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RESEARCH ARTICLE

Medicare Payment and Hospital Provision of Outpatient Care to the Uninsured

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Objective. To describe the amount of hospital outpatient care provided to the uninsured and its association with Medicare payment rate cuts following the implementation of Medicare's Outpatient Prospective Payment System.

Data Sources/Study Setting. We use hospital outpatient discharge records from Florida from 1997 through 2008.

Study Design. We estimate multivariate regression models of hospital outpatient care provided to the uninsured in separate samples of nonprofit and for-profit hospitals.

Principal Findings. Hospital outpatient departments provide significant amounts of care to the uninsured. As Medicare payment rates fall, total charges and the share of charges for outpatient visits by the uninsured decrease at nonprofit hospitals. At for-profit hospitals, the share of outpatient care provided to uninsured patients increases, but there is no significant change in the number of uninsured discharges.

Conclusions. Nonprofit and for-profit hospitals respond differently to reductions in Medicare payments; thus, studies of the impact of legislated Medicare payment cuts on care of the uninsured should account for differences in hospital ownership in communities. Given that outpatient care to the uninsured includes preventive and diagnostic care procedures, reductions in this care following payment cuts may adversely affect long-run health and health care costs in communities dominated by nonprofit hospitals.

Key Words. Uninsured/safety net providers, Medicare, hospitals, administrative data uses

In 2011, U.S. hospitals provided $41.1 billion of care for the uninsured or underinsured in the form of charity care and bad debt, amounting to 5.9 percent of all hospital expenses (AHA, 2013). Although much of this care takes place in emergency departments (EDs), the uninsured make millions of non-ED outpatient hospital visits every year (CDC/NCHS, 2013a). In 2010, uninsured patients accounted for nearly 7 million visits to U.S. hospital outpatient departments not including EDs, or 6.9 percent of all such visits; by comparison, inpatient discharges of the uninsured numbered 2.2 million and

represented a slightly lower 6.2 percent of short-stay discharges (CDC/NCHS, 2013b,c). Numerous studies have examined the determinants of inpatient or overall hospital care provided to the uninsured, but little is known about the factors associated with hospital outpatient care provision to the uninsured. This is an unfortunate gap in the literature as outpatient care increasingly serves as a substitute for more expensive inpatient care, and its timely receipt can reduce the subsequent need for additional care. As several types of payment cuts in the Affordable Care Act (ACA) reduce the support that hospitals receive for providing care to the uninsured, and as millions of Americans will remain uninsured even with the coverage expansions in the ACA, the provision of care to the uninsured remains an important topic (KFF, 2013).

This study provides new findings on the provision of hospital outpatient care to the uninsured using hospital outpatient discharge records from Florida from 1997 through 2008. First, we describe patterns in hospital outpatient care provided to uninsured patients by examining levels and trends and the types of outpatient care provided in Florida. Next, we build on the prior literature by estimating the association between hospital outpatient care provided to the uninsured and payments in the Medicare program. As theory and empirical evidence suggest that the effects of Medicare payment policies vary by ownership, we examine care provision among all private short-term acute care hospitals and then separately by hospital ownership.

We focus on the exogenous Medicare payment changes brought on by the Outpatient Prospective Payment System (OPPS), which was established by the BBA of 1997 and went into effect in 2000. Prior empirical studies report that other types of Medicare and Medicaid payment cuts reduced uncompensated care provided by nonprofit and safety-net hospitals (Davidoff et al. 2000; Bazzoli et al. 2006; Hsieh and Bazzoli 2012). These studies examine either hospitals' provision of *inpatient* care to the uninsured or hospital uncompensated care in all settings. Even within the broader literature on hospital treatment of the uninsured, we know of only two studies on outpatient care, and neither examines changes in the payment rates of public programs. Frank and Salkever (1991) model both inpatient and outpatient charity care and bad

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debt admissions among Maryland hospitals; Garmon (2009) examines the effect of hospital competition on inpatient and outpatient uncompensated care by Florida and Texas hospitals. Thus, our study is the first to examine the association between Medicare payment and *outpatient* hospital care for the uninsured.

These changes in outpatient care are worth examining as outpatient care plays an increasingly important role. From 2002 to 2007, Medicare outpatient spending per beneficiary grew 47 percent while inpatient spending grew only 18 percent (MedPAC, 2009). Further, outpatient care may be more responsive to financial pressures than inpatient care. Because hospitals are required by law to stabilize emergency department patients regardless of ability to pay, they may have little flexibility in selectively admitting certain types of inpatients. In contrast, hospitals in general are not legally required to provide nonemergency care to patients in the outpatient setting, and they may be more flexible in adjusting outpatient care provision to the uninsured.

Conceptual Framework

Below we review prior theoretical models of hospital behavior to explain how Medicare payment can affect the provision of care to the uninsured. We draw on existing economic theories and empirical work regarding hospitals' decisions to provide uncompensated care. As noted by Davidoff et al. (2000), much of the literature suggests that nonprofit and for-profit hospitals' decisions regarding uncompensated care provision should be examined separately. Our summary emphasizes several key insights from Banks, Paterson, and Wendel (1997), which contrasts the different objectives of nonprofit and for-profit hospitals and examines both types of hospitals' responses to payment changes.

