$20–30	24,331	17.5	54.6	8.2	16.5
$30–40	34,061	12.6	67.2	10.0	26.6
$40–50	44,193	8.1	75.3	10.3	36.8
$50–75	60,709	12.4	87.7	22.6	59.4
$75–100	86,132	5.5	93.2	16.2	75.6
$100–150	118,384	4.4	97.6	15.2	90.8
$150–200	169,452	1.2	98.8	5.0	95.8
$200+	343,283	1.2	100.0	4.2	100.0
All (Uninsured)	$39,250	100.0%		100.0%	
All (Insured)	$79,209				

Source: Current Population Survey data file (March 2004)

Note: Uninsured sample is nonelderly population uninsured throughout the year; insured sample is nonelderly population with private health insurance (i.e., excluding Medicaid). Average family income by family income bracket is for uninsured population; overall figures are for insured and uninsured populations separately. Low-bracket observations include some individuals with negative family income

bills of the uninsured accelerated.[15] We also report for comparison the 2003 distribution of family income for the privately insured population. The full frequency distributions of family income for those two subsets of the population are presented in Fig. 1, by $10,000 income bracket.

We see, not surprisingly, that the uninsured population falls disproportionately within the lower spectrum of the income distribution, relative to the insured population.[16] For example, two thirds of the uninsured (67.2%) have family incomes below $40,000. In contrast, only about a fourth of the insured population (26.6%) have incomes that low. Overall, the average uninsured individual has a family income that is only half the income of the general population ($39,250 vs. $79,209).

Related survey information helps add some background and context to these uninsured income statistics. For example, the 2003 federal poverty level (for a household of three) is $14,680; Fronstin reports that about a fourth of the uninsured (24.8%) have incomes below

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[15] See Unland (2005), who references (p. 55) the passage of "fully two years since the modern incarnation of several interrelated controversies began, kicked off in the winter and spring of 2003 by releases of reports from consumer groups and media articles pertaining to hospital pricing, collection, and charity care practices with respect to the uninsured and underinsured" (footnote omitted).

[16] In interpreting these income distributions we would note that *income*, as measured in the CPS, includes all monetary income before taxes but excludes noncash benefits such as food stamps, public housing, and employer-provided fringe benefits.
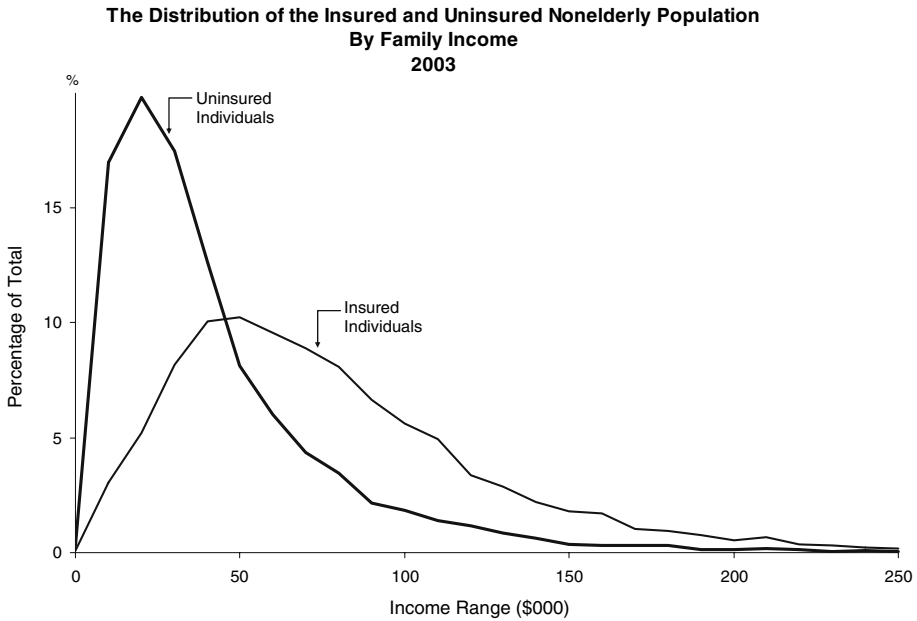
The Distribution of the Insured and Uninsured Nonelderly Population
By Family Income
2003

Fig. 1 The distribution of the insured and uninsured nonelderly population by family income 2003.
Source: See Table 1. *Note:* Family income bracket size is $10,000; distribution > $250,000 not shown

the poverty level, but nearly half of them (45.6%) are at twice the poverty level or higher.[17]
And with respect to employment status, three-fifths of the uninsured (60.4% in 2003) are
full-time workers; the rest either work less than full time (22.3%) or are not actively in the
workforce (17.3%).[18] Earlier data from the same sources reflect that all of these proportions
are fairly stable over time in repeated surveys since 1998.

The data summarized in Table 1 and displayed in Fig. 1 confirm the prevailing impres-
sion that there is a correlation between lack of income and lack of health insurance, and in
that respect this finding is no surprise. What is perhaps more of a surprise is the percentage
of the uninsured who—general correlations notwithstanding—have significant incomes. In
particular, there is an appreciable segment of the uninsured population who have incomes
that are well above the poverty level. One out of every four uninsureds in Table 1, for exam-
ple, has a family income in excess of $50,000. As we will see below, it is this relatively
higher-income segment of the uninsured that has the greatest aggregate payment potential.
Since that potential, in context, means the ability to pay the billed charge for a hospital stay,
we next examine the distribution of hospital charges.

The distribution of hospital billed charges

Our approach to the distribution of hospital-billed charges is to adopt publicly available data
for a single major state—Texas—as our sample of hospital charges generally.[19] The specific

[17] Fronstin (2004) (population proportions); www.census.gov/hhes/www/poverty/histpov/hstpov1.html
(January 30, 2006, Table 1) (poverty-level income).

[18] Fronstin (2004).

