Does state budget pressure matter for uncompensated care spending in hospitals? Findings from Texas and California[†]

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SUMMARY

Objective This study examined the impact of state budget cuts on uncompensated care at general acute care hospital organizations. This study capitalized on the variations in the states of Texas and California to form a natural experiment testing the joint impact of budget cut status on uncompensated care costs, as well as specific charity care costs and bad debt expenses from indigent patients.
Methodology Budget cuts in the state of Texas occurred in the year 2004. Information was obtained from the Texas Department of Health and the California Department of Health Services regarding financial characteristics of hospitals and from the American Hospital Directory annual survey regarding organizational characteristics of hospitals. We created three dependent variables: R_{UC} (the ratio of total uncompensated care costs to gross patient revenue), R_{CC} (the ratio of charity care to total patient revenue) and R_{BD} (the ratio of bad debt expenses to gross patient revenue). Using a two-period panel data set and individual hospital fixed effects, we captured hospital uncompensated care spending that could also have influenced budget cut status. Additionally, the impact of the state budget cut status on hospitals' uncompensated care spending, charity care spending and bad debt expenses was also estimated using the similar methodology.
Population studied In this study, we included 416 (in Texas) and 352 (in California) public, not-for-profit (NFP) and for-profit (FP) hospitals that completed the annual survey during the study period 2002–2005.
Findings For the state of Texas, results from the fixed effect model confirmed that the year 2005 was directly related to increased R_{UC} and R_{CC}. The coefficients of 2005 were significantly and positively associated with R_{UC} (0.43, $p < 0.05$) and R_{CC} (0.29, $p < 0.05$). These results supported the findings that the R_{UC} and the R_{CC} would be more positively associated with 2005 than any other year, with other things being equal. However, for the state of California, even though the coefficient of 2005 was significant and positively associated with R_{CC} (0.31, $p < 0.05$), the coefficient of uncompensated care spending was not statistically significant for 2005.

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Conclusion   The healthcare industry is characterized by increased regulation, a growing number of uninsured patients, increasingly stringent reimbursement and competitive practices among hospitals and other providers. Federal and state healthcare agencies are restricting the criteria for eligibility for outlier payments and uncompensated care provisions. Tax exempt status of many NFP hospitals is being examined and tied to specific performances, particularly the provision of uncompensated care. This study provides evidence of the impact of budget cut pressure on uncompensated care provided in Texas general acute care hospitals. Copyright © 2012 John Wiley & Sons, Ltd.

INTRODUCTION

According to an estimate provided by the Centers for Medicare and Medicaid Services (2010), the US healthcare industry amounted to $2.3 trillion in 2008 compared with $253 billion about two decades ago. In 2004, the American Hospital Association reported that about 73% of 5759 hospitals established in the society consist of private not-for-profit (NFP) hospitals (AHA, 2004). These hospitals perform the role of providing charity care services and subsidized services to indigent Americans nationwide. A classical case can be seen with the state of Texas, which faced one of the largest revenue drops of about $7.4 billion and an estimated deficit of $9.9 billion. These figures represented about 15% of the general revenue spending for FY 2004–2005 biennium. The shortfall in Texas in terms of this dramatic revenue decrease was attributed to the increased state spending on Medicaid and State Children's Health Insurance Program (SCHIP). Policy makers concluded that the only solution that could resolve budget crisis was to reduce the burden of this health-related expenditure (Hadley and Holahan, 2004).

Historically, internal cross-subsidization has been rampant in US hospitals that use surplus from the government to cover the costs of uncovered services or uncompensated care (Vladeck, 2006; Simpson and Shin, 1998). Weissman defines uncompensated care as the sum of charity care and bad debt expenses (Weissman, 2005). Charity care is the amount that hospitals spend to provide services on a charitable basis without any payment expectation. On the other hand, bad debt expenses comprise the amount that hospitals spend for provision of services with the expectation of complete payments but for which only partial payments are received (Desai *et al.*, 2000; Young and Desai, 1999). The year 2004 saw the highest number of uninsured patients in the state of Texas compared with other states in the USA, with as high as 5.4 million uninsured people (US Census, 2004). Thus, given the prevalence of the critical financial status of hospitals, (i) the growth in government spending in healthcare due to the aging baby boomers and (ii) the tax benefits and exemptions enjoyed by hospitals make it important to determine an equitable and reliable measure of uncompensated care expenditure. An unconventional trend, compared with the remainder of the US states, could be witnessed while studying the consequences of budget cut in Texas on its SCHIP enrollment. According to the report of the Kaiser Commission on Medicaid and the Uninsured, there was an increment in the national SCHIP enrollment by around 25 000 (an increase of 0.6%) during the period from December 2003 to