In the case of nonprofit hospitals, economic models typically assume that the hospital's objective is to maximize utility, where utility increases with the amount of uncompensated care provided (e.g., Frank and Salkever 1991; Gruber, 1994). Hospitals choose the amount of uncompensated care subject to the constraint that hospital profit equals zero; hospital profit is defined as revenue per patient times the number of patients, less costs. Solving their model mathematically, Banks, Paterson, and Wendel (1997) show that as the price received by paying patients (revenue per patient) falls, uncompensated care provision falls as well.

Empirical studies of nonprofit hospitals support this theoretical prediction. Davidoff et al. (2000) find that increases in Medicaid and Medicare

payment generosity increased the amount of uncompensated care provided by nonprofit hospitals. Bazzoli et al. (2006) find that core safety-net hospitals reduced the amount of uncompensated care in response to Medicaid payment pressures triggered by the Balanced Budget Act (BBA) of 1997. Hsieh and Bazzoli (2012) report that reductions in Medicaid Disproportionate Share Hospital (DSH) payments led nonprofit hospitals to reduce their uncompensated care provision.

In contrast, economic models of for-profit hospitals assume that profit maximization is the hospital's objective. The decision to provide uncompensated care is viewed as a "business decision" that may improve a hospital's standing in the community or relationship with physicians (Gray 1991). In Banks, Paterson, and Wendel (1997), the for-profit hospital's cost function includes the costs of producing health care as well as the "expected penalty cost" of underproviding uncompensated care in the community. Mathematically, Banks, Paterson, and Wendel (1997) show that a decrease in the price paid by paying patients reduces the hospital's provision of care to paying patients, which then lowers the cost of providing uncompensated care and increases the amount of uncompensated care provided by the hospital. Intuitively, a drop in the price received by paying patients makes it less costly for for-profit hospitals to provide uncompensated care. Consistent with this theory, Banks, Paterson, and Wendel (1997) find that cuts in Medicare and Medicaid payment generosity led for-profit California hospitals to increase their provision of uncompensated care.

In summary, existing theoretical and empirical studies suggest that hospital responses to cuts in public program payment generosity vary by ownership. We therefore estimate models of care to the uninsured in separate samples of nonprofit and for-profit hospitals; for completeness, we also use the sample of all private hospitals. We hypothesize that cuts in Medicare payments will reduce the amount of care provided to the uninsured by nonprofit hospitals and increase the amount of care provided to the uninsured by for-profit hospitals.

Data and Methods

Discharge Data

We use 1997–2008 outpatient discharge data from private short-term acute care hospitals in Florida. These data exclude emergency department visits and include discharges from traditional hospital outpatient departments and from

hospital-owned freestanding clinics. It is not possible to separate the latter two groups. Changes in hospital care provided to the uninsured in this state are especially relevant as Florida is estimated to have nearly 764,000 low-income persons in the coverage gap created by the state's decision not to expand Medicaid. Florida residents comprise 16 percent of the total 4.8 million such persons nationwide (KFF, 2013).

Measures of Outpatient Care Provided to the Uninsured

We construct several hospital-specific measures of outpatient care to the uninsured. We count discharges to uninsured patients when the principal payer is reported as either "charity care," a combined category labeled "self-pay/underinsured/no third-party coverage or less than 30 percent estimated coverage," or "other state and local government;" we then calculate, for each hospital and year, the number of uninsured outpatient discharges and total charges for these discharges, and the share of all outpatient discharges and the share of all outpatient charges accounted for by uninsured patients. In constructing these measures, we exclude discharges that consist only of lab charges; our results are very similar when lab-only discharges are included. Charges are reported in 2008 dollars.

The selection of these payer categories is similar to prior studies on inpatient care provision to the uninsured; for example, Sloan, Morrisey, and Valvona (1988) measure the hospital's share of inpatients for whom the payer was either self-pay or no charge, Frank and Salkever (1991) measure charity care as the combined number of self-pay and charity discharges, and Currie and Fahr (2004) define uninsured discharges as self-pay, charity, no charge, and county indigent patients. If self-pay patients pay their bills, their inclusion may overstate the amount of charity care; however, it is reasonable to include this group as discharge records report only the expected payer at the time of discharge and as Frank and Salkever (1991) note, "hospitals presumably realize there is a high probability these individuals will not be able to pay their bills" (p. 436). Furthermore, Florida discharge data do not distinguish self-pay from underinsured.

We include discharges paid by "other state and local governments" following prior research on indigent hospital care financing in Florida (Jackson and Beatty 2003). Florida statute delegates the responsibility of providing care to uninsured indigent persons to local counties; several counties use local property or sales taxes to support care for indigent residents who do not qualify for other programs. For example, Palm Beach County uses property

tax revenues to pay local physicians and hospitals to provide care to the uninsured through a type of managed care program. Polk County funds care to the indigent provided by private hospitals and physicians through a sales tax. Furthermore, counties differ in how hospitals record the payer for those discharges where the local county program provides payment. For example, Broward County does not use the payer designation of "other government" for patients covered by the county indigent care program, while Miami-Dade County does use this designation (Jackson and Beatty 2003, p. 111).