[19] Texas appears to be a relatively representative selection for our sample of hospital charges. In 2003, the
average charge per inpatient admission in Texas (all patients of all ages, including newborns) was $19,146,

data file that we study consists of all inpatient discharges in 2003 from all Texas hospitals that report their patient data to the Texas Health Care Information Council ("THCIC").[20]

In order to tie the analysis more closely to the uninsured payment question, we analyze a specific subset of the patients in the THCIC data file. First, we exclude all patients who are 65 or older, in order to focus on the *nonelderly* hospital patient billing experience. Essentially all of these 65-plus patients are insured (by Medicare), and we exclude them because this older insured patient pool has materially different casemix proportions than the uninsured patient pool of interest here. Second, we exclude all pediatric (age under 18) patients in order to focus on the nonelderly *adult* hospital patient experience. The reason is similar to the previous exclusion. Because of the numerous and varied state programs that target children's health issues (for instance, all of the State Children's Health Insurance Plans, and relaxed state Medicaid eligibility rules for children), it is frequently the case that there are insured *children* who are part of otherwise uninsured *households*.[21] Inclusion of the inpatient case mix typical of children could distort the distribution of charges that is relevant to the adult uninsured patient pool. And finally, we apply a preliminary outlier screen—we exclude patients in the top and bottom 1% of charges per patient and charges per day—in order to reduce the influence of aberrational cases and potential data collection errors.

That process gives us a sample of 1.3 million nonelderly adult hospital patients, and thus 1.3 million occurrences of standard billed charges which, if they had been submitted to an uninsured patient, would be expected to be paid in full unless lack of income made that payment a practical impossibility. We use the distribution of charges to *all* nonelderly adult patients as a proxy for the charges faced by the uninsured primarily because our analysis (described below) requires a large number of observations to fill out the tails of the charge distribution. This approximation slightly overstates the level of typical charges incurred by the uninsured in our data, and therefore understates the ability of the uninsured to pay the hospital charges that they incur.[22] This finding is similar to Elixhauser and Russo, who report that, although there are some case mix differences between the uninsured population and the general population, survey evidence suggests that the nonelderly uninsured population faces approximately the same average charge per hospital stay as the rest of the nonelderly general population.[23]

Footnote 19 continued

which is within 2.6% of the corresponding average for the whole United States of $18,655. American Hospital Association (2005, Tables 3, 6).

[20] Note that our reliance on this *inpatient* data source means that we are neglecting entirely the issue of hospital charges for *outpatient* services to the uninsured. This is not a small exclusion; of all U.S. hospital total billed charges in 2003, 35.2% of it was for outpatient services. American Hospital Association (2005, Table 3). Moreover, the overall average charge for an outpatient visit ($696) is far less expensive, and thus presumably far more collectable, than the overall average charge for an inpatient stay ($18,655). Id. Therefore, however we judge the collectability of full billed hospital inpatient charges based upon our results below, the collectability of hospital outpatient charges is presumably significantly greater.

[21] Because "[t]he public and policymakers view children as uniquely vulnerable because of their dependent status, ... there has been strong bipartisan support for expansion of children's health insurance programs, beginning in the 1980s with the expansion of Medicaid and culminating in the State Children's Health Insurance Program (SCHIP) of 1997." Cunningham and Kirby (2004, p. 27). "[SCHIP] was created in 1997 to address the insurance needs of children whose family incomes were too high to qualify for Medicaid but too low to afford private coverage. SCHIP built upon the poverty-related expansions initiated in Medicaid in the late 1980s and was intended to provide coverage to children who would otherwise be uninsured." Kenney and Chang (2004, p. 51)(footnote omitted). See also Fronstin (2004, Figs. 2, 3).

[22] Of our 1.3 million patient observations, 151,768 have payor class codes of "self-pay." The self-pay uninsured mean charge is about 4.7% *lower* than the mean charge to the rest of the patients in our full sample.

[23] Elixhauser and Russo (2006, Table 1).

Table 2 The distribution of hospital inpatients and billed charge gross revenue, by level of charges, Texas 2003

Charge range ($000)	Average charge	Patients by charge range			Billed charge gross revenue by charge range		
		Patients	Percent	Cumulative percent	Dollars ($Million)	Percent	Cumulative percent
$0–1	$789	1,936	0.14%	0.14%	$1.5	0.01%	0.01%
$1–2	1,571	11,274	0.84	0.99	17.7	0.07	0.08
$2–3	2,582	35,138	2.62	3.61	90.7	0.37	0.45
$3–4	3,537	72,421	5.40	9.01	256.1	1.04	1.49
$4–5	4,513	96,087	7.17	16.18	433.6	1.76	3.25
$5–6	5,495	99,576	7.43	23.61	547.2	2.23	5.48
$6–7	6,491	92,124	6.87	30.49	598.0	2.43	7.91
$7–8	7,491	82,874	6.18	36.67	620.8	2.53	10.44
$8–9	8,492	74,346	5.55	42.22	631.3	2.57	13.00
$9–10	9,491	66,921	4.99	47.21	635.2	2.58	15.59
$10–11	10,492	59,742	4.46	51.67	626.8	2.55	18.14
$11–12	11,488	53,373	3.98	55.66	613.2	2.49	20.63
$12–13	12,489	47,712	3.56	59.22	595.9	2.42	23.05
$13–14	13,490	42,681	3.19	62.40	575.8	2.34	25.40
$14–15	14,489	37,250	2.78	65.18	539.7	2.20	27.59
$15–20	17,284	136,831	10.21	75.39	2,365.1	9.62	37.21
$20–25	22,310	84,438	6.30	81.69	1,883.8	7.66	44.87
$25–30	27,350	56,241	4.20	85.89	1,538.2	6.26	51.13
$30–40	34,476	67,614	5.05	90.94	2,331.1	9.48	60.61
$40–50	44,538	37,992	2.84	93.77	1,692.1	6.88	67.49
$50–75	60,380	44,103	3.29	97.06	2,662.9	10.83	78.32
$75–100	85,898	17,412	1.30	98.36	1,495.7	6.08	84.41
$100–125	111,136	8,355	0.62	98.98	928.5	3.78	88.19
$125–150	136,429	4,414	0.33	99.31	602.2	2.45	90.63
$150+	250,472	9,193	0.69	100.00	2,302.6	9.37	100.00
All	$18,347	1,340,048	100.00%		$24,585.6	100.00%	

Source: THCIC hospital inpatient data file (2003)

Note: Data exclude patients with non-positive charges, and patients aged 0–17 or 65+. Data also exclude outliers (top and bottom 1% based on charges per patient and charges per day)

Table 2 summarizes what this universe of charges looks like. Each row of the table reflects a particular range of hospital charges, and the statistics in each row reflect all of the patients in the THCIC data that fall within that charge range. Moving to the right in Table 2, we report: (1) the average charge within each charge range; (2) the number of patients in the sample whose hospital bills fall within that range; and (3) the percentage (and cumulative percentage) of all patients that fall within that range. The final three columns are similar, except that they focus on the total dollars of billed-charge gross revenues rather than the number of patients.