December 2004. During this period, majority of the states, that is, about 35 states, had increased SCHIP enrollment, but 13 states had decreased SCHIP enrollment. Texas had the largest decline in SCHIP enrollment, with a drop of 23% that consists of about 102 000 enrollees. SCHIP enrollment continued to decrease in 2004, dropping from 438 000 in December 2003 to 360 000 in June 2004. This decline continued in the upcoming months, with only 336 000 people enrolled in SCHIP by December 2004 (Kaiser Commission on Medicaid and the Uninsured, 2005). Another Kaiser Family Foundation report confirmed that the drastic decline in Texas SCHIP enrollment by more than 149 000 children (about 29%) was due to the impact of state budget cuts 2004. The primary reason leading to this decline in Texas was the reduced enrollment in SCHIP and the increased disenrollment of already enrolled children (Kaiser Commission on Medicaid and the Uninsured, 2004).

According to Thorpe *et al.* (2000), uncompensated care provided by US hospitals amounts to a large sum of $30 billion. The emergence of uncompensated charges in the form of provision of care for the seriously ill and non-paying indigent patients occurring in an environment of increasing costs and curtailed revenues further precipitates in reduction of revenues, surmounting costs and shift of resources from paying patients to non-paying patients (GAO, 2005; Fishman and Bentley, 1997). In the current scenario where hospitals are facing a tremendous increase in the number of uninsured patients, they are accused of charity shifting to self-pay patients. Phelps indicates that when Medicare or public agencies reduce the amounts that they pay to the hospitals for inpatient care, hospitals indulge in charge shifting, which involves recovering some of their costs by raising prices for privately insured patients (Phelps, 1986; Wedig *et al.*, 1988). The financial viability of healthcare providers serving indigent population is jeopardized by state budget cut pressure in a number of ways primarily affecting provider payment rates, provider ability to treat indigent patients and benefit cuts. State budget cut pressure poses a dual threat of not only endangering a provider's revenue but also increasing the burden of uncompensated care (Hoadley *et al.*, 2004; Wright, 1998; Mann *et al.*, 1995; Melnick and Zwanziger, 1995).

Several studies have examined the structure of hospital costs. Patients admitted through the emergency department (ED) experience higher disease burden and will incur higher costs compared with other patients. The healthcare costs incurred owing to ED-related admissions lead to further increase in inpatient costs because ED patients receive services generally procured outside the hospital such as various routine diagnostic tests, screenings and regular procedures (Gaynor and Anderson, 1995; Robinson and Luft, 1985; Grannemann *et al.*, 1986; Dor and Farley, 1996). Also, most of the patients admitted through ED are uninsured, avoid primary care services, are hospitalized when their disease condition advances and require a long recovery time. Thus, the length of hospital stay for ED patients is much longer compared with other patients. One research study in New York showed evidence that on average, patients admitted through ED stayed in the hospital for 5 days extra compared with patients admitted through outpatient departments and about 3 days extra compared with patients admitted by a healthcare practitioner (Gaynor and Anderson, 1995; Harris and Stergachis, 1990). Hospitals located in the metropolitan areas provide care to a large number of uninsured populations compared with

hospitals located in the non-metropolitan areas. The costs of treating poor patients is much more than treating patients who are not poor even though they belong to the same diagnosis-related group (DRG). Higher treatment costs incurred by providing care for the severely ill are not sufficiently measured by the existent case mix indexes (CMIs). This might lead to further increase in uncompensated care. Evidence from previous literature shows that case mix, teaching affiliation, bed size and hospital location have an impact on unit costs. Hospitals located in the metropolitan areas provide care to a large number of uninsured populations compared with hospitals located in the non-metropolitan areas. The cost of treating of poor patients is much more than treating patients who are not poor even though they belong to the same DRG (Martin *et al*., 1984; Davis, 1991).