Measure of Medicare Payment Change

To examine the association between Medicare payment rate cuts and hospital outpatient care provision to the uninsured, we focus on the exogenous payment changes brought by the OPPS, which was established by the BBA of 1997 and went into effect in 2000. OPPS replaced the prior cost-based system of reimbursing hospital outpatient departments for services provided to Medicare patients with a new system of predetermined payment rates that apply to all procedures in a given group of outpatient services called an Ambulatory Payment Classification. Prior studies show that OPPS significantly lowered the overall generosity of Medicare payments for outpatient care and reduced the average Medicare payments for common outpatient surgical procedures in Florida (He and Mellor 2012).

Importantly, OPPS had differing effects on the size and even the direction of Medicare payment changes depending on both the hospital and the procedure. Depending on procedure- and hospital-specific rates prior to 2000, Medicare payment rates decreased under OPPS for some hospitals and procedures and increased for others. For this study, in which we wish to examine the overall impact of Medicare payment changes on each hospital, we follow prior research and examine the 10 most commonly used outpatient surgical procedures in hospital outpatient settings in 1999, the last year prior to OPPS. These 10 procedures represent about one-third of all surgical procedures performed in Florida hospital outpatient departments. There are more than 8,000 outpatient procedures and it is impractical to impute hospital-specific Medicare payment rates for all, especially in the pre-OPPS era.

He and Mellor (2012) developed an algorithm to impute the hospital-specific changes in Medicare payment rates for these 10 procedures and report that payment rates decreased for all but one of these procedures between 1999 and 2004, the first year that OPPS was fully implemented; reductions range from 7 to 84 percent by procedure and average 22 percent (Table 1C, p. 736).

Using results from this algorithm, we calculate each hospital's weighted-average Medicare payment across the top 10 procedures, where the weight is the number of times a given procedure was performed in the hospital outpatient department divided by the combined number of times all 10 procedures were performed in the hospital outpatient department. See the Appendix in He and Mellor (2012) for details on imputing the Medicare payment rates for common outpatient procedures before and after the implementation of OPPS. All payment data are reported in 2008 dollars.

Although the literature on charity care and uncompensated care identifies Medicaid provider payment as another relevant payment variable, our single-state study is not a good setting in which to examine this measure. Medicare and Medicaid DSH payments are another financial pressure examined in the literature; however, as Currie and Fahr (2004) note, hospitals can vary caseloads endogenously in response to DSH. They advise controlling for the effect of the DSH program by including the hospital's low-income caseload revenue at a baseline year (see also Duggan 2000). Hospital fixed effects, which we include in our models, effectively do this.

Other Measures

Our regression models include a number of control variables from various sources. As some prior studies report that increasing competition in the hospital market reduces the provision of uncompensated care (e.g., Thorpe and Phelps 1991), we control for market concentration with a county-level Herfindahl–Hirschman Index (HHI) calculated for each year from the hospital outpatient discharge records, similar to Thorpe and Phelps (1991) and Davidoff et al. (2000).

Following Currie and Fahr (2004), we also include controls for the predicted number of Medicaid patients and the predicted number of uninsured patients to account for other factors that may impact the hospital's treatment of the uninsured. Predicted Medicaid enrollment is calculated by using outpatient discharge records to estimate a linear probability model of whether the patient had Medicaid coverage, where race and ethnicity, sex, age dummies, and four-digit zip code dummies are the explanatory variables. This model is estimated separately for each year of discharge records, and then the estimated coefficients from each year's model are applied to each hospital's discharges from 1997, the baseline year in the sample, to predict the number of patients that would be eligible for Medicaid in subsequent years. The predicted number of uninsured patients is constructed in a similar manner. The use of a

baseline sample of patients makes these predicted patient counts independent of changes in discharges caused by other factors throughout the study period.

We include additional county-level controls such as the percent of the population aged 65 and up in each year, the annual unemployment rate, and annual median household income (in 2008 dollars). These variables capture the effects of changing demand for care by the uninsured, which may decrease with Medicare enrollment and increase with worsening economic circumstances. Population data were obtained from the U.S. Census Bureau; economic data were obtained from the Bureau of Labor Statistics Local Area Unemployment reports and the March Current Population Survey. To capture differences in the supply of care, we control for the number of physicians per capita in the county-year (obtained from the Area Resource File), and the hospital's teaching status and bed size (obtained from Florida's annual *Hospital Beds and Services List*).

Finally, to gauge the direct effect of Medicare payment cuts on hospitals' care provision to the Medicare population, we construct several hospital- and year-specific measures of outpatient care provided to Medicare fee-for-service (FFS) patients: the number of Medicare FFS outpatient discharges, the total charges for these discharges, and the shares of all outpatient discharges and all outpatient charges accounted for by Medicare FFS patients. Here, we also exclude discharges that consist only of lab charges and report charges in 2008 dollars.