Figure 2 is derived from the same patient admission and charge data as Table 2, and provides some intuition to go with the table's statistics. Figure 2 represents the distribution
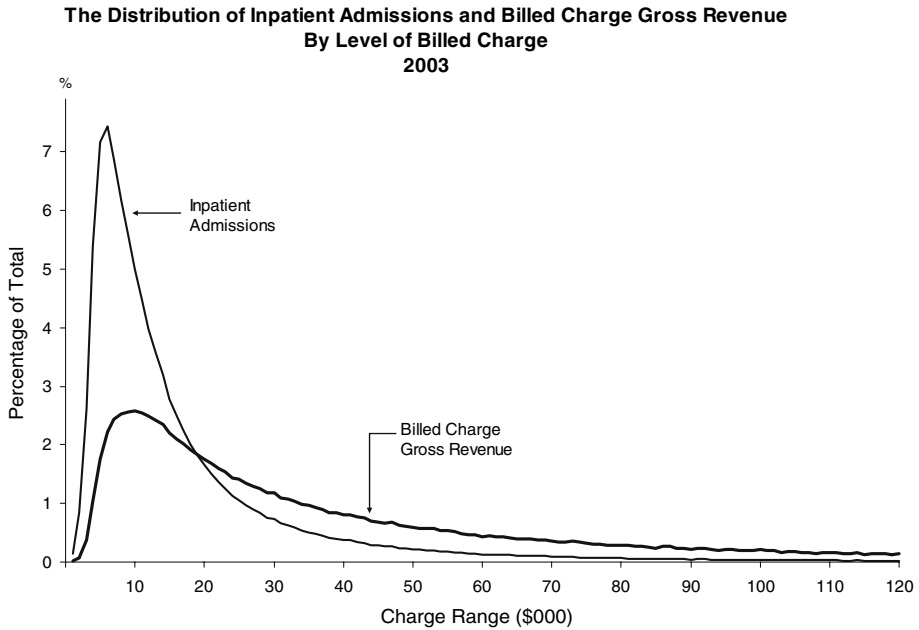
Fig. 2 The distribution of inpatient admissions and billed charge gross revenue by level of billed charge 2003. *Source*: See Table 2. *Note*: Charge interval size is $1,000; distribution >$120,000 not shown

of inpatient admissions and inpatient gross charge revenue by $1,000 charge range. We can confirm impressionistically in the figure that almost half of all patients in this sample have charges under $10,000, and about 85% of them have charges under $30,000. We can also see that about half of all hospital inpatient gross revenue dollars in this sample comes from patients with hospital bills under $30,000, and about two-thirds of it comes from patients whose hospital bills are under $50,000.

We have looked separately at the distribution of uninsured incomes in Table 1, and of hospital admissions and charges in Table 2. In Table 3, we can put both distributions together in order to see how the total charge dollars are distributed across *both* charge ranges *and* income brackets. We treat the distribution of hospital charges incurred by uninsured patients as independent of their income; that is, we assume that lower-income and higher-income uninsureds are equally likely to be admitted to a hospital and, once admitted, are equally likely to have a high (or low) hospital bill.[24] If we accept that assumption, then Table 3 shows us where the money is, by level of charge and level of uninsured income.[25] Table 3 is

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[24] Specifically, Table 3 is constructed by taking the total charge dollars in each hospital charge range and distributing them across the uninsured patient income brackets by the population proportions in the CPS data for all uninsureds. The finding above in the THCIC data that the mean charge incurred by uninsured patients does not differ dramatically from that incurred by insured patients supports indirectly the assumption here that the intra-uninsured charge distribution does not differ dramatically with income.

[25] To reduce the influence of extreme income and charge outliers, we screen out all uninsureds with incomes over $250,000, and all hospital charge occurrences over $250,000, in Table 3 and in all subsequent analyses. These screens cut off only the top 0.77% of the Table 1 uninsured income distribution and the top 0.21% of the Table 2 hospital charge distribution, but they do have a material impact on the mean values within the top (open-ended) charge range and income bracket. This truncation is why the unscreened Tables 1 and 2 do not tie exactly to our subsequent tables; compare, for example, Table 2 (unscreened mean charge of $18,347) to Table 4 (screened mean charge of $17,565).

Table 3 The distribution of billed charge gross revenue, by level of charge and uninsured income, 2003

Charge range ($000)	Total billed charge gross revenue ($ Million) by uninsured income bracket ($1,000)					Total gross revenue ($ Million)
	<$15	$15–30	$30–50	$50–100	$100+	
$0 -1	$0.4	$0.4	$0.3	$0.3	$0.1	$1.5
$1–2	4.9	4.9	3.7	3.2	1.1	17.7
$2–3	25.0	24.9	18.9	16.4	5.5	90.7
$3–4	70.5	70.3	53.5	46.2	15.6	256.1
$4–5	119.4	119.0	90.6	78.2	26.4	433.6
$5–6	150.7	150.2	114.3	98.7	33.4	547.2
$6–7	164.7	164.1	124.9	107.9	36.5	598.0
$7–8	170.9	170.4	129.6	112.0	37.9	620.8
$8–9	173.8	173.2	131.8	113.9	38.5	631.3
$9–10	174.9	174.3	132.6	114.6	38.7	635.2
$10–11	172.6	172.0	130.9	113.1	38.2	626.8
$11–12	168.8	168.3	128.0	110.6	37.4	613.2
$12–13	164.1	163.5	124.4	107.5	36.3	595.9
$13–14	158.5	158.0	120.2	103.9	35.1	575.8
$14–15	148.6	148.1	112.7	97.4	32.9	539.7
$15–20	651.3	649.0	493.9	426.7	144.2	2,365.1
$20–25	518.7	517.0	393.4	339.8	114.9	1,883.8
$25–30	423.6	422.1	321.2	277.5	93.8	1,538.2
$30–40	641.9	639.7	486.8	420.5	142.1	2,331.1
$40–50	466.0	464.4	353.3	305.3	103.2	1,692.1
$50–75	733.3	730.8	556.1	480.4	162.4	2,662.9
$75–100	411.9	410.4	312.3	269.8	91.2	1,495.7
$100–125	255.7	254.8	193.9	167.5	56.6	928.5
$125–150	165.8	165.3	125.8	108.6	36.7	602.2
$150+	332.2	331.1	251.9	217.7	73.6	1,206.5
All	$6,468.3	$6,446.1	$4,905.1	$4,237.6	$1,432.4	$23,489.5

Source: See Tables 1 and 2

Note: Income and charge distributions truncated at $250,000

essentially a foundation table; we will return to it again when we have a basis for estimating the realistic collection expectation for the various combinations of charge level and patient income level that are reflected in the table.