The increase in Medicare and Medicaid fees for service payments from 1990 to 1998 helped alleviate the burden of uncompensated care shouldered by the hospitals. The payment-to-cost ratio increased from 89.2% to 103.6% for Medicare from 1990 to 1997 and from 79.7% to 97.9% for Medicaid from 1990 to 1998, respectively.

However, with the emergence of the Balanced Budget Act (BBA) of 1997 and increase in the number of managed care enrollees, the payment-to-cost ratio fell in 1999 to 101.1% and 96.7% for Medicare and Medicaid, respectively. The initiation of the Disproportionate Share Hospital (DSH) program provided financial assistance to hospitals providing care to Medicaid and Medicare populations. The Medicaid funding for the DSH program, which was increased from $800 million in 1990 to $10.6 billion in 1995, was cut short because of the BBA in 1997. This cutback in funding not only led the hospitals to restrict healthcare access to poor people but also threatened the viability of the hospitals playing a major role in providing uncompensated care according to the community needs. Medicaid patients receive higher uncompensated care compared with Medicare patients (Hsieh and Clement, 2010; Coughlin and Liska, 1997). Teaching hospitals also incur more uncompensated care because they take in patients with a variety of disease conditions. The patients provide educational value to the medical graduates, and the medical education payments from Medicare help to offset some of the uncompensated care expenses. They also are more likely to be larger than non-teaching hospitals and are located in urban and economically depressed inner-city areas (HCIA, 1997). The graduate medical education payment is majorly supported by Medicare. With the emergence of the BBA in 1997, Medicare reduced these payments from 7.7% (accounting for every 10% increase in the ratio of residents to bed) to 7.0%, 6.5% and 6.0% in 1998, 1999 and 2000, respectively. The reduction in medical education payments covered by Medicare not only forced the hospitals to support a limited number of medical residents but also increased the burden of uncompensated care for the urban teaching hospitals (Rosko, 2004a, b).

To our knowledge, this is one of the few studies trying to find systematic evidence about price elevation witnessed in Texas hospitals for procuring healthcare services to inflate escalated uncompensated care expenditure during the budget cut crisis of 2004. This analysis adds to the prior literature by investigating the factors that might relate the utilization of uncompensated care to the location of hospitals, as a means to mitigate state budget cut pressure as well as management of net revenues reported. It tries to identify and characterize the group of hospitals on the basis of provision of

uncompensated care during the period before and after the emergence of budget cut crisis in Texas. This study aimed to measure and evaluate uncompensated care by comparing it with total costs and net patient revenue revealed by the financial statements of hospitals. Specifically, this study aimed to compare the components of uncompensated care, that is, charity care and bad debt expenses, with deductions from net hospital revenues. It also scrutinizes the difference, if any, in the association of reported uncompensated care and the state budget cut pressure of 2004.

DATA AND METHODS

To assess how hospitals adjust their prices and their level of reported uncompensated care in response to increased financial and political pressures, data sources were obtained from the Texas Department of Health and the California Department of Health Services regarding financial characteristics of hospitals and from the American Hospital Directory annual survey regarding organizational characteristics of hospitals. We included general acute care hospitals in the analyses and excluded specialty hospitals (facilities that emphasize long-term care) and psychiatry hospitals for comparability reasons and owing to variations in different reimbursement systems. We also excluded all federal hospitals, which are mainly Veterans Administration and military hospitals, as they serve a separate population, which makes them incomparable. In the sample period 2005–2006, 416 public, NFP and for-profit (FP) hospitals in Texas and 352 public, NFP and FP hospitals in California completed the annual survey.