Estimation Strategy

We first examine whether our measure of Medicare payments had the potential to reduce the hospital's revenue from treating Medicare patients. The discharge data do not include measures of payments to hospitals from Medicare, so we focus on two related measures: discharges of Medicare patients and charges associated with these discharges. We use these data to estimate equation (1):

$$\text{Medicare Care}_{ht} = \alpha_0 + \alpha_1 \log(\text{Medicare OP payment}_{ht}) + Z_{ct} \prod + X_{ht}\Gamma + \lambda_t + \alpha_h + \varepsilon_{ht} \tag{1}$$

Medicare Care is one of four measures: the log of the number of discharges, the log of total charges, and the share of discharges and the share of charges accounted for by Medicare FFS patients. We focus on Medicare FFS

as the changes triggered by OPPS should not affect patients covered by plans that use other payment arrangements. In our data it is not possible to separate managed care plans that use discounted fee-for-service from those that use capitation.

We then test our main hypotheses by estimating equation (2):

$$\text{Uninsured Care}_{ht} = \alpha_0 + \alpha_1 \log(\text{Medicare OP payment}_{ht}) + Z_{ct} \prod + X_{ht}\Gamma + \lambda_t + \alpha_h + \varepsilon_{ht} \quad (2)$$

The dependent variable is one of four measures of outpatient care provided to the uninsured: the log of uninsured discharges, the log of total uninsured charges, plus the share of discharges and the share of charges accounted for by uninsured patients.

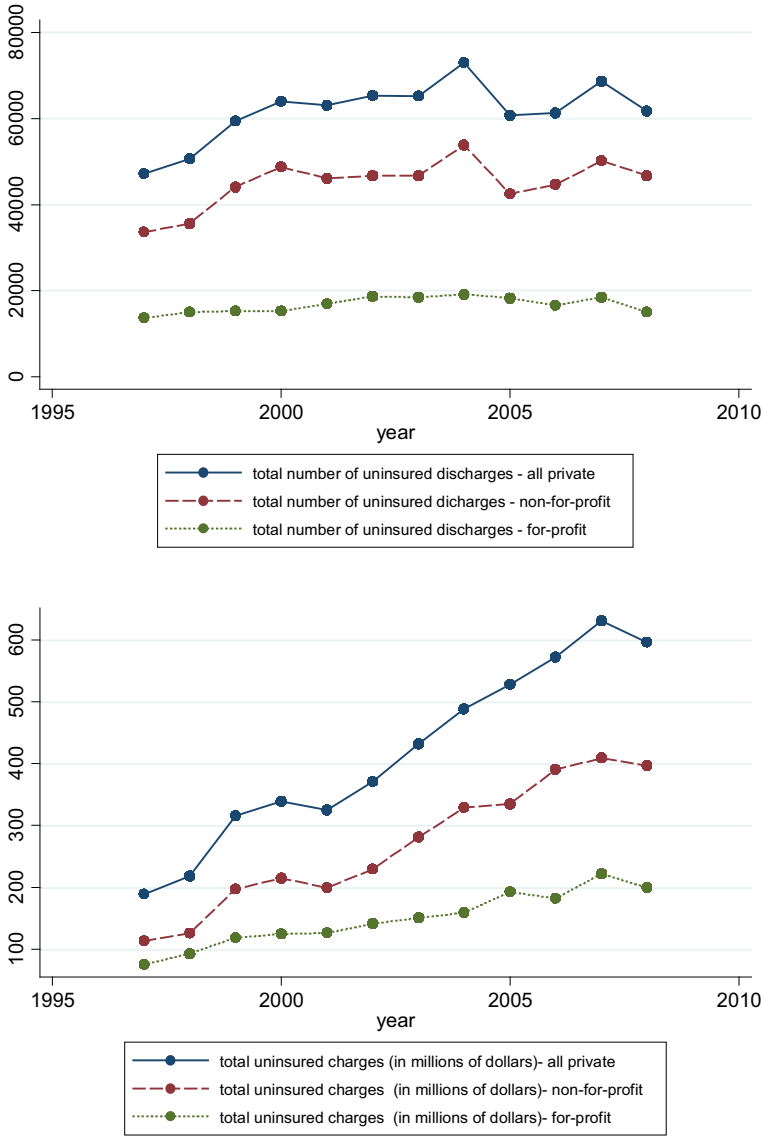
The key explanatory variable in all models is *Medicare OP Payment*$_{ht}$, the weighted-average Medicare reimbursement rate for the 10 most common outpatient surgical procedures, defined for hospital h in year t. Z_{ct} is a set of county-year-level controls (such as median household income, unemployment rate, and other variables described earlier) and X_{ht} is a set of hospital-year-level controls (bed size, teaching status). Controls included in equation (2) but not equation (1) are the HHI, the predicted number of Medicaid patients, and the predicted number of uninsured patients. Both equations include year fixed effects and hospital fixed effects (λ_t and α_h). The year fixed effects capture important sources of time-series variation in the provision of care to the uninsured, sources that are common to all hospitals (e.g., Medicaid provider payment rates). The hospital fixed effects capture time-invariant factors that determine the provision of care to the uninsured and are specific to the hospital (e.g., controls for DSH payments, as described earlier). We estimate the models with data from 1997 to 2008 but excluding 2000–2003 because OPPS was phased-in gradually during those years. The coefficients of interest are α_1. For each estimate of α_1, we report robust standard errors first clustered by hospital and then by county.