The hospital charge relative to uninsured income

Before we derive our estimates of charge collectability in the next section, we detour briefly to offer a quick intuitive way to compare the level of hospital charge to the level of uninsured income. Specifically, we calculate the hospital's charge as a percentage of the patient's income (a measure that we will call the "charge-to-income percentage") within each of the

Table 4 The distribution of charge-to-income percent, by level of billed charge and uninsured income, 2003

Charge range ($000)	Average charge	Charge as a percentage of income, by uninsured income bracket ($1,000) [$mean income]					
		<$15 [$6,475]	$15–30 [$21,737]	$30–50 [$38,027]	$50–100 [$68,453]	$100+ [$135,922]	All [$36,327]
$0–1	$789	12.2%	3.6%	2.1%	1.2%	0.6%	2.2%
$1–2	1,571	24.3	7.2	4.1	2.3	1.2	4.3
$2–3	2,582	39.9	11.9	6.8	3.8	1.9	7.1
$3–4	3,537	54.6	16.3	9.3	5.2	2.6	9.7
$4–5	4,513	69.7	20.8	11.9	6.6	3.3	12.4
$5–6	5,495	84.9	25.3	14.5	8.0	4.0	15.1
$6–7	6,491	100.2	29.9	17.1	9.5	4.8	17.9
$7–8	7,491	115.7	34.5	19.7	10.9	5.5	20.6
$8–9	8,492	131.1	39.1	22.3	12.4	6.2	23.4
$9–10	9,491	146.6	43.7	25.0	13.9	7.0	26.1
$10–11	10,492	162.0	48.3	27.6	15.3	7.7	28.9
$11–12	11,488	177.4	52.9	30.2	16.8	8.5	31.6
$12–13	12,489	192.9	57.5	32.8	18.2	9.2	34.4
$13–14	13,490	208.3	62.1	35.5	19.7	9.9	37.1
$14–15	14,489	223.8	66.7	38.1	21.2	10.7	39.9
$15–20	17,284	266.9	79.5	45.5	25.3	12.7	47.6
$20–25	22,310	344.5	102.6	58.7	32.6	16.4	61.4
$25–30	27,350	422.4	125.8	71.9	40.0	20.1	75.3
$30–40	34,476	532.4	158.6	90.7	50.4	25.4	94.9
$40–50	44,538	687.8	204.9	117.1	65.1	32.8	122.6
$50–75	60,380	932.5	277.8	158.8	88.2	44.4	166.2
$75–100	85,898	1326.5	395.2	225.9	125.5	63.2	236.5
$100–125	111,136	1716.3	511.3	292.3	162.4	81.8	305.9
$125–150	136,429	2,106.9	627.6	358.8	199.3	100.4	375.6
$150+	187,808	2,900.4	864.0	493.9	274.4	138.2	517.0
All	$17,565	271.3%	80.8%	46.2%	25.7%	12.9%	48.4%

Source: See Tables 1 and 2

Note: Income and charge distributions truncated at $250,000. Mean income within income bracket shown as[ ]. Table entries based upon mean charge within reported charge range divided by mean income within reported income bracket

charge ranges and income brackets that form the framework of Table 3. The percentage calculations are based on the mean charge and the mean income within each of the Table 3 joint interval cells. Those calculations tell us how much of a strain any particular level of hospital bill would be for a typical patient in each of the income brackets of the uninsured population. These charge-to-income percentages thus give us some general background intuition on how often the payment of the full billed charge is, and is not, a realistic expectation of the uninsured patient.

The results of that analysis are summarized in Table 4. To illustrate the interpretation of the table, consider the least expensive hospital charge range, charges under $1,000. Based upon Table 2, only 0.14% of all inpatients would fall in this charge range, and they would face an average billed charge of $789. If all of these patients were, hypothetically, uninsured and in the lowest reported family income bracket in Table 4 ($0–15,000, averaging $6,475), then the average-income patient within that bracket would have had to part with 12.2% of his annual family income in order to pay his bill.[26]

Since a low charge-to-income percentage represents a relatively more affordable hospital bill, we naturally see that those more affordable hospital bills occur predominantly in instances where charges are low, where incomes are high, or both. Accordingly, we can see in the top few charge rows of Table 4 that there are plenty of charge-to-income combinations for which charges are around 10% or less of annual family income. On the down side, we can also see that there are many hospital encounters for which the idea of full payment of the hospital bill is hopeless. To take one example, hospital charges in the highest reported range (over $150,000, averaging $187,808), when incurred by uninsured patients in the middling $30,000–$50,000 income bracket, represent 493.9% of the average patient's annual family income. When a hospital charge represents nearly five full years of the patient's household's entire pre-tax income, that bill is simply not going to be paid in full.

The payment potential of billed charges to the uninsured

The foundation that has been laid through Tables 1–4 adds some empirical content to our intuition on the issue of hospital charges and the uninsured patient. We can build on that intuitive foundation to tackle the more concrete question that we posed initially: of all of the gross charges that hospitals bill to uninsured patients, how much of that is, as a matter of commercial practicability, actually collectable?

One fundamental problem in answering that question is that there is simply no general consensus on how much of their incomes the uninsured "should" be expected to pay for a hospital stay. To recall the limiting boundaries of the argument, we could conceivably entertain a hypothetical soft-line stance that an uninsured patient is entitled to maintain his lifestyle regardless of any health misfortune, and therefore "should" have to pay at most no more than a nominal fraction of his income.[27] We could equally conceivably entertain a hypothetical hard-line stance at the opposite end of the spectrum; for example, that a bill is an absolute obligation, and so the patient "should" have to pay in full any bill up to the sum of his total assets plus all future lifetime disposable income.[28]

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[26] This low-charge segment may be quite unrepresentative of hospital inpatient bills generally, but with an average charge of $789 it may be fairly representative of bills for hospital outpatient visits (which have an average charge of $696; see American Hospital Association (2005, Table 3).

