

**STATE INTERVENTIONS AND HOSPITAL RESPONSE  
IN COMMUNITY HEALTH PROMOTION:  
A COMPARATIVE STUDY OF CALIFORNIA, TEXAS AND FLORIDA**

**by  
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## **ABSTRACT**

**WENDY L CHEN: State Interventions and Hospital Response in Community Health  
Promotion: A Comparative Study of California, Texas and Florida  
(Under the direction of Shouou-Yih Daniel Lee)**

The growth of under and uninsured populations and the corporatization of health care have raised concerns about whether not-for-profit hospitals are fulfilling their community-oriented mission. Starting in the early 1990, state governments began instituting laws to regulate not-for-profit hospitals' provision of community benefit services in exchange for their tax exemption status and subsequent advantages. This study employs a pre-post quasi-experimental design to investigate the effectiveness of community benefit laws, factors influencing not-for-profit hospitals' abilities to comply with these laws and the potential spill-over effects on for-profit hospitals' community benefit behaviors between 1991 and 2002. Results of the study suggest that the process-oriented California community benefit law was not effective in promoting not-for-profit hospitals' community benefit activities. The prescriptive approach to state community benefit law, as seen in Texas, significantly bolstered not-for-profit hospitals' provision of charity care. Hospital size positively facilitates not-for-profit hospitals' response to the laws. The effects of other contingency factors are inconsistent across states. Finally, the spill-over effects of state community benefit laws cannot be characterized uniformly across states. For-profit hospitals' reactions to increased not-for-profit contribution to community benefit activities vary by state and by policy design.

## DEDICATION

*für Elise*

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As it takes a village to raise a child, it certainly takes a village to complete a PhD program.

First and foremost,

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## **LIST OF ABBREVIATIONS**

|       |   |
|-------|---|
| AHA   | American Hospital Association                           |
| DSH   | Disproportionate Share Hospital Payment Program         |
| FFS   | Fee-For-Service   |
| FP    | For-Profit  |
| GAO   | General Accounting Office                               |
| HMO   | Health Maintenance Organization                         |
| IRS   | Internal Revenue Services                               |
| NFP   | Not-for-profit  |
| OSHPD | Office of Statewide Healthcare Planning and Development |
| SCHIP | State Children's Health Insurance Program               |
| TDH   | Texas Department of Health                              |

# **CHAPTER 1**

## **INTRODUCTION**

As of year 2005, nearly 46 million people are without health insurance on any given day in this country (Schoen et al., 2005; DeNavas-Walt et al., 2004; Friedman, 2005). Additionally, at least 16 more million adults with health insurance lack adequate coverage (Schoen et al., 2005). To these 62 million under- and uninsured US residents, access to a variety of public health and disease specific medical services is critical to the maintenance of their health status.

As the largest sector of healthcare providers as well as the provider of the last resort (Friedman, 2005), community hospitals' role in meeting the health needs of the indigent has become more crucial and controversial than ever before. Community hospitals have historically served a socially benevolent function in caring for the poor and the medically fragile (Rosenberg, 1987; Owens, 2005). As the financial cost of medical care soars and the health burden of the indigent climbs, public expectations of community hospitals' social investment and involvement persist. Yet, hospitals themselves have struggled to maintain financial solvency in a turbulent industry and economy in the last two decades (Friedman, 2005). In the last two decades, many have experienced closures and consolidations while others have downsized their staff, medical services, and unprofitable programs to keep



hospital operations afloat (Friedman, 2005). The tension between the charity and business missions of hospitals mounts (Greaney and Boozang, 2005).

Not-for-profit community hospitals have long enjoyed tax exemptions based on a charitable mission. However, the federal Internal Revenue Services (IRS) does not require charity care as a condition of maintaining federal tax-exempt status. Some argue that the virtues of their purpose alone are sufficient to merit their tax advantage, as in all non-health related not-for-profit entities (Gray, 1996). As long as not-for-profit community hospitals provide some benefits to the community and do not distribute profits, their tax exempt status remains unchallenged (Pauly, 1996; Greaney and Boozang, 2005). With growing health care costs, increases in the under- and un-insured population and shrinking public fundings (Pauly, 1996; Gray, 1996; Friedman, 2005), policy makers, especially those at the state level, have periodically questioned the merits of these tax advantages without evoking any real lasting changes until recently. Litigations have been filed against several not-for-profit hospitals based on the allegations of unethical billing and aggressive collection practices used on under and un-insured patients in the past two years (Geyer, 2004; Moroney et al., 2004; Maiuro et al., 2004; Unland, 2004). In February 2004, Provena Covenant Medical Center's tax-exemption status was revoked, sending shock waves through the hospital industry and sparked the attention of federal and state legislators (Maiuro et al., 2004; Unland, 2004). Later in the same year, The U.S. Congress held three hearing to examine hospital business practices, tax status, charitable activities, and alleged aggressive billing practices (Owens, 2005). Currently, the IRS and three congressional committees are devoted to investigating these charges against not-for-profit community hospitals (Moreney et al., 2004).