We created three ratios as outcome variables in this study. R_{UC} is the ratio of total uncompensated care costs to gross patient revenue. R_{CC} is the ratio of charity care to gross patient revenue. R_{BD} is the ratio of bad debt charge to gross patient revenue. R_{UC}, R_{CC} and R_{BD} are hospital spending values derived as follows:

$$R_{UC} = \text{Total uncompensated care/Total gross patient revenues}$$

$$R_{CC} = \text{Total charity care/Total gross patient revenues}$$

$$R_{BD} = \text{Total bad debt charges/Total gross patient revenues}$$

We performed trend and comparative analyses for the dependent variables to examine the change in the historical financial ratios distribution. The mean values and tests of the mean differences among 2002, 2003 and 2005 were derived for the aforementioned three samples and for the following variables:

$$CHR = \text{Charity care (in dollars)}$$

$$UNC \text{ uncompensated care} = \text{Charity care} + \text{Bad debt}$$

$$BD = \text{Bad debt charges}$$

Tests of differences were conducted using both Student's *t*-test and signed rank test of differences. We calculated bad debt as a percentage of uncompensated care

(bad debt and charity care) to determine whether the proportion of bad debt in uncompensated care changes across the test period. We also examined bad debt expenses as a percentage of revenue. The analysis of uncompensated care as a percentage of revenue was to determine whether uncompensated care changed as a result of any changes in bad debt. The explanatory model is of the following general form:

$$R_{UC}(R_{CC}, R_{BD}) \ ht = f(Xht, Mht)$$

Measures of the primary dependent variables are the ratio of uncompensated care to gross patient revenue (R_{UC}). To be more specific, we created two more specific sub-dependent variables (R_{CC} and R_{BD}). The measure of the sub-dependent variables is the ratio of charity care and bad debt expenses to gross patient revenue, respectively. Thus, our independent variables were based on the hospital spending in Texas and California based on the ratios (of total uncompensated care, charity care and bad debt expenses) to gross patient revenue. Independent variables were based on prior literature review. Our proposed model contained a number of explanatory variables believed to influence uncompensated care. The primary independent variable was the year effect of budget cut pressure in 2004. We also included other independent covariates such as CMI, number of admissions in the hospitals, Medicare patient days as a percentage of total patient days, Medicaid patient days as a percentage of total patient days, average length of stay (ALOS) in the hospitals and occupancy rate of the hospitals. The Medicare Severity—Diagnosis Related Groups (MS-DRGs) classifies severity of a disease condition into three levels. CMI is defined as the average relative weight for all cases reported with regards to MS-DRGs at a particular severity level. MS-DRGs for disease conditions with lower severity have lower relative weights, and MS-DRGs for disease conditions with higher severity have higher relative weights. Generally, for determining the CMI, a "base" MS-DRG is used, which combines the different levels of disease severity into a single level. Base MS-DRGs with a single severity level are widely used for reporting as compared with MS-DRGs with variable severity levels. The number of admissions includes adult and pediatric patients who are admitted during the reported period. It does not include births but includes neonatal and swing admissions. The ALOS comprises of the average number of days that an adult or a pediatric patient is admitted in the hospital. The ALOS is calculated by dividing the total number of patient days by the number of patient admissions or patient discharges. A patient day is also called a census day or an inpatient day of care or an occupied bed day. An occupied bed day is calculated as the period during which a service is delivered between the census-taking hours on two successive calendar days provided that the discharge date is the same as the admission date. Occupancy rate is the number of inpatient days of care or the number of hospital bed days divided by the quantity of available beds in the hospital multiplied by the number of days for the specific year. Medicare inpatient days include inpatient days where Medicare is the source of payment. The care is funded for Medicare enrollees covered under the traditional fee-for-service plan or the Medicare Managed Care Plan. Medicare fee-for-service claims for inpatients are covered under the Inpatient Prospective Payment System (IPPS), which covers acute inpatient care such as operating expenses and other capital expenses. Payments under the IPPS are predetermined and are based on the patient's

disease severity, treatment and hospital's market conditions. Under the IPPS system, Medicare inpatients can receive care for 60 consecutive days per episode of illness in a hospital or skilled nursing facility. Medicaid inpatient days include inpatient days where Medicaid acts as the source of payment. The care is funded for Medicaid enrollees covered under the traditional fee-for-service plan, the Medicaid Managed Care Plan, the Medicaid DSH and the Medicaid supplemental payments. The Medicaid supplemental payments are supplemental payments other than the Medicaid DSH payments paid by Medicaid to hospitals that exclude associated provider taxes or assessments (American Hospital Association, 2009; American Hospital Directory, 2009; Centers for Medicare and Medicaid Services, 2009; Dalpatadu *et al.*, 2007). In addition, we included several hospital characteristics such as teaching status (teaching versus non-teaching), hospital governance (NFP, FP and public), hospital location (metropolitan versus non-metropolitan), and hospital bed size (<25, 26–100, 101–250 and >250). Finally, to examine the impact of the state budget cut crisis, the use of a year dummy variable was included.