RESULTS

Descriptive Statistics

Figure 1 illustrates patterns in the provision of outpatient care to the uninsured by all private short-term acute hospitals in Florida. The top

Figure 1: Uninsured Discharges and Charges at Hospital Outpatient Departments 1997–2008



panel shows that the number of outpatient discharges of uninsured patients reached a high of 73,065 in 2004 before falling to 61,793 by 2008. Nonprofit hospitals treated more uninsured patients than for-profit

hospitals. In 2008, there were 46,792 outpatient discharges of uninsured patients at nonprofit hospitals and 15,001 at for-profit hospitals. The bottom panel shows uninsured outpatient charges by year and hospital ownership. Total uninsured charges increased over time for all private hospitals and both nonprofit and for-profit hospitals. In 2008, uninsured outpatient charges at private hospitals amounted to $596.7 million. Total charges were greater and grew faster in nonprofit hospitals relative to for-profit hospitals.

Table 1 reports summary statistics for the measures of care provided to the uninsured and the explanatory variables. The average nonprofit hospital had 588 uninsured outpatient discharges per year while the average for-profit hospital reported 202 uninsured outpatient discharges. Total charges averaged about $4 million per hospital per year at nonprofit hospitals, about twice the amount at for-profit hospitals. Shares of discharges and total charges accounted for by the uninsured averaged 5 and 6 percent, respectively, in nonprofit hospitals, each a percentage point above the average among for-profit

Table 1: Descriptive Statistics, 1997–2008

	All Private Hospitals (n = 1,091)	*Nonprofit Hospitals (n = 507)*	*For-Profit Hospitals (n = 584)*
Dependent variables			
Uninsured discharges	381.6 (613.3)	588.2 (811.2)	202.2 (250.5)
Uninsured charges (millions of 2008 $)	2.9 (4.0)	4.0 (5.1)	2.0 (2.2)
Share of discharges for the uninsured	0.05 (0.05)	0.05 (0.05)	0.04 (0.05)
Share of charges for the uninsured	0.05 (0.06)	0.06 (0.05)	0.05 (0.06)
Explanatory variables			
Medicare payment rate	644.0 (276.2)	695.0 (276.4)	599.8 (268.4)
HHI	0.27 (0.21)	0.26 (0.21)	0.27 (0.21)
Predicted Medicaid	580.3 (862.1)	821.2 (1,186.2)	371.1 (272.1)
Predicted uninsured	350.9 (506.1)	493.7 (678.3)	226.9 (215.4)
Percent age 65+	18.6 (6.6)	18.2 (6.6)	19.1 (6.6)
Unemployment rate	4.6 (1.5)	4.5 (1.4)	4.7 (1.5)
Median household income (2008 $)	40,740 (6,985)	40,629 (6,866)	40,836 (7,093)
Physicians per capita	2.3 (0.9)	2.4 (0.9)	2.2 (0.8)
Teaching status	0.04 (0.20)	0.09 (0.29)	0.00 (0.00)
Acute beds	256.8 (157.6)	306.8 (193.2)	213.4 (99.9)

Notes. Sample means and standard deviations (in parentheses) are calculated based on the period from 1997 to 2008. See text for details.

hospitals. The Medicare payment rate averaged $695 and $600 for nonprofit and for-profit hospitals, respectively.

We identify some of the most common CPT codes on the outpatient discharge records of uninsured patients. Appendix Table A1 reports the CPT codes associated with the 25 most common procedures in 2008; these procedures account for 41 percent of the principal procedures appearing on outpatient discharge records of uninsured patients in that year. The five most common CPTs account for about 20 percent of all procedures the uninsured receive in Florida hospital outpatient departments. These are fetal nonstress tests (CPT 59025), blood draws (CPT 36415), an endoscopic test to examine the lining of the esophagus (CPT 43239), and colonoscopy (CPTs 45378 and 45380). Several different colonoscopy procedures appear among the 25 most common CPTs; together these constitute almost 8 percent of all procedures on the hospital outpatient discharge records of uninsured patients in 2008. A number of the top 25 procedures include biopsies of the esophagus, breast, colon, and liver; these account for more than 10 percent of procedures. The data suggest that much of the outpatient care provided to the uninsured is preventive or diagnostic care. For example, CPTs 45378, 45380, 45385, 45384 are used in colorectal cancer screening and CPT 36415 is used in screening for diabetes, anemia, sexually transmitted diseases, and prostate cancer, among others.

Multivariate Regression Results

Table 2 reports the estimated coefficients on Medicare payment from equation (1); the results demonstrate that Medicare payment cuts had the potential to reduce hospital revenue from treating Medicare patients. In the full sample, the coefficient on Medicare payment is positive and significant in three of the four models; thus, decreases in Medicare payments were associated with decreases in the total counts and sums of Medicare charges as well as the shares of charges and discharges accounted for by Medicare FFS patients. We see comparable patterns in the payment coefficient estimates in subsamples of nonprofit and for-profit hospitals, although the coefficients are less precisely estimated.