In May 2005, the House Ways and Means Committee held a hearing specifically on hospitals' uncompensated care (Healthline, 2005). The Government Accountability Office (GAO) was commissioned to produce a report on the provision of uncompensated care in hospitals and the extent of differences across hospital ownership types (Congressional Quarterly HealthBeat, April 2005; Healthline, 2005). The study found that government-owned or public hospitals devoted substantially larger shares of their patient operating expenses to uncompensated care than did not-for-profit and for-profit community hospitals. Among private community hospitals, not-for-profit hospitals' share of uncompensated care was generally higher than that of for-profit hospitals (GAO-05-743T). More importantly, results of the study suggested that, within each hospital group, the burden of uncompensated care costs was not evenly distributed. Only a small number of not-for-profit hospitals accounted for a substantial contribution to uncompensated care costs. The GAO concluded that the current tax policy lacks specific criteria with respect to tax exemptions for charitable entities and provided no details on how tax exemptions are determined.

This struggle with the growing under- and un-insurance problem and the responsibility of hospitals in meeting local health needs is most evident at the state level. Since the early 1990s, state governments have experimented with policy solutions to ensure hospitals' commitment to community health needs (Gray, 1996). A prominent example of such policy solutions is the community benefit law, which requires not-for-profit hospitals to uphold their commitment to the public and the medically needy by providing community health services and charity care. Socially, these state laws represent response to the public outcry for community accountability in hospitals and policy efforts to take not-for-profit hospitals back to their founding philosophies. Politically, they are a way for not-for-profit

hospitals to justify their tax advantages over their for-profit counterparts. Economically, they force hospitals to share states' burden of the growing uninsured and public health needs.

This study aims to (1) measure changes in the hospitals' provision of and financial expenditure on community-oriented health services as a result of state community benefit laws; (2) assess whether hospital compliance to community benefit laws is contingent upon their organizational structure (e.g. size, managed care contracts, membership in health systems and networks) and the level of market competition; (3) examine the spill-over effects in the provision of and financial expenditure on community benefit by for-profit hospitals as a result of state community benefit laws.

This study employs a longitudinal design that tracks the change in community benefit activities and charity care among hospitals in Texas, California and Florida from 1991 to 2002. It provides an in-depth comparative analysis of whether and how community benefit laws improve hospital provision of community health services and charity care. From a broader perspective, the study assesses the impact of a state health policy, the strategic responses of hospitals to different designs of policy interventions, and the dynamic interactions among hospitals of different ownership types. Results of the study will inform policy debates about not-for-profit hospitals' charitable tax exemption status—Is it justifiable given the level of community health involvement in not-for-profit hospitals vis-à-vis that of for-profit hospitals? How effective is state intervention in securing the social investment in not-for-profit hospitals? Ultimately, knowledge gained from this project will inform future policy formulation in relation to community benefit laws, in specific, and hospital and community relationships, in general.

## **CHAPTER 2**

### **BACKGROUND AND SIGNIFICANCE**

Hospitals, especially not-for-profit hospitals, are pressured to share the financial and care burdens of the under- and uninsured for two primary reasons. One, hospitals derive their social legitimacy from their abilities to care for the poor and the medically needy. U.S. hospitals are evolutionary products of the unique religious culture and class system of this society. In the early 1800s, health care was provided in two separate systems. That for the respectable members of the society was mostly home-based. On the other hand, care for the poor, the destitute, the insane, and the marginally criminal (prostitutes and alcoholics) was provided in almshouses—the forerunner of modern hospitals (Rosenberg, 1987; Marmor et al., 1987; Raffel and Raffel, 1994; Crimm, 1995; Dowling, 2002). Later, the first voluntary hospitals were established in the late 1700s and early 1800s at the urging of influential physicians and with the help of local philanthropists who sought to extend the reach of their Christian stewardship (Rosenberg 1987; Dowling 2002). Even though hospitals were a small part of the health care delivery system then, their founding philosophies has instilled a deep symbolic value of altruism in the American cultural conscience till today (Giffords et al., 2005). Two, private not-for-profit hospitals as a sector enjoys tax exemptions at the local, state and federal levels based on their professed commitment to community wellness.