[27] We note in passing, without fully developing the point, that an industrywide law, rule, or policy that would essentially absolve *every* uninsured patient from any substantive payment obligation would have grave consequences for the hospital industry. The root of the problem is that if hospital care were freely available to any patient who was uninsured, then health insurance for hospital care would become a sucker's game. No employer would pay for it, and no individual would buy it, if the same financial protection were available—free—simply by being certifiably uninsured. If as a result all private (i.e., nongovernment) sources of revenue evaporated, then the hospital industry as it is currently structured would become thoroughly insolvent. The point here, put broadly, is that serious hospital pressure on the uninsured to pay their bills is the only thing that keeps the substantial majority of the population insured for hospitalization costs.

[28] In practice, any realistic hard-line stance on this issue would need to be tempered by the fact that the patient has the option to seek bankruptcy protection from the hospital (and from any other creditors), which limits

In picking sides in this argument, it would be a mistake to assume that hospitals uniformly perch on the hard-line pole of those two opposing positions. Nonprofit hospitals, in particular, are likely to have goals that include something like service to every segment of the community, even to those who can not (and do not) pay.[29] Moreover, regardless of ownership type, if a hospital lets an uninsured patient off the hook early enough in the collection process, that writeoff may count toward the hospital's quota of charity care.[30] And every hospital depends importantly on a reputation in the community for fair dealing and trustworthiness, qualities that can be seriously eroded by bad publicity about seemingly sadistic badgering of impoverished patients to pay relatively daunting bills. Lightening up on bill collection efforts short of driving uninsured patients into bankruptcy may be a prudent way to avoid that reputational risk.[31] For these reasons (among others), the decision for a hospital on this issue is not whether to cut the uninsured some slack, but rather how much slack to cut.

There is no controlling economic principle (or relevant legal standard) on this idiosyncratic how-much-to-pay question. Therefore our two-step approach to the analysis is to simply posit an ability-to-pay formula that falls somewhere between these two polar opposites, adopting what is essentially a rough "split-the-difference" philosophy. Deriving such a formula necessarily involves invoking unavoidably arbitrary assumptions and definitions. Our principal such assumption is to specify a minimum post-bill-payment "floor income" for the patient, which we can think of as a sort of "protected space" that the hospital cannot realistically invade through its bill collection efforts. We will define that floor income level, following what appears to be a typical practice in the hospital industry, as twice the federal poverty level ("FPL"), giving us: Floor income = 2 FPL.[32]

Given that income floor, we then invoke the split-the-difference philosophy. Specifically, we assume that a hospital "should" realistically be able to collect one-half the difference between the uninsured patient's *actual* annual family income and the 2 FPL *floor* income.

Footnote 28 continued

the usefulness of a resolutely unrelenting approach to bill collection. For commentary on this see, e.g., Jacoby et al. (2001).

[29] This property rights distinction has been recognized, analyzed, and debated for many years in the health economics literature; see, e.g., Pauly (1987) ("The fact that a firm is not organized with the explicit goal of maximizing profits or stockholders' wealth is, in itself, a reason to be skeptical about the appropriateness of applying the conventional neoclassical models of firms and of markets without qualification. . . . There are many behavioral models, but little consensus on the appropriate one.").

[30] "All hospitals, whether for-profit or not-for-profit, must provide some level of charity care to be eligible for government reimbursement." Owens (2005).

[31] As Unland explains, "Many hospitals and hospital associations have been so intent on proving hospitals' legal right to charge 'list price' and sue the uninsured that they have overlooked a simple yet effective business premise that many hospital patient accounts representatives already fully know: Fair pricing and fair payment terms are actually good business." Unland (2005, p. 54). He illustrates that hospital openness to play "let's make a deal" by quoting one of those account representatives who "put it more bluntly: 'Hospitals may have the inalienable right to charge the highest prices to the uninsured, but it's better business to price fairly and let them know we're meeting them half way. . . . I think we could collect a lot more money.'" Id. (pp. 58–59).

[32] We are not aware of any systematic data on hospital policy in this area, so we rely on reports in the trade press. Those reports suggest that hospitals often adopt a standard for charity care that excuses patients from any obligation to pay anything toward their hospital bills if their incomes are at or below twice the FPL. For example, in 2003 "HCA announced plans to change its charitable care policies to . . . allow patients treated at an HCA hospital for non-elective care who have income at or below 200% of the federal poverty level to be eligible for charity care . . . ." *Health & Medicine Week* (2003, p. 25). Subsequently, "The Healthcare Association of New York State also says hospitals should offer deeply discounted or free care to lowest-income patients, who earn 200% or less of the federal poverty level . . . ." *Managed Care Law Weekly* (2004, p. 9). And finally, a later study "by the Center for Studying Health System Change . . . found that the common threshold [that hospitals adopt] for free care was up to 200% of the FPL . . . ." Taylor (2005, p. 8).

We will refer to this formulaic payment amount as the patient's ability to pay ("ATP"), giving us: ATP = (income − 2 FPL) × 1/2. Thus the collectable amount of the charge is given by: Payment = max (0, min [charge, ATP]).[33]

To illustrate the application of this definition, consider a patient with an annual income in 2003 of $50,000, at which time twice the FPL for a three-person household was a family income of $29,360.[34] That patient receives a $15,000 hospital bill. By our proposed ability-to-pay definition, ATP equals $10,320 (i.e., half the difference between $50,000 and $29,360). Therefore, the hospital should be able to collect that $10,320, writing off the $4,680 remainder of the bill. Conversely, a better-off uninsured patient with an income of $60,000 would pay the whole $15,000 bill in full, while a worse-off uninsured patient with an income of $25,000 would pay nothing.[35]

Suppose that we can accept this ability-to-pay proposition as at least one way to illustrate how much money the hospital should realistically expect to collect from the uninsured.[36] In that case, we can calculate the dollars of collectable net revenue for the various charge-income combinations in our data universe.

Our analytical approach from here on out rests on the construction of a finely divided data matrix based on 250 separate hospital charge levels and 250 separate uninsured income levels. The 250 rows of this matrix are the charge levels. For all patient charge observations in the THCIC data with charge ≤$250,000 (covering over 99% of the patient charge universe), we take the mean charge within each $1,000 charge range. The 250 columns of the matrix are the uninsured family income levels. For all uninsured individual observations in the CPS data with family income ≤$250,000 (covering over 99% of the uninsured population), we take the mean income within each $1,000 income bracket. This gives us a data matrix of 250 × 250 = 62,500 combinations of charge level and income level. Within this framework we array the total dollars of gross revenue based upon the joint distribution of charge level and income level, and then calculate the dollars of net payment potential using the mean income and mean charge within each of the 62,500 individual charge-income cells.