Table 3 reports key coefficient estimates for equation (2), where the dependent variables represent outpatient care provided to uninsured patients (Tables A2, A3, and A4 in the online appendix report all coefficient estimates). In models estimated with the full set of private hospitals, the payment

Table 2: Regression Models of Outpatient Care to Medicare Fee-for-Service Patients: Estimated Coefficients on Medicare Payment

	log (Medicare Discharges)	*log (Medicare Charges)*	*Share of Discharges for Medicare Pts*	*Share of Charges for Medicare Pts*
All private hospitals (154 hospitals, 1,144 observations)				
log (Medicare Payment)	0.33	0.49	3.47	3.68
	[0.20]	[0.25]	[1.97]	[1.56]**
	[0.17]	[0.23]**	[1.57]**	[1.36]**
Nonprofit hospitals (84 hospitals, 544 observations)				
log (Medicare Payment)	0.12	0.39	3.11	2.02
	[0.36]	[0.43]	[2.73]	[2.77]
	[0.31]	[0.21]	[3.39]	[3.35]
For-profit hospitals (85 hospitals, 600 observations)				
log (Medicare Payment)	0.33	0.48	3.04	4.04
	[0.25]	[0.30]	[2.60]	[1.91]**
	[0.23]	[0.31]	[1.79]	[1.54]**

Notes. All models also include controls for the percent of the county population age 65 and up, the county unemployment rate and its square, median household income in the county and its square, physicians per capita in the county and its square, the number of acute care beds in the hospital, an indicator for teaching hospitals, plus hospital fixed effects and year fixed effects. Robust standard errors clustered by hospital are shown in the first row of brackets, and robust standard errors clustered by county are shown in the second row of brackets.
Statistical significance indicated by ** for .05 level.

coefficients are not statistically significant, and the signs of the estimates are mixed. We next split the sample and allow the payment effects to vary by ownership type, as predicted by theory. Among nonprofit hospitals, we find that decreases in Medicare payments are associated with a statistically significant reduction in total charges for the uninsured (column 2; $p < .05$) and a marginally significant decline in the share of charges accounted for by the uninsured (column 4; $p < .10$). For example, a 1 percent decrease in the Medicare payment measure is associated with a 1.03 percent decrease in total uninsured charges; for the average nonprofit hospital, this represents a decrease of $20,200 in the annual charges associated with the outpatient care of uninsured patients.

Among for-profit hospitals, we find that reductions in Medicare payments are associated with statistically significant increases in the share of discharges and the share of charges (columns 3 and 4) associated with uninsured patients. For example, a 1 percent decrease in Medicare payment is associated with a 1.2 percentage point increase in the share of uninsured discharges. For the average for-profit hospital, this represents an increase from 4 to 5 percent. This is a sizeable effect; however, note that the share of uninsured

Table 3: Regression Models of Outpatient Care to the Uninsured: Estimated Coefficients on Medicare Payment

	log (Uninsured Discharges)	*log (Uninsured Charges)*	*Share of Discharges for the Uninsured*	*Share of Charges for the Uninsured*
All private hospitals (146 hospitals, 1,091 observations)				
log (Medicare	0.08	0.29	−0.58	−0.90
Payment)	[0.17]	[0.26]	[0.80]	[1.07]
	[0.21]	[0.37]	[0.42]	[0.63]
log (Predicted	0.63	0.53	3.39	3.59
Uninsured)	[0.13]***	[0.16]***	[0.71]***	[0.77]***
	[0.12]***	[0.13]***	[0.70]***	[0.65]***
Nonprofit hospitals (77 hospitals, 507 observations)				
log (Medicare	0.37	1.03	1.28	2.22
Payment)	[0.23]	[0.49]**	[0.85]	[1.24]
	[0.24]	[0.45]**	[0.80]	[1.19]
log (Predicted	1.19	1.23	6.29	6.60
Uninsured)	[0.24]***	[0.39]***	[1.35]***	[1.48]***
	[0.21]***	[0.22]***	[1.34]***	[1.26]***
For-profit hospitals (84 hospitals, 584 observations)				
log (Medicare	−0.12	−0.13	−1.20	−1.95
Payment)	[0.16]	[0.18]	[0.91]	[1.13]
	[0.16]	[0.21]	[0.58]**	[0.91]**
log (Predicted	0.21	0.04	1.67	1.52
Uninsured)	[0.14]	[0.15]	[0.63]**	[0.78]
	[0.14]	[0.17]	[0.60]***	[0.68]**

Notes. All models also include controls for the percent of the county population age 65 and up, the county unemployment rate and its square, median household income in the county and its square, physicians per capita in the county and its square, a county-based Herfindahl–Hirschman Index of market concentration (HHI), the predicted number of Medicaid patients, the number of acute care beds in the hospital, an indicator for teaching hospitals, plus hospital fixed effects and year fixed effects. Robust standard errors clustered by hospital are shown in the first row of brackets, and robust standard errors clustered by county are shown in the second row of brackets. See Appendix Tables A2, A3, and A4 for the estimated coefficients of the other variables in the model. Statistical significance indicated by *** for .01 level and ** for .05 level.

discharges could rise simply because of a decline in the number of discharges paid by other payers, such as Medicare. For this reason, together with the lack of a significant association between Medicare payment and the number of uninsured discharges at for-profits (column 1 of Table 3) and the evidence in Table 2, we do not interpret the statistically significant increase in the uninsured share as an increase in the absolute amount of care provided by for-profit hospitals to the uninsured.