Since the first enactment of the federal tax law in 1894, policy debates about how NFP hospitals may best qualify for their tax exemption status arise periodically over time. In 1956, the IRS issued a Revenue Ruling 56-185 and for the first time set forth affirmative requirements that NFP hospitals had to meet in order to be qualified or remain eligible for charitable exemption under Section 501(c)3 (Mancino 2001). These requirements included the proclamation of commitment to the care of the sick, prohibition to pay dividends, prohibition to restrict use of the facilities to particular groups of physicians, and medical staff composition issues (Montoya and Meyer 1998; Mancino 2001). Most importantly, Revenue Ruling 56-185 explicitly stated that NFP hospitals must “operate to the extent of [their] financial ability for those not able to pay for services rendered and not exclusively for those able and expected to pay.” Soon after the publication of Revenue Ruling 56-185, the factual nature of the financial ability test caused quite a few administrative problems for the IRS as well as for NFP hospitals. In 1959, the term “charitable” was then amended to encompass a broad concept of community benefit and public interest, not just relief for the poor (Montoya and Meyer 1998; Mancino 2001). In 1969, the IRS revised its interpretation of the charitable tax exemption standards to enunciate that promotion of community health was now a worthy and sufficient charitable purpose. In Revenue Ruling 69-545, not only did the IRS fall back on the “intrinsic” charitable nature of health care, it went so far as to rebuke its earlier ruling 56-185 by repositioning its interpretation of the word “charity” in section 501(c)(3) to include the common law meaning rather than simply the connotation of free care (Fox and Schaffer 1991; Potter and Longest 1994; Mancino 2001). It ruled that hospitals need not provide free or below-cost care to those unable to pay in order to qualify for federal tax exemption (Fox and Schaffer 1991). The IRS argued that such interpretation of the charitable

law was informed and supported by the hospital industry which anticipated a winnowing need for free care in view of the expanding Medicare and Medicaid programs (Fox and Schaffer 1991). In 1983, the IRS further eased the requirements for federal charitable tax exemption. While Revenue Ruling 69-545 acknowledged that promotion of health by its own virtue was a worthy charitable purpose, it was brought to question whether operating an open emergency room was an absolute requirement for tax exempt status. Revenue Ruling 83-157 confirmed that no specific types of activities were required of an NFP hospital in order to be entitled to exemption (Mancino 2001; Potter and Longest 1994). Many thought this modification was intended to introduce flexibility for NFP hospitals to commit to more “community benefits” rather than “charity care” (Nobel et al. 1998). However, given the malleable nature of the concept of “community benefits,” Revenue Ruling 83-157 might have introduced more ambiguity than flexibility to the tax policy.

According to the industry estimate, hospitals provide anywhere from \$25 billion to \$50 billion on community services and between \$10 billion to \$30 billion of uncompensated care every year (Gaskin, 1997; Thorpe and Spencer, 1991; Community Catalyst, 2003b; Vladeck, 2006). While it is difficult to ascertain the exact amount of tax exemptions incurred by, or subsidies distributed to, not-for-profit community hospitals in recent years, the general consensus is that not-for-profit hospitals’ contributions to community benefit and charity care fall short of their tax advantages (Herzlinger and Krasker, 1987; Morrissey et al., 1996; Greaney and Boozang, 2005). Combined with the currently weak interpretation of federal tax-exemption law by the Internal Revenue Services (IRS) that fail to require charity care as a condition for maintaining not-for-profit hospitals’ federal tax-exempt status (Greaney, 2005; Horwitz, 2003), the fiscal discrepancies have rekindled the policy debate on the tax

privileges of not-for-profit hospitals (Pear, 2006). In addition, concerns over the latest trend of consolidations in the hospital industry and about hospitals' commitment to local communities (Young et al., 2000; Reiley, 2003; Lee et al., 2004; Maiuro et al., 2004; Unland, 2004) have prompted state governments to experiment with regulatory responses in the form of legal statutes that require not-for-profit hospitals to justify their tax exempt status and uphold their social responsibility to the community by engaging in community benefit activities and programs.

An immediate question about state community benefit laws is how effective such state regulations are in propelling hospitals to address community health needs. In essence, these laws establish a standard of community benefit to which not-for-profit hospitals are obliged and accountable. Without such a standard, it is difficult to monitor and regulate hospitals' commitment to the health burdens of local communities, and to stipulate criteria and merits for hospital tax exemptions. However, to date, very little research has been devoted to evaluate the impact of community benefit laws. A significant part of the challenge is data availability. A decade has now passed since the first states enacted the statute in the early 1990s. Thus, sufficient data have been accumulated that will allow an in-depth examination of the impact of the law.

This chapter will (1) discuss hospital ownership differences in terms of community benefit activities; (2) describe the historical context, in terms of health services research and politics, that contributed to the birth of community benefit laws; (3) summarize the community benefit laws in California and Texas as examples of two different approaches; (4) review prior literature on community benefit laws; (5) define the scope of this study; and (6) explain the significance of this study.

### **2.1. Literature on Hospital Ownership Differences**

All hospitals are not created equal. Their ownership status, differentiated by the Internal Revenue Services (IRS) code, dictates a significant portion of their organizational goals and functions. For-profit hospitals are investor-owned and profit driven (Becker and Sloan, 1985). Hospital purchasing and operational decisions are made based primarily on stockholders' or shareholders' demand for positive returns to their investments (Potter, 2001). Hospitals that declare and are accepted for their charitable purposes under Section 501(c)(3) of the Internal Revenue Code are considered not-for-profit entities and are eligible to be exempt from federal and state income taxes, state franchise and sales taxes, and local income, sales and property taxes (DiMaggio and Anheier, 1990; Mancino, 2001; Pauly, 1996; Montoya and Meyer, 1998). Unlike for-profit hospitals, not-for-profit hospitals are prohibited from distributing their profits. Instead, profits must be reinvested in the hospital (Pauly, 1996; Potter, 2001). A major advantage of the not-for-profit status is that it allows hospitals to access low-cost financing tax-exempt bonds as well as charitable donations that are tax deductible for donors (Montoya and Meyer, 1998; Potter, 1994).