The samples consisted of 416 hospitals for Texas and 352 hospitals for California for each year that had NFP, FP and public hospitals by using reports of each state's Department of Health. In the multivariate analysis, we merged the data sets for of 2002, 2003 and 2005 into one data set. Separate fixed effects by hospitals for OLS regression analyses examined the impact of hospital size, ALOS, occupancy rate, Medicare and Medicaid patients' days, CMI, teaching status, and hospital governance on hospitals' uncompensated care, charity care and bad debt expenses spending with acute care hospitals for both states.

RESULTS

Table 1 shows the descriptive statistics of variables associated with uncompensated care during the test period. Before 2004, the means of bad debt and charity care expenses were \$7 861 275 and \$8 600 195 in Texas and \$5 171 235 and \$3 900 106 in California, respectively. For CMI, these were 1.20 (before 2004) and 1.18 (after 2004) in Texas. They were 1.29 (before 2004) and 1.28 (after 2004) in California. As far as hospital locations were concerned, about 298 hospitals (71.46%) were located in a metropolitan area, and the remaining hospitals (28.54%) were located in non-metropolitan areas in Texas. In California, there were 192 hospitals (54.55%) located in the metropolitan areas, and the remaining 160 hospitals (45.45%) were located in the non-metropolitan areas.

Table 2 indicates the mean differences among major variables (bad debt expenses, charity care and gross patient revenue) during the test period. The mean differences among all these three variables were statistically significant ($p < 0.05$) during the study period.

Results for uncompensated care, charity care, bad debt expenses and covariates are reported in Table 3. Results of the year effect variable confirm that 2005 was directly related to increased hospital spending of uncompensated care and charity care in Texas. The coefficients of the year effect of 2005 were significantly and positively associated with uncompensated care (0.43, $p < 0.05$) and charity care (0.29, $p < 0.05$). These results indicate that among the years 2002, 2003 and 2005,

Table 1. Descriptive statistics and uncompensated care related variables

Variables	Texas		California	
	Before 2004	After 2004	Before 2004	After 2004
	Mean (Std.)			
Bad debt expenses	$7 861 275 ($15 023 874)	$11 404 985 ($23 358 286)	$5 171 235 ($7 737 467)	$6 894 738 ($9 883 449)
Charity care expenses	$8 600 195 ($35 859 904)	$14 475 558 ($55 050 985)	$3 900 106 ($8 679 948)	$5 571 794 ($11 404 985)
Gross patient revenue	$54 551 531 ($8 942 874)	$70 052 513 ($1 138 726)	$93 602 081 ($13 980 693)	$98 520 024 ($18 690 607)
Case mix index	1.20 (0.29)	1.18 (0.29)	1.29 (0.28)	1.28 (0.27)
Number of admission	5888 (7979)	5644 (7651)	7588 (7294)	7830 (7530)
Days of Medicare	14806 (18882)	13988(17469)	12269 (13843)	12797 (14276)
Days of Medicaid	5387 (11859)	5324 (11728)	13321 (36237)	13378 (36237)
Average length of stay	7.51 (8.98)	7.75 (10.11)	11.82 (10.06)	8.5 (6.09)
Occupancy rate	54.01 (26.23)	51.48 (22.21)	63.68 (18.57)	64.32 (18.69)
	Frequency (%)			
Teaching status				
Non-teaching hospital	363 (87.05%)		336 (95.45%)	
Teaching hospital	54 (12.95%)		16 (4.55%)	
Hospital governance				
Not for profit	138 (33.09%)		191 (54.26%)	
For profit	150 (35.97%)		86 (24.43%)	
Public	129 (30.94%)		75 (21.31%)	
Hospital location				
Metro	298 (71.46%)		192 (54.55%)	
Non-metro	119 (28.54%)		160 (45.45%)	
Hospital size				
≤25	105 (25.18%)		25 (7.1%)	
26–100	154 (36.93%)		89 (25.28%)	
101–250	90 (21.58%)		127 (36.08%)	
≥251	68 (16.31%)		111 (31.53%)	