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[33] Note from this expression that if the patient's actual income is at or below the 2 FPL floor income, then payment will be nothing.

[34] Our calculations below use the FPL for a three-person household, which in 2003 was $14,680. This is a slightly higher household size (and thus a slightly higher FPL) than the 2.6 individuals per household in the CPS sample for 2003; see Fronstin (2004, p. 19).

[35] To the extent that this ability-to-pay formulation may appear to take a surprisingly large bite out of the uninsured patient's income, we would point out that at least some of that appearance is caused by our reference to a one-year time horizon implicit in both the earning of income and the payment of the hospital bill. In our illustrative $60,000 income example, the uninsured patient loses 25% of his year's income in order to pay the $15,000 hospital bill in full. But suppose that the hospital agreed, as many hospitals routinely do, to stretched-out interest-free installment payments on the same amount over 4 years, a concession that is easier on the patient and which also may increase the hospital's odds of collection. In that case, we could equally accurately say that the patient loses only 6.25% of his income for each of the four payment years. We would also point out that this ability-to-pay formulation leaves out any claim on the assets of the patient, the use of which to pay the bill would loosen the cash flow crunch on current income.

[36] Although our ATP formulation is framed as a guesstimate of what, *empirically*, a hospital might realistically expect to collect, others have proposed similar formulaic approaches as *prescriptive* recommendations. For one example, "hospitals should discount care for all patients within the identified [income] bookends using a graduated care discount scale that is inversely proportional to each uninsured patient's estimated discretionary household income. Worded differently, uninsured households with greater discretionary incomes would be responsible for a greater percentage of their care." Owens (2005). Owens also reports, as another prescription, that "Community Catalyst, a patient advocacy group, argues that hospitals should waive all charges of uninsured patients whose household income is up to 200% of the federal poverty level and should discount care for uninsured patients who make up to 400% of the federal poverty level." Id. (citation ommited).

Table 5 The distribution of collectable net revenue, by level of billed charge and uninsured income, 2003

Charge range ($000)	Gross revenue ($Million)	Collectable net revenue ($Million), by uninsured income bracket ($1,000)					
		<$15	$15–30	$30–50	$50–100	100+	All
$0–1	$1.5	$0	$0	$0.3	$0.3	$0.1	$0.7
$1–2	17.7	0	0	3.3	3.2	1.1	7.5
$2–3	90.7	0	0	15.5	16.4	5.5	37.4
$3–4	256.1	0	0	40.7	46.2	15.6	102.5
$4–5	433.6	0	0	63.8	78.2	26.4	168.4
$5–6	547.2	0	0	74.4	98.7	33.4	206.4
$6–7	598.0	0	0	74.7	107.9	36.5	219.0
$7–8	620.8	0	0	71.1	112.0	37.9	220.9
$8–9	631.3	0	0	65.9	113.9	38.5	218.3
$9–10	635.2	0	0	60.4	114.6	38.7	213.7
$10–11	626.8	0	0	54.1	113.0	38.2	205.3
$11–12	613.2	0	0	48.3	109.9	37.4	195.6
$12–13	595.9	0	0	43.2	105.6	36.3	185.1
$13–14	575.8	0	0	38.6	100.6	35.1	174.3
$14–15	539.7	0	0	33.7	92.7	32.9	159.3
$15–20	2,365.1	0	0	123.8	382.2	144.2	650.2
$20–25	1,883.8	0	0	76.4	269.0	114.9	460.2
$25–30	1,538.2	0	0	50.9	191.5	93.8	336.2
$30–40	2,331.1	0	0	61.2	237.7	141.8	440.7
$40–50	1,692.1	0	0	34.4	134.0	98.1	266.4
$50–75	2,662.9	0	0	39.9	155.5	130.4	325.9
$75–100	1,495.7	0	0	15.8	61.4	55.7	132.9
$100–125	928.5	0	0	7.6	29.5	27.1	64.2
$125–150	602.2	0	0	4.0	15.6	14.3	33.9
$150+	1,206.5	0	0	5.8	22.7	20.9	49.3
All	$23,489.5	$0	$0	$1,107.5	$2,712.2	$1,254.9	$5,074.6
Paid in full	$2,729.0	$0	$0	$187.4	$1,529.4	$1,012.2	$2,729.0
Partial payment	$20,760.5	$0	$0	$920.1	$1,182.7	$242.7	$2,345.6

Source: See Tables 1 and 2

Note: Income and charge distributions truncated at $250,000. Collectable net revenue = max (0, min [charge, ATP]). ATP = (income − 2 FPL) × 1/2; $14,680 FPL for 3-person household. Table entries are sums of collectable revenue dollars calculated within 62,500 combinations of charge range and income bracket

In order to report the results of these calculations in summary form, we need to reduce the 62,500 finely divided data cells to more manageable dimensions. Therefore, we add up the expected-payment dollars, calculated within each individual cell, into the 125 more broadly-defined-interval cells that we used in Table 3 and 4. With that, Table 5 shows us the dollars of net payment potential that the hospital could expect to collect from the gross charge distribution that we saw earlier in Table 3.[37] That is, Table 5 is the *payment* distribution

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[37] The payment figures summarized in Table 5 are calculated by first determining, for each of the 62,500 cells in the charge-income data matrix, the patient's ability to pay, according to our proposed criterion. Then

equivalent to Table 3's *charge* distribution. Table 6 consolidates Tables 3 and 5, showing the percentage of billed charges that, under this ability-to-pay criterion, the hospital would actually collect from the uninsured.

We see that under this ability-to-pay criterion the hospital collects nothing at all in the low-income region of Table 6, but it collects every last dime of its full billed charges in the low-charge/high-income corner of the table. The payment pattern reflects the fact that, for any given income level, the higher the charge the lesser is the proportion of the charge that can be paid. It also reflects the symmetric fact that, for any given charge level, the higher the patient income the greater is the proportion of the charge that can be paid.