In Table 3, we also report the estimated coefficients on the predicted uninsured variable given its strong association with hospital provision of care

to this group. The estimated coefficients are positive and most are statistically significant. For example, a 1 percent decrease in the predicted number of uninsured persons is associated with a 1.2 percent decrease in uninsured discharges and charges at nonprofit hospitals.

We examined the sensitivity of our main results to several changes in the model specifications (see Table A4 in the online appendix). In one test, we dropped possibly endogenous controls such as hospital bed size, teaching status, and physicians per capita. In another, we added a control for annual Medicare managed care penetration in the county; this reduces the sample size as this measure is not available for 2006 and 2007. Finally, we estimated the models using a sample that includes the period when OPPS was phased-in (2001–2004). We continue to see that Medicare payment cuts are associated with decreased provision of care to the uninsured by nonprofit hospitals, even though the Medicare payment coefficients are somewhat smaller and less precisely estimated in a few cases.

DISCUSSION

Uninsured patients treated at Florida hospitals between 1997 and 2008 comprise 5 percent of outpatient discharges and charges per hospital, per year. We find that reductions in Medicare hospital outpatient payments reduce outpatient care (measured in total charges) provided to the uninsured at nonprofit hospitals. We do not observe a significant decrease in the number of uninsured discharges, suggesting that hospitals reduce care on the intensive (but not extensive) margin. At for-profit hospitals, Medicare payment decreases are associated with a significant increase in the share of outpatient care provided to the uninsured. Because the number of uninsured discharges does not also increase, this is likely driven by declining numbers of Medicare patients.

A key advantage of our study is that we exploit an exogenous change in Medicare outpatient payments using hospital- and year-specific payment data. However, we note some limitations. First, our study examines hospitals in one state. Florida's large population and large number of hospitals may lessen some concerns about generalizability; however, Florida has a relatively high proportion of for-profit hospitals, so the profiles of the average nonprofit and for-profit hospital in Florida may differ somewhat from the rest of the country. This may affect how hospitals of different ownership types behave, especially strategically. Thus, our results may not be representative of the entire United States.

Another limitation is that, as in similar studies, our measure of uninsured discharges may include some self-pay patients who are well-off enough to pay their bills. Their inclusion makes our dependent variable noisy. Furthermore, suppose that for-profit hospitals respond to Medicare cuts by treating fewer poor uninsured patients and simultaneously seeking high-income self-pay patients; although the former contradicts the conceptual framework described earlier, the two responses could offset one another so that overall, the total number of uninsured patients at for-profit hospitals is unchanged. Thus, separating paying uninsured patients may have implications for theory and policy. Discharge records lack amounts paid by patients, so we cannot use that information to identify paying patients. Instead, we use the best available proxy for patient income to explore this further. Using self-pay discharges, we calculate average median income in the patient's county of residence separately for hospitals in each ownership category. The average median income is very similar at for-profit and nonprofit hospitals ($45,213 and $45,269, respectively, over the sample period) and the difference is statistically insignificant ($p = .9$). This is true for each individual year in our sample, too (p-values range from .4 to .8). Thus, the evidence is not consistent with for-profits treating self-pay patients who are wealthier than those treated at nonprofits. Future research that distinguishes wealthy self-pay patients from the rest of the uninsured would be valuable.

Our results have important policy implications. With the full implementation of the ACA, hospitals nationwide can expect to experience cuts in Medicare payment rates and Medicare and Medicaid DSH payments. In 19 states, including Florida, these cuts will likely take place without an expansion of the Medicaid program, leaving millions uninsured. Given our finding that nonprofit hospitals decreased outpatient care of the uninsured in response to Medicare rate cuts, communities dominated by nonprofit hospitals may experience reductions in the supply of outpatient care to the uninsured. The potential reduction raises a number of questions beyond the scope of this study, such as whether uninsured patients will seek care from other types of providers and if providers will respond with reductions in care quality, in addition to quantity. It is also important to examine the potential long-term consequences on health and health care costs, as outpatient care to the uninsured includes various preventive and diagnostic care procedures. Future research should more carefully explore these issues in the wake of the ACA.

Finally, it is worth noting that the predicted number of uninsured is strongly associated with hospital provision of outpatient care for the unin-

sured, especially among nonprofits. This may imply that policies to reduce the number of uninsured could bring meaningful reductions in nonprofit hospitals' provision of outpatient care to the uninsured. As many ACA provisions reduce the number of uninsured, a fuller examination of the law's provisions regarding Medicare payments to hospitals should consider the effects of declining numbers of uninsured persons. Doing so would help determine whether the full set of policy changes lessens the *need* for hospital care to the uninsured, and not just the *incentives* for certain hospitals to provide such care.

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REFERENCES

AHA (American Hospital Association). 2013. Uncompensated Hospital Care Cost Fact Sheet. January.