Despite these legal and missionary differentiations, health services researchers have long disputed the practical and functional differences between for-profit and not-for-profit hospitals (Herzlinger and Krasker, 1987; Sloan et al., 2001; Norton and Staiger, 1994; Sloan, 2000; Arrington and Haddock, 1990; Gray, 1993; Shortell et al., 1986; Sloan and Vraciu, 1983; Boscarino and Chang, 2000). A brief and focused literature review on hospital ownership and provision of community benefit, in terms of uncompensated care and



nontraditional unprofitable services, showed that results of research often yield inconsistent conclusions.

In the 1980s, Sloan and Vraciu (1983) used Florida hospitals to compare hospital ownership differences. They found that for-profit and not-for-profit system hospitals were virtually identical in terms of after-tax profit margins, percentages of Medicare and Medicaid patient days, and the dollar value of charity care and bad debt adjustments to revenue. This study suggested that ownership was a poor predictor of a hospital's willingness to treat low-income patients, costs to the community and profitability.

In 1986, Shortell et al. examined the effects of ownership on hospital provision of nontraditional services by comparing selected system-affiliated hospitals with their market competitors. The study sample included 550 system hospitals, belonging to 8 multi hospital systems, and 555 freestanding community hospitals. Nontraditional or alternative services were defined as ambulatory care, geriatric care, health promotion, home health and extended care and outpatient diagnostic services and service delivery alternatives such as HMOs and PPOs. The research results revealed that not-for-profit systems hospitals offer more non-traditional as well as more unprofitable services than their for-profit counterparts. For-profit sole hospitals, defined as the only hospital in the community, provided fewer nontraditional services than not-for-profit sole hospitals did. More importantly, Shortell et al. (1983) found that external milieu, such as market competition and government regulation, had an impact on hospital care delivery. For example, systems hospitals were less likely to provide charity care in highly competitive markets than in less competitive markets. However, systems hospitals did offer more nontraditional services when competition was high than when it was

low. Both for-profit and not-for-profit hospitals provide more nontraditional services when Medicaid eligibility levels are high than when they are low.

In 1987, Herzlinger and Krasker examined 14 major hospital chains, 6 for-profit and 8 not-for-profit, on their contribution to social goals. Their results concluded that not-for-profit hospitals did not achieve better social results than for-profit hospitals did. In particular, not-for-profit hospitals were not more accessible to the uninsured and medically indigent. In response to Herzlinger and Krasker's research and their questioning of social subsidization for not-for-profit hospitals, Arrington and Haddock (1990) employed discriminate analysis to estimate the performance differences between not-for-profit and for-profit hospitals. Arrington and Haddock purposely modeled their study parameters after those of Herzlinger and Krasker (1987). The results were contrary to those of Herzlinger and Krasker. Arrington and Haddock found that not-for-profit hospitals indeed offered more social benefits than for-profit hospitals. Not-for-profit hospitals appeared more accessible to the uninsured and medically indigent than were for-profits. Moreover, not-for-profit hospitals invested more in capital improvement to provide for the long-term needs of the communities they served than did for-profits. Finally, not-for-profit hospitals were more involved in professional education than for-profit hospitals did.

In 1994, the rapid growth in the for-profit hospital population prompted Norton and Staiger to evaluate the merit of ownership status in relation to hospital provision of free care to the uninsured. Noting the uneven geographic distribution of hospitals by ownership, this study controlled for and tested the endogeneity between hospital ownership and service. Results of the study suggested that ownership did not affect the level of charity care provided by any given hospital after controlling for the endogeneity of geographic locations. However,

for-profit hospitals tended to self-select into well-insured areas, thereby showing a negative correlation between for-profit ownership and volume of charity care.

Boscarino and Chang (2000) used a 1993 survey of all private medical and surgical hospitals in the United States to determine the scope of preventive and palliative services provided by ownership status. This study focused on thirteen services: adult day care, outpatient AIDS care services, Alzheimer's assessment services, chaplaincy services, community health programs, fitness centers, health sciences library, home health services, hospice, outpatient rehabilitation, respite care, outpatient social work, and women's health center. They found that not-for-profit and church operated hospitals are more likely to provide preventive-type and palliative type services, with the exception of women's health center and Alzheimer's programs.

Using the 1997 American Hospital Annual and Governance Surveys, Lee et al. (2004) explored the association between community social capital and hospital provision of community benefits among 2,079 community hospitals. While the results did not find a direct relationship between community accountability and hospital provision of community benefit, it did find that not-for-profit hospitals were more likely to implement more community accountability mechanisms and provide more community oriented services than for-profit hospitals were. In addition, the results showed a significant interaction between voting participation and not-for-profit hospital ownership. In other words, in communities where residents were more politically active, not-for-profit hospitals displayed a higher level of community accountability.