As far as overall collectability goes, our ability-to-pay criterion implies that 21.60% of all of the charge dollars billed to all uninsured patients is collectable. Of that collectable 21.60%, a bit over half of it (11.62 percentage points) comes from bills that are paid in full. The rest of it (9.99 percentage points) comes from bills that are settled by partial payment.[38] Other distinctions worth noting from the summary rows of the table are that: (1) the average hospital bill that is able to be paid in full is less than half the amount of the average bill that is paid partially or not at all ($9,511 versus $19,765); (2) one in five patients (21.46%) has the ability to pay the bill in full, and such fully payable bills constitute 11.62% of total billed hospital charges; and (3) the incidence of full rather than partial payment is higher, naturally, for relatively greater incomes.

Apart from overall collectability from the uninsured in the aggregate, Table 6 also suggests that segmenting the universe of all uninsureds by ability to pay might be useful, assuming that the hospital can develop reliable information on patient incomes. Segmenting uninsured patients by income level would allow the hospital to isolate those combinations of charges and patient incomes where collection efforts are likeliest to be realistic and productive.[39] Our ability-to-pay criterion implies that the hospital is simply not going to get much serious money from uninsureds with family incomes below $30,000, and so the collection efforts would logically be concentrated on those uninsureds with incomes above $30,000.[40]

We isolate those higher-income uninsureds in Table 7, an income segment that (according to Table 1's statistics) constitutes about 45% of all uninsured individuals and therefore (we have assumed here) constitutes about 45% of all uninsured hospital charges. Moving left to right, the table reports: (1) the segment's income level (broken out by smaller income brackets); (2) the number of patients in the THCIC patient admission data attributed to this income segment; and (3) the corresponding total dollar values for actual billed-charge

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Footnote 37 continued

for each of the 62,500 cells of the underlying data matrix, the amount of the payment equals max (0, min [charge, ATP]). We then take the dollar payment amounts thus calculated for each charge-income cell, and then multiply those amounts by the number of charge-income occurrences (i.e., the THCIC patient charge frequencies times the CPS uninsured income proportions), and then add them up in order to produce the dollar amounts summarized in Table 5.

[38] To calculate these full v. partial payment splits, we treat the charge as paid in full if charge <ATP; if the reverse, we treat the payment of ATP as a partial payment.

[39] "Accurate knowledge of patients' income levels . . . could prevent billing departments from inappropriately dunning patients for bills they cannot pay . . . ." Weissman et al. (1999, p. 157). There is a flip side to this, too; patient reluctance to reveal correct income data can deter hospitals from appropriately dunning patients for bills that they readily can pay.

[40] On the other hand, this implication does not further imply that an explicit automatic exemption from all payment for the under-$30,000-income uninsureds is a sound idea. For reasons that we sketched earlier, a general industry rule or policy of that sort would extinguish private incentives to obtain insurance for this income segment of the population. Moreover, any one hospital adopting and announcing such a policy, while other hospitals hold back, risks the possibility of becoming a magnet for the lower-income (and, to it, free-care) uninsured.

Table 6 Collectable net revenue as a percentage of billed charge, by level of charge and uninsured income, 2003

Charge range ($000)	Average charge	Percentage of:		Collectable net revenue as a percentage of billed charge, by uninsured income bracket ($1,000)					
		Patients	Gross revenue	<$15	$15–30	$30–50	$50–100	100+	All
$0–1	$789	0.14%	0.01%	0.00%	0.00%	94.00%	100.00%	100.00%	43.77%
$1–2	1,571	0.84	0.08	0.00	0.00	88.29	100.00	100.00	42.57
$2–3	2,582	2.63	0.39	0.00	0.00	81.85	100.00	100.00	41.23
$3–4	3,537	5.42	1.09	0.00	0.00	76.05	100.00	100.00	40.02
$4–5	4,513	7.19	1.85	0.00	0.00	70.41	100.00	100.00	38.84
$5–6	5,495	7.45	2.33	0.00	0.00	65.07	100.00	100.00	37.73
$6–7	6,491	6.89	2.55	0.00	0.00	59.80	100.00	100.00	36.63
$7–8	7,491	6.20	2.64	0.00	0.00	54.82	100.00	100.00	35.59
$8–9	8,492	5.56	2.69	0.00	0.00	49.97	100.00	100.00	34.57
$9–10	9,491	5.00	2.70	0.00	0.00	45.50	100.00	100.00	33.64
$10–11	10,492	4.47	2.67	0.00	0.00	41.30	99.96	100.00	32.76
$11–12	11,488	3.99	2.61	0.00	0.00	37.72	99.34	100.00	31.90
$12–13	12,489	3.57	2.54	0.00	0.00	34.70	98.25	100.00	31.07
$13–14	13,490	3.19	2.45	0.00	0.00	32.13	96.85	100.00	30.28
$14–15	14,489	2.79	2.30	0.00	0.00	29.91	95.23	100.00	29.52
$15–20	17,284	10.23	10.07	0.00	0.00	25.07	89.57	100.00	27.49
$20–25	22,310	6.31	8.02	0.00	0.00	19.43	79.14	100.00	24.43
$25–30	27,350	4.21	6.55	0.00	0.00	15.85	69.02	100.00	21.86
$30–40	34,476	5.06	9.92	0.00	0.00	12.57	56.53	99.76	18.91
$40–50	44,538	2.84	7.20	0.00	0.00	9.73	43.89	95.03	15.74
$50–75	60,380	3.30	11.34	0.00	0.00	7.18	32.37	80.32	12.24
$75–100	85,898	1.30	6.37	0.00	0.00	5.05	22.76	61.12	8.89
$100–125	111,136	0.62	3.95	0.00	0.00	3.90	17.59	47.93	6.91
$125–150	136,489	0.33	2.56	0.00	0.00	3.18	14.33	39.05	5.63
$150+	187,808	0.48	5.14	0.00	0.00	2.31	10.41	28.37	4.09
All	$17,565	100.00%	100.00%	0.00%	0.00%	22.58%	64.00%	87.61%	21.60%
Paid in full	$9,511	21.46%	11.62%	0.00%	0.00%	3.82%	36.09%	70.66%	11.62%
Partial payment	$19,765	78.54%	88.38%	0.00%	0.00%	18.76%	27.91%	16.95%	9.99%

Source: See Tables 3 and 5

Note: Income and charge distributions truncated at $250,000. Collectable net revenue = max (0, min [charge, ATP]). ATP = (income − 2 FPL) × 1/2; $14,680 FPL for three-person household

gross revenue and calculated collectable net payments. The next part of the table reports the percentages of the charge dollars that, by our formulation, would be collectable. It shows in particular that, for this higher-income segment of uninsureds, about half of all of their billed charges—48.0%—are estimated to be collectable as net revenues. That collection percentage ranges from a low of 22.6% of charges for the $30,000–$50,000 income bracket to a high of 87.6% of charges for the over-$100,000 bracket.