Table 2. Mean difference of major variables during the test period

Major variables	Texas	California
Bad debt expenses	$3 543 710*	$1 723 503*
Charity care	$5 875 363*	$1 671 688*
Gross patient revenue	$15 500 982*	$4 917 943*

*$p < 0.05$.

with other things being equal, the spending of uncompensated care and charity care was more positively related to 2005 compared with 2002 and 2003.

Table 3 also shows that the spending for charity care was more positively related to NFP hospitals than for others. Compared with NFP hospitals in Texas, results for hospital governance indicate that FP hospitals were directly related to decreased spending of charity care [-1.05 ($p < 0.05$) vs. -1.88 ($p < 0.1$)] in Texas and California, respectively. Compared with 2002, 2003 and 2005, for CMI, the coefficients for uncompensated care and charity care were 1.23 ($p < 0.1$) and 0.85 ($p < 0.1$) in Texas, respectively. For hospitals located in the metropolitan areas in Texas, the coefficients for uncompensated care and charity care were -0.28 ($p < 0.05$) and -0.2 ($p < 0.05$), respectively, compared with hospitals located in the non-metropolitan areas. In California, the coefficients for uncompensated care and charity care for metropolitan hospitals were -0.24 ($p < 0.1$) and -0.18 ($p < 0.1$) compared with non-metropolitan hospitals.

DISCUSSION

The healthcare industry is regulated and burdened by a growing number of uninsured patients, increasingly stringent reimbursement and growing competition between hospitals and other providers. Federal and state healthcare agencies are increasing the standards of eligibility for outlier payments and uncompensated care provisions. Tax exempt status of many NFP hospitals is being examined and tied to specific performance, particularly the provision of uncompensated care. This study provides empirical evidence of the impact of the Texas budget cut pressure on provision of uncompensated care as reported by Texas acute care hospitals.

Community benefit includes healthcare assistance to Medicaid population and other indigent federal or state population in the form of donations, research, health programs and other related activities (Texas Health and Safety Code, 2007). The demand of community needs is a major driver of charity care delivered by hospitals. If the community needs are same as or more than the amount of care delivered by hospitals, then hospitals will either provide the necessary care or provide care surpassing their ability to deliver. On the other hand, some hospitals might also deliver charity care to the community in an amount proportionate to securing tax benefits (Bryce, 2001). Community benefit laws are different in California and Texas. Under the California community benefit law, hospitals' charity care is process oriented, and hospitals are supposed to submit a community benefits plan to the Office of Statewide Health Planning and Development every year. The hospitals are not obligated to provide any set amount of charity care (California Health and

Table 3. Fixed effects by hospitals result with 2002, 2003 and 2005 combined data sets

Variables	Texas			California		
	R_{UC}	R_{CC}	R_{BD}	R_{UC}	R_{CC}	R_{BD}
Case mix index	1.23*	0.85*	0.38	1.33*	0.68	0.25
Number of admission	0.0001**	0.0001**	0.0007	−0.007*	−0.002	−0.003
Days of Medicare	−2.76	−2.14	−0.61	1.04	−0.16	−0.09
Days of Medicaid	0.13	0.11	0.13	−0.49	0.98	−1.26
Average length of stay	0.29*	0.18	0.12**	−0.14	0.25	−0.13
Occupancy rate	−0.035	−0.023	−0.01	−0.79	0.23	−0.12
Teaching status						
Non-teaching hospital	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Teaching hospital	0.81	−0.19	0.29	1.28**	0.94**	0.62**
Hospital governance						
Not for profit	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
For profit	−1.75	−1.05**	−0.69	−0.56	−1.88*	0.65
Public	0.79	−0.15	0.94	0.008	3.17**	−1.32**
Hospital location						
Non-metro	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Metro	0.28**	0.20**	0.38	0.24*	0.18*	0.41
Hospital size						
≤25	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
26–100	1.45**	1.04**	0.4	−1.67**	0.96	−1.28*
101–250	1.03	1.19*	−0.17	−1.32*	1.24	−1.23
≥251	−0.25	0.41	−0.69	−1.76	0.91	−1.6
Year effect of 2005	0.43**	0.29**	0.13	0.12	0.31**	−0.031

Absorbed by hospital ID.
*$p < 0.1$.
**$p < 0.05$.