Amid all the hospital system expansions and conversions during the 1990s, some researchers noticed a convergence in the performance behaviors among not-for-profit and

for-profits hospitals. Potter (2001) takes a sociological approach to study this trend over a period of fifteen years. Her research used emergency room utilization and hospital teaching commitment as indicators of community benefit. Results showed that not-for-profit hospitals provided more emergency care than for-profit hospitals did. However, this difference was more prominent in 1980 than in 1994. In terms of hospital teaching commitment, there was no evidence of convergence between for-profit and not-for-profit hospitals during the study period. Potter (2001) concluded that not-for-profit hospitals were shown to continue their community benefit mission as they pursued efficiency strategies. In addition, after controlling for environmental (i.e. market competition, unemployment rate, etc.) and organizational factors (i.e. hospital size, average length of stay, etc.), the difference between for-profit and not-for-profit hospitals became more pronounced. Even though there was a convergence in hospitals' emergency room utilization rate, not-for-profit hospitals still provided more community services than their for-profit counterparts during the 15 years of study period.

In sum, this brief literature review suggested that two decades of hospital ownership research have not definitely settled the debate around hospital provision of community benefit by ownership. One of the primary problems may be that researchers often try to grasp the essence of the relationship between hospital ownership and performance from their unique perspectives and select their study variables accordingly. A lack of consensus on how best to measure these broad concepts has led to inconsistency in research findings. Regardless, these mixed or inconsistent findings from the last decades of research on the subject may have motivated state policy makers to standardize and regulate not-for-profit hospitals' provision of community benefit. Given that hospitals would continue to shoulder

varying legal obligations based on their ownership status, state community benefit laws are one policy effort to enforce and distinguish not-for-profit hospitals' social commitment.

## **2.2. The Inception of Community Benefit Laws**

In the early 1990s, the US was in economic recession. Growth of state revenues was slow and states were reluctant to raise taxes. At the same time, demand for social assistance was rising (Coughlin and Liska, 1997). The charitable tax policy came under intense public scrutiny as policy makers at the state level contended against the loss of potential tax revenues from not-for-profit hospitals (Buchmueller and Feldstein, 1996). With a whirlwind of interest, more than thirty states across the country have proposed or experimented with legal and/or legislative procedures to develop a better set of community benefits standards for not-for-profit hospitals to merit their tax advantages (Moskowitz, 1993). As of 2006, seventeen of those states (Table 2.1) have instituted community benefit laws for their not-for-profit hospitals (Ginn and Moseley, 2006; Maiuro et al., 2004; Coalition for Nonprofit Health Care, 1999; Community Catalyst, 1999, 2001 and 2003a; Seto et al., 2000; Hospital Association of Illinois, 2003; Revised Code of Washington 70.170.060; Taylor, 2006).

**Table 2.1. Information on the 17 states that instituted community benefit laws**

| <b>State Laws</b> | <b>Approval Date</b> | <b>Effective Date</b> | <b>Amendment Date</b> | <b>Design Approach*</b> |
|-------------------|----------------------|-----------------------|-----------------------|-------------------------|
| Washington        | 1989                 | July 1, 1990          | June 1, 1994          | Process                 |
| West Virginia     |                      | July 1, 1990          |                       | n/a                     |
| Utah              | 1990                 | December 18, 1990     |                       | Prescriptive            |
| New York          |                      | January 1, 1991       | July 1, 1996          | Process                 |
| Texas             | June 2, 1993         | September 1, 1993     | 1995, 1997            | Prescriptive            |
| Massachusetts     | 1994                 | June 1994             | January 2003          | Process                 |
| Indiana           | 1994                 | July 1, 1994          |                       | Process                 |

|               |                    |                    |                  |              |
|---------------|--------------------|--------------------|------------------|--------------|
| Minnesota     |                    | July 1, 1994       | 2002, 2004, 2006 | n/a          |
| California    | September 25, 1994 | September 29, 1996 |                  | Process      |
| Georgia       |                    | July 1, 1997       |                  | n/a          |
| Pennsylvania  | November 26, 1997  | December 1997      |                  | Prescriptive |
| Rhode Island  |                    | Before 1999        |                  | n/a          |
| Idaho         | March 19, 1999     | January 1, 1999    |                  | Process      |
| New Hampshire |                    | January 1, 2000    |                  | n/a          |
| Maryland      |                    | October 1, 2002    |                  | n/a          |
| Illinois      |                    | October 7, 2003    |                  | n/a          |
| Connecticut   |                    | January 1, 2005    |                  | n/a          |

\*defined by Coalition for Nonprofit Health Care, 1999.