We might ask, as a reality check on our proposed ability-to-pay formulation, how great these implied payments are in proportion to the average family incomes within this upper-

Table 7 The collectability of billed charges from the higher-income uninsured, 2003

Higher bracket uninsured family income		Higher income uninsured			Percentage of charges collectable by hospital through:			Average net payment per patient	
Bracket ($000)	Average	Number of THCIC patients	Total billed charges ($ Million)	Total net payment ($ Million)	Payment in full	Partial payment	All payment	Dollars	Percentage of income
$30–50	$38,027	279,252	$4,905.1	$1,107.5	3.8%	18.8%	22.6%	$3,966	10.4%
$50–100	68,453	241,252	4,237.6	2,712.2	36.1	27.9	64.0	11,242	16.4
$100+	135,922	81,547	1,432.4	1,254.9	70.7	17.0	87.6	15,389	11.3
All	$63,479	602,051	$10,575.1	$5,074.6	25.8%	22.2%	48.0%	$8,429	13.3%

Source: THCIC hospital inpatient data file (2003); Tables 3–6

Note: Incomes and charges truncated at $250,000. Higher Income Uninsured panel derived by multiplying THCIC totals by CPS uninsured population income proportions. Collectable net revenue = max (0, min [charge, ATP]). ATP = (income − 2 FPL) × 1/2; $14,680 FPL for three-person household. Higher-income uninsured charges ($10,575.1 million) are 45.0% of total uninsured charges ($23,489.5 million). Average billed charge = $17,565; average net payment = $8,429

income group. The final part of Table 7 provides that check. Under this formulation, the average hospital charge ($17,565), when paid off at the collection rate of 22.6% for the *lowest* of the three income brackets ($30,000–$50,000), results in an average net payment of $3,966. That average payment represents a payment burden averaging 10.4% of 1-year family income. The corresponding burden for the higher two income brackets is a bit greater. Accordingly, under our assumed formulation, the overall payment burden for the whole higher-income segment is 13.3% of income.

While 13.3% of a year's income is not a trivial amount of money, it might be worth a look, for a frame of reference, at the corresponding payment statistic for a year of college tuition. College education is another service that, like uninsured hospital care, is frequently discounted on ability-to-pay grounds. For a comparable matchup we can look again at Texas, in order to match the locality of our hospital charge data. Within Texas, we focus on the second-highest income quintile, because with an average family income of $65,460 it is a close match to Table 7's $63,479 income for the relatively better-off segment of the uninsured population.[41] The available education statistics say that this group spends 13.2% of its annual family income when it buys a year's worth of tuition, room, and board at a public (not private) 4-year university.[42] Suppose we treat that one-year college payment as a serviceable benchmark for the sort of consumer payment that may be a difficult stretch but is demonstrably not out of reach. If we do, then we may also accept the hospital collection yield formulation that we sketched above as a similarly realistic approximation of the hospital's commercial expectations for payment from the better-off segment of the uninsured.

To return to the original question in this inquiry—the reasonability of targeted collection of billed charges—we can observe that a net revenue collection rate of 48% of gross charges from the higher-income segment of the uninsured patient pool is a relatively decent yield. From the perspective of the hospital, a 48% net revenue yield is comparable to the yield that

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[41] National Center for Public Policy and Higher Education (2005, p. 9).

[42] National Center for Public Policy and Higher Education (2005, p. 9). That payout figure is a *net* payment; i.e., after the receipt of any financial aid relief from the university.

hospitals bargain for and willingly accept from many managed care plans and other payors.[43] And from the perspective of the higher-income uninsured patient, an after-the-fact discount rate averaging 52% off of standard billed charges is a better deal than what at least some managed care plans obtain even with the benefit of a before-the-fact negotiated contract.

Summary

We have framed our investigation of the hospital charges billed to the uninsured as a search for those combinations of hospital charges and patient incomes for which full payment, or alternatively substantial partial payment, is a realistic business expectation. As noted earlier, because conjectures about the relative dollar magnitudes of those payable combinations are divergent, assessments of the hospital industry's uninsured billing and collection practices are correspondingly divergent. There is no crisp true–false hypothesis to test and potentially reject here; the concept at issue is fundamentally a continuum rather than an either/or dichotomy. Because of this, our findings on the collectability of hospital charges billed to the uninsured are susceptible to differing interpretations and characterizations.[44]

Nevertheless, our findings imply that, if patients can in fact pay charges in roughly the way in which we have formulated the ability-to-pay question, then even an undiscriminating approach to hospital revenue collection—pursuing every dollar equally, regardless of the size of the bill or the financial resources of the patient—would yield $21.60 in net revenue for every hundred dollars in all charges to all of the uninsured; see Table 6. A more refined and segmented approach to revenue collection—which is possible if the intermediate stages of the bill collection process turn up reliable evidence on patients' incomes—would lighten up on the lower-income patients, and tighten up on the higher-income patients. For that relatively better-off segment of the uninsured, serious collection efforts would yield net revenue of $48.00 for every hundred dollars in charges; see Table 7.

If we judge these yields by the benchmark standard of net revenue yield from the third-party payors that are a bread-and-butter source of the typical hospital's revenue, we would conclude that reasonable but vigorous efforts at bill collection from the uninsured are fully explicable as sensible business policy.

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[43] For some perspective, note that all U.S. community hospitals together in 2003 collected net revenue, from all private and public sources of payment combined, equal to just 39.3% of their total billed charges. American Hospital Association (2005, Table 3).

[44] And of course our findings are also susceptible to the usual run of qualifications that are appropriate to every empirical study. To offer a few such qualifications: (1) the distribution of the family incomes of uninsured patients in any particular area will likely differ from the national CPS estimates that we use here; (2) the distribution of hospital charges in any particular area will likely differ from the charges in our sample of Texas hospitals; and (3) our formulaic criterion for a realistic amount of payment for an uninsured hospital admission is in many respects arbitrary.

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