Safety Code, 2008). Texas non-profit hospitals, on the other hand, have the following community benefit laws that abide the hospitals to provide pre-established amount of charity care and government-sponsored unreimbursed care: (i) in accordance to the need of the community, tax exempt benefits and the hospital's financial reserves, (ii) in an amount equal to or more than the advantages derived by the hospitals due to their tax exempt status or (iii) in an amount equivalent to at least 4% of the net patient revenue. Some non-profit hospitals in Texas also provide charity care and community benefits in an amount equivalent to about 5% of the net patient revenue (Texas Health and Safety Code, 2007; OSHPD, 1998; Sutton and Stensland, 2004). Many studies have shown that NFP hospitals provide more charity care compared with FP hospitals Herzlinger and Krasker (1987); Lewin *et al.*, 1988; Thorpe and Phelps, 1991; Norton and Staiger, 1994; Weissman, 1996). There are some possible reasons contributing to the charitable nature of the NFP hospitals. NFP hospitals share disproportionate burden of charity care compared with FP hospitals, which in turn further discourages FP hospitals from providing charity care. This might be the case in Texas as previous studies have shown that NFP hospitals in Texas sometimes generously provide community benefits more than they are required to, even in the absence of community benefit and charity care laws in order to promote their self interests such as conducting research and training of graduate medical students (Clement *et al.*, 1994; Buchmueller and Feldstein, 1996; Sanders, 1993; Herzlinger and Krasker, 1987; Spencer, 1998). The unreimbursed care of NFP hospitals might be the result of unreimbursed care of Medicaid and Medicare patients. Many times, there is "crowding out" by NFP hospitals leading to delivery of extra charity care by NFP hospitals. This extra charity care delivered by NFP hospitals leads to a reduction in the amount of charity care to be delivered by FP hospitals. Compared with Texas, our study shows more "crowding out" by NFP hospitals in California where NFP hospitals ($n = 191$) are almost double in number compared with FP hospitals ($n = 86$; Table 1). This might be one of the reasons that charity care is significant in California. Even though FP hospitals deliver a small amount of charity care, it might help them build goodwill that might further attract business from different buyers of healthcare services. Patients cannot easily differentiate between the quality of care obtained in NFP and FP hospitals. Hospitals with strong goodwill are presumed to deliver quality care to their patients. Thus, FP hospitals can attract business and use the profits generated due to the same for expansions and mergers (Seay *et al.*, 1986; Hirth, 1997; Marsteller *et al.*, 1998).

For-profit hospitals, even though providing community service to the communities, choose to serve and select markets where there is less likelihood of providing a sizeable proportion of charity care (Seay *et al.*, 1986). A study conducted by the University of California at Los Angeles located 12 metropolitan statistical areas (MSAs) with higher-than-average uninsured rates in Texas and California, which have large concentrations of immigrants (Commonwealth Fund, 2000). The study noted that in these MSAs, the Hispanic population accounts for a large percentage of the moderate-income and low-income residents who are less likely to be insured (Texas Department of Insurance, 2004). According to our study, Texas has doubled the number of hospitals in the metropolitan areas ($n = 298$) compared with the non-metropolitan areas ($n = 119$), compared with California, which has almost equal number of hospitals in the metropolitan ($n = 192$) and non-metropolitan areas ($n = 160$; Table 1). Most of the NFP hospitals are

located in the metropolitan areas compared with the non-metropolitan areas in Texas (Texas Fact Sheet, 2006). The higher number of NFP hospitals located in the metropolitan areas of Texas might be contributing to significant uncompensated care in Texas. The metropolitan/non-metropolitan differences found in this study substantiate claims that metropolitan hospitals, which are non-profit, act as major drivers in increasing hospital bad debt and fulfilling the need for charity care. Hence, policy makers need to divert their attention to hospitals located in the metropolitan areas.