### **2.3. Community Benefit Laws**

Community benefit laws are state policies that require not-for-profit hospitals to uphold their commitment to the public and the medically needy by providing community health services and charity care. The laws arose from the unique social, political and economic histories of the individual state environment. For example, in California, bills were initially introduced to strip the tax-exempt status of not-for-profit hospitals. These bills drew strong opposition and were defeated by the California not-for-profit health care community. In contrast, the Texas law originated from a law suit filed by its Attorney General against Methodist Hospital, Houston, claiming that the hospital was not entitled to property tax exemption based on the level of charity care it provided. These experiences helped to shape existent community benefit laws.

Despite the distinct environments that gave rise to the laws in different states, the existing laws fall under the purview of two general categories. The first one takes on a process approach that requires hospitals to plan and report community benefits plans. The second employs a prescriptive approach which requires a minimum level of hospital expenditure on community benefits (Coalition for Nonprofit Health Care 1999). This study

uses California and Texas as the representative state for each of these approaches, respectively.

#### 2.3.1. Senate Bill 697 of California - A Process Approach

In 1994, the California Legislature passed an amendment (SB 697) to the Voluntary Health Facility and Clinic Philanthropic Support Act to re-affirm the importance of philanthropic support for voluntary health facilities and clinics to continue innovations in health services and to supplement government expenditure on health care. It further linked not-for-profit hospitals' tax advantages to their social obligations. An important element in this bill was the requirement for private not-for-profit hospitals to reaffirm their community benefits mission by July 1, 1995. They were required to complete a community needs assessment, in conjunction with other health care providers or through a process of consulting with community groups and local government officials by January 1, 1996, and adopt and update a community benefits plan by April 1, 1996. These community needs assessments must be written documents to be filed, updated, and re-evaluated annually. In addition, not-for-profit hospitals must delineate mechanisms with which to evaluate their community benefits plan in their reports to the Office of Statewide Health Planning and Development (OSHPD). Each not-for-profit hospital is required to submit their complete plans to the OSHPD, which in turn, compiles an annual report to the state legislature.

For planning and reporting purpose, the California legislature broadly defines community benefit as a hospital's activities that are intended to address community needs and priorities primarily through disease prevention and improvement of health status,

including, but not limited to (1) health care services<sup>1</sup>; (2) the un-reimbursed cost of services; (3) financial or in-kind support of public health programs; (4) donation of funds, property, or other resources that contribute to a community priority; (5) health care cost containment; (6) enhancement of access to health care or related services that contribute to a healthier community; (7) services offered without regard to financial return because they meet a community need in the service area of the hospital, and other services including health promotion, health education, prevention, and social services; (8) food, shelter, clothing, education, transportation, and other goods and services that help maintain a person's health (California Health and Safety Code Section 127345).

It appears that the primary objective of the law is for OSHPD to use the submitted plans to identify and prioritize the most prevalent characteristics of community needs and to develop recommendations for community benefits and community priorities for future planning purposes. Even though the OSHPD is also charged with identifying those hospitals that did not file plans on a timely basis, the legislation only mentions not-for-profit hospitals' social obligation in exchange for their favorable tax treatment, but never explicitly states penalty for non-compliance.

### 2.3.2. Community Benefit Law of Texas – A Prescriptive Approach

In 1993, the Texas Governor approved the Texas community benefit law that required government-owned and private not-for-profit hospitals to reinstate their philosophical and practical commitment to serving community health needs. Section 311.043 of the health and

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<sup>1</sup> Especially those rendered to vulnerable populations, including, but not limited to, charity care and the unreimbursed cost of providing services to the uninsured, underinsured, and those eligible for Medi-Cal, Medicare, California Childrens Service Program, or county indigent programs (California Health & Safety Code §127345).



safety code simply and clearly delineates that it is the duty of not-for-profit hospitals to provide community benefits in order to maintain their tax exemption. The law was amended in 1995 to clarify definitions of community benefits and charity care (Texas Health and Safety Code Section 311.042). It was again amended in 1997 to reach the current configuration<sup>2</sup>.

The laws stipulates that not-for-profit hospitals must devise a community benefits plan to include a mission statement that identifies the hospital's commitment to the community, a community-needs assessment, an identified target population, evaluation and community feedback mechanisms and a budget. Moreover, hospitals must provide community benefits according to one of the following standards: (1) charity care and government-sponsored indigent health care at a level that is reasonably related to community needs as determined by community needs assessment; (2) charity care and government-sponsored indigent health care in an amount equal to at least 100% of the hospital's tax-exempt benefits, excluding federal income tax; or (3) charity care and community benefits provided in a combined amount equal to at least 5% of the hospitals' net patient revenue, provided that charity care and government-sponsored indigent health care are provided in an amount equal to at least 4% of the net patient revenue (Texas Health and Safety Code Section 311.044, Section 311.045; Buchmueller and Feldstein, 1997; Community Catalyst, 1999; Coalition for nonprofit Health Care, 1999).