Banks, D. A., M. Paterson, and J. Wendel. 1997. "Uncompensated Hospital Care: Charitable Mission or Profitable Business Decision?" *Health Economics* 6: 133–43.

Bazzoli, G. J., R. C. Lindrooth, R. Kang, and R. Hasnain-Wynia. 2006. "The Influence of Health Policy and Market Factors on the Hospital Safety Net." *Health Services Research* 41 (4): 1160–80.

CDC/NCHS (Centers for Disease Control and Prevention/National Center for Health Statistics). 2013a. *National Hospital Ambulatory Medical Care Survey: 2010 Emergency Department Summary Tables*. [accessed on January 2, 2014]. Available at www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2010_ed_web_tables.pdf

CDC/NCHS (Centers for Disease Control and Prevention/National Center for Health Statistics). 2013b. *National Hospital Ambulatory Medical Care Survey: 2010 Outpatient Department Summary Tables*. [accessed on January 2, 2014]. Available at www.cdc.gov/nchs/data/ahcd/nhamcs_outpatient/2009_opd_web_tables.pdf

CDC/NCHS (Centers for Disease Control and Prevention/National Center for Health Statistics). 2013c. *Number of Discharges from Short-Stay Hospitals and of Days of Care, with Average Length of Stay and Standard Error, by Principal Expected Source of Payment, Sex, Age, and Geographic Region: United States, 2010; National Hospital Discharge Survey, Data Highlights—Selected Tables.* [accessed on January 2, 2014]. Available at www.cdc.gov/nchs/nhds/nhds_tables.htm#expected

Currie, J., and J. Fahr. 2004. "Hospitals, Managed Care, and the Charity Caseload in California." *Journal of Health Economics* 23: 421–42.

Davidoff, A. J., A. T. LoSasso, G. J. Bazzoli, and S. Zuckerman. 2000. "The Effect of Changing State Health Policy on Hospital Uncompensated Care." *Inquiry* 37 (3): 253–67.

Duggan, M. 2000. "Hospital Ownership and Public Medical Spending." *Quarterly Journal of Economics* 115 (4): 1343–73.

Frank, R. G., and D. S. Salkever. 1991. "The Supply of Charity Services by Nonprofit Hospitals: Motives and Market Structure." *RAND Journal of Economics* 22 (3): 430–45.

Garmon, C. 2009. "Hospital Competition and Charity Care." *Forum for Health Economics and Policy* 12 (1): 2.

Gray, B. H. 1991. *The Profit Motive and Patient Care: The Changing Accountability of Doctors and Hospitals.* Cambridge, MA: Harvard University Press.

Gruber, J. 1994. "The Effect of Competitive Pressure on Charity: Hospital Responses to Price Shopping in California." *Journal of Health Economics* 13 (2): 183–211.

He, D., and J. M. Mellor. 2012. "Hospital Volume Responses to Medicare's Outpatient Prospective Payment System: Evidence from Florida." *Journal of Health Economics* 31 (5): 730–43. doi:10.1016/j.jhealeco.2012.06.001.

Hsieh, H., and G. J. Bazzoli. 2012. "Medicaid Disproportionate Share Hospital Payment: How Does It Impact Hospitals' Provision of Uncompensated Care?" *Inquiry* 49: 254–67.

Jackson, C. A., and A. Beatty. 2003. *Organization and Financing of Indigent Hospital Care in South Florida.* (Technical Report No. 106). Santa Monica, CA: RAND Corporation.

KFF (Kaiser Family Foundation). 2013. *The Coverage Gap: Uninsured Poor Adults in States That Do Not Expand Medicaid. (Issue Brief).* Kaiser Foundation Commission on Medicaid and the Uninsured [accessed on January 2, 2014]. Available at kff.org/health-reform/issue-brief/the-coverage-gap-uninsured-poor-adults-in-states-that-do-not-expand-medicaid/

MedPAC. 2009. "Report to the Congress: Medicare Payment Policy" [accessed on June 3, 2010]. Available at http://www.medpac.gov/documents/reports/Mar05_EntireReport.pdf?sfvrsn=0

Sloan, F. A., M. A. Morrisey, and J. Valvona. 1988. "Hospital Care for the 'Self-Pay' Patient." *Journal of Health Politics, Policy, and Law* 13 (1): 83–102. doi:10.1215/03616878-13-1-83.

Thorpe, K. E., and C. E. Phelps. 1991. "The Social Role of Not-for-Profit Organizations: Hospital Provision of Charity Care." *Economic Inquiry* 29: 472–84.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Table A1. 25 Most Common Procedures on Uninsured Patients' Hospital Outpatient Discharge Records, 2008.

Table A2. Full Regression Results from Models of Outpatient Care to Uninsured Patients with Medicare Payment Rate, All Private Hospitals.

Table A3. Full Regression Results from Models of Outpatient Care to Uninsured Patients with Medicare Payment Rate, Nonprofit Hospitals.

Table A4. Full Regression Results from Models of Outpatient Care to Uninsured Patients with Medicare Payment Rate, For-Profit Hospitals.

Table A5. Robustness Checks of Medicare Payment Coefficients in Models of Outpatient Care to Uninsured Patients.