From 2002 to 2007, the cumulative rise in the healthcare premiums was as high as 78% compared with 17% of cumulative inflation and 19% of cumulative wage growth, respectively. Increase in the healthcare premiums leads to people paying more for their insurance plan compared with the previous years. The type of insurance plan determines the coverage of services and the out-of-pocket expenditure borne by people. In 2004, the average out-of-pocket expenditure amounted to about 34% (Kaiser Family Foundation, 2007). Increase in the healthcare premiums can be attributed to factors such as (i) increases in prescription drug prices, (ii) increases in prescription drug usage, (iii) increases in physician fees, (iv) increases in specialist physician visits, (v) increases in home health, outpatient surgery, physical therapy and other ancillary services and (vi) administrative costs for health insurance related to case management, disease management, fraud and abuse prevention. The increase in health insurance premiums is causing more employees not to have any insurance coverage, and being uninsured causes more patients to visit the Emergency Room (ER) and have bad debts. The increased number of patients visiting the ER and the budget cut pressure further increase the burden of uncompensated care shouldered by the non-profit hospitals, which is in turn being cost shifted to patients with insurance. Thus, the numbers of uninsured people increase further, increasing the burden of uncompensated care faced by hospitals (Strayhorn, 2005). However, hospital bad debts account for a small portion of increase in annual hospital expenditures as well as the medical expenditures borne by the insurers. Combined efforts by the state government as well as the hospitals could assist the hospitals in alleviating their financial losses. The policy implications for the state government include initiating changes in several insurance-related factors such as reduction of cuts to the Medicaid program, expansion of the SCHIP program, increase in the federal funding for Medicaid program, encouragement to purchase insurance by providing federal tax credits and provision of Medicaid waiver to ensure affordable insurance for indigent population (Texas Comptroller of Public Accounts, 2001a, 2001b; Walker *et al.*, 2005). The hospitals can divert the ER patients to community health centers (CHCs) operated by primary care providers (PCPs), which will ensure provision of cost-effective healthcare services to indigent populations. This not only reduces uncompensated healthcare costs but also leads to proper dissemination of information by the PCPs to patients, thereby taking care of the non-emergent healthcare needs of some of the ER patients in the long run. However, it is essential that sustainable partnerships be built between the hospitals and the CHCs (Bennett *et al.*, 2007; Nykamp and Ruggles, 2000; Davidson *et al.*, 2003, McCarthy *et al.*, 2002; Steiner *et al.*, 2002).

A review of the literature provides evidence of changes in the hospitals' spending behavior impacted by cost containment (Hadley *et al.*, 1996). Data also illustrate differences in the uncompensated care and charity care after 2004 compared with

data from 2002 to 2003. Healthcare policy makers can evaluate hospital's spending and measure the consistency of provision of uncompensated care. This study provides an important policy directive in terms of assessing unintended consequences, if any, to implement an uncompensated care policy.

LIMITATIONS

There are several limitations to this analysis. Primarily, there is a possibility of selection history threat that occurs when the outcomes of an event are measured between the pre-observation and post-observation periods. In this case, there is a potential for such a threat given the possibility of the uncompensated care legislature actions suspending the future funding for Medicaid beneficiaries occurring during the same time frame as the Texas budget cut in 2004. Although this may only affect the Medicaid population, it can still result in skewed results. As a potential solution, Medicaid patients may be analyzed separately to account for such a threat. Secondly, because of data unavailability, this study excluded some of the market factors such as HMO penetration and self-insured paying patients that could impact uncompensated care. There was a lack of consistency in capturing these variables in the annual surveys. The survey did not differentiate patients who possess insurance but still contribute to bad debt expenses. These variables, if could be captured, would potentially provide a more accurate assessment about which of the dependent variables (charity care or bad debt expenses) would significantly affect uncompensated care burden borne by hospitals.

CONCLUSIONS

In spite of the limitations, this study provides an important step for filling a gap towards understanding spending behaviors associated with uncompensated care. The study provides an estimate of the uncompensated care charge with respect to net patient revenue and its association with resource allocation among hospitals based on the type of hospital governance. Not only does it highlight the need to look at trends in uncompensated care spending by hospitals, but it also shows the need to identify and study trends across the different types of hospitals.

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