Annual reports of community benefits plans must be filed to the Texas Department of Health (TDH) no later than April 30th of each year. The TDH has the authority to assess a civil penalty of up to \$1000 for each day a hospital does not file its annual community benefits plan. More important, the evaluation of compliance in Texas focuses primarily on

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<sup>2</sup> Texas Health & Safety Code §311.044 and §311.045.

the community benefit expenditure standards. Hospitals that fail to meet the minimum community benefits standard would be reported to the Attorney General who would evaluate the causes of noncompliance and may revoke a hospital of its property tax exemption privilege (Coalition for Nonprofit health Care, 1999; Community Catalyst, 1999).

Perusing these two different versions of community benefit laws, the Texas prescriptive approach appears more comprehensive in its inclusion of the process elements prescribed by the California law, in addition to the specific financial requirements. The California approach focuses on planning and reporting purposes. Although it alludes to a financial aspect of community benefit via unreimbursed and charity care, hospitals are only required to assign, to the extent practicable, and report the economic value of community benefit provided (California Health and Safety Code Section 127350). The Texas version requires hospitals to devise a community benefit plan without enlisting types of services, as the California law does. Instead, it delineates unambiguously the community benefit requirements in fiscal values. Further, unlike the California law, the Texas version is specific and stringent in its noncompliance penalty. Hospitals have a clear timeline and expectations from which to adjust their community benefit behavior. Based on the design of the state community benefit laws, it is reasonable to assume that the Texas prescriptive approach to the law would have a larger impact in changing hospitals' behaviors in term of provision of community benefit than the California process approach would.

#### **2.4. Literature on Community Benefit Laws**

For the past decade and a half, many state governments have expressed interest in, and some have committed to, regulating hospital provision of community benefit in exchange

for their tax exemptions (Moskowitz, 1993; Coalition for Nonprofit Health Care, 1999; Hospital Association of Illinois, 2003). As recently as January 24, 2006, Illinois Attorney General proposed the Tax-Exempt Hospital Responsibility Act which requires not-for-profit hospitals to provide a minimum percentage of free services in order to maintain their tax-free status (Kaiser Daily Health Policy Report, 2006). Despite such persistent and continual interest, there is a disconcertingly lack of research on the effectiveness of state community benefit laws. That is not to say that there is a shortage of peer review literature on hospital provision of charity or uncompensated care, or even community-oriented services; however, rarely do they relate directly to the state community benefit laws.

After an extensive literature search, four empirical studies are found to investigate specifically the impact of community benefit laws. First, Barnett (2002) from the Public Health Institute was commissioned by the California Endowment to conduct a qualitative study to assess the status of community benefits in California. This study surveyed not-for-profit hospitals in California to document programs and activities that optimized the use of charitable resources to address unmet health needs of local communities. Specifically, Barnett (2002) identified exemplary community health initiatives offered by these facilities and the challenges they faced in their efforts to meet community health needs.

The mailed survey received a response rate of approximately 35 percent, representing 81 out of the 234 not-for-profit hospital facilities in California. The strengths of the study lay in the identification of programs that produced measurable improvements in health status and quality of life among hospital target populations and communities. It also pointed out institutional policy changes and strategic investments devoted to strengthening hospitals' commitment to community health, in addition to activities that maintain ongoing partnerships

with community stakeholders. Further, it described challenges faced by survey respondents including (1) a lack of dedicated staffing and resources; (2) a lack of sub-county data on health needs; (3) obstacles to coordination with local public health agencies; (4) competition and turf issues among community stakeholders; and (5) a lack of internal policies and procedures that encourage quality improvement and foster increased accountability. These insights gave rise to a set of recommendations to encourage not-for-profit hospitals to learn from the selected best practice initiatives and to increase coordination between hospitals and local public health agencies. On the broader policy level, this report also called for the need to identify a uniform definition and measures for community benefits or charity care and to increase public health understanding about community benefit planning and implementation.

Given the qualitative and documentary nature of the study, it is not appropriate to draw any statistical inferences about the impact of the community benefit law from the study findings. In addition, the cross-sectional design of the study did not allow for the examination of time effect on the status of community benefits in California. In other words, the implementation of community benefit law could only be viewed as one of the many contextual factors that influenced hospitals' commitment to community benefits at one point in time. There was no assessment of the changes in types or amount of health programs and activities provided by the respondent hospitals before and after the implementation of the law for a systematic evaluation.

Second, the California HealthCare Foundation issued a series of three policy briefs on hospital charity policies and the California health care safety net in 2002 and 2003. Two out of the three policy briefs were related to community benefit laws. In the first study, Sutton et al. (2002) used a survey technique to gather information about the provisional guidelines of

California hospital charity care policies in an effort to better identify the beneficiaries of these policies. The study findings indicated that hospitals offer more flexible charity care eligibility criteria than most public health programs. It also re-affirmed hospitals' potential to extend access to charity care for low-income populations through various creative uses of care eligibility guidelines.

In the next study, Sutton et al. (2002) compared charitable contributions reported by for-profit and not-for-profit hospitals in California in 1998. The authors cited the community benefit law (SB 697) and the continual debate about whether not-for-profit hospitals deserve their preferential tax treatment as the impetus behind the scientific inquiry. They used data from the California OSHPD 1998 Annual Financial and Patient Discharge Database to examine the number of charity care discharges and total charity care expenditure incurred by private acute care hospitals. Study results showed that expenditures on charity care do not differ by hospital ownership status. However, not-for-profit hospitals tend to incur charity care expenditures from costs of providing care to the uninsured rather than from financial losses from the Medi-Cal program. In other words, not-for-profit hospitals shouldered a disproportionate amount of financial and care burdens from the under- and uninsured, despite a seemingly equitable financial investment in charity care by these two types of hospitals.

The primary strength of this study series lay in the depth of its inquiry. It sought to understand the how well the community benefit law was translated into actual provisional guidelines of hospital programs, whether charity care contributions differed by hospital ownership and who ultimately benefited from these charity care programs. Study results were followed by a set of practical recommendations to encourage further expansion of or better access to charity care programs for the needy populations.

In terms of weaknesses, Sutton et al. (2002) relied on a cross-sectional design that prevented causal inferences. In fact, the primary focus of these studies seemed to be on documentation, rather than inferences and/or explanation. Therefore, even though these studies alluded to issues raised by the community benefit law, they could not offer insights into the actual impact of the legislation. Further, in the comparison of for-profit and not-for-profit charity contribution, Sutton et al. (2002) acknowledged that they did not include environmental factors in the analysis. Given that hospitals serve communities with different demographic characteristics, the inclusion of environmental variables would be critical in controlling for bias in the statistical analysis (Norton and Staiger, 1994).

In sum, Barnett (2002) and Sutton et al. (2002) offered a snapshot of how hospitals fared in terms of their provision of community health programs and activities after the implementation of community benefit law in California. The reports were written for policy makers and provided scant information about the research design of the studies. However, several conclusions seemed clear. First, both studies were focused on California hospitals and their findings might not be generalizable to other states with community benefit laws. Second, it was unclear how California hospital fared compared to other states with similar legislations or to states without such legislations. Most importantly, the cross-sectional design of the studies could not assess whether the community benefit law made a difference in hospitals' commitment to community health needs.

Third, Sutton and Stensland (2003) used descriptive and multivariate analysis methods to examine and compared California private hospitals' charity care expenditure with those of hospitals in Washington State and Texas between 1996 and 1998, as a result of state community benefit and charity care laws. They modeled charity care expenditure as a

function of state difference, hospital mission, community need, hospital market and hospital financial health. The results of this study found that, after controlling for hospitals characteristics, Texas hospitals were estimated provide over 3 times more charity care and Washington hospitals were estimated to provide 66% more charity care than California hospitals did. They also indicated that hospital financial health was not a significant predictor of hospital charity care expenditure. Sutton and Stensland (2003) concluded that more prescriptive community benefit or charity care requirements may be necessary to ensure that private hospitals assume a larger role in the care of the uninsured.

The principle strength of this study was that it represented the first research effort to explore indirectly the impact of state community benefit and charity care laws longitudinally. It also employed a unique theoretical approach to examine hospitals charity care expenditure by testing the effect of prior financial performance on hospitals' current ability to dispense free healthcare assistance to the poor. One of the major weaknesses of the study, as mentioned by Sutton and Stensland (2003), was that the analysis only focused on one aspect of the broadly defined community benefit concept. Even though the authors related private hospitals' charity care expenditure to the community benefit and charity care laws, it was unclear how the authors made such a direct inference. There may be other policy or organizational causes to hospitals' charity care expenditure decisions.

Finally, the most recent study on the subject examined the effect of state community benefit laws on hospitals' community health orientation and their provision of health promotion services (Ginn and Moseley, 2006). Using a multiple regression analysis, this study compared hospitals residing in states with community benefit laws with those residing in states without the laws in the year 2000 and tested the effect of the laws on hospital

behavior by ownership types. Results indicated that both not-for-profit and for-profit hospitals in ten states with community benefit laws/guidelines reported significantly more community health orientation activities than their counterpart not-for-profit and for-profit hospitals in the forty other states. Ginn and Moseley (2006) concluded that state community benefit laws were effective in compelling not-for-profit hospitals to report more community orientation activities through coercive mechanisms. At the same time, mimetic pressures associated with these laws also effectively induced for-profit hospitals to report increased similar activities.

As indicated by the authors, this study was among the first laudable attempts to examine directly the effect of state community benefit laws on hospitals behavior. Its research methodology was derived logically from a solid theoretical framework. However, this study took a very general approach to compare hospital reporting of community health orientation activities by ownership across fifty states. It did not account for the complexity and content differences seen in the varying state community benefit laws. Instead, its dependent variable of community health orientation activities was limited to just one aspect of community benefit broadly defined by the myriad state laws. Further, the cross-sectional design greatly reduced its causal inferential power on the effect of these laws.

This dissertation study fills the gaps found in these studies by evaluating the effectiveness of community benefit laws in two different states using longitudinal data set to control for the time trends. Hospitals in another state without the law are also included as a comparison group in the analysis. Further, this study compares provision of community benefits by hospital ownership status and takes into account the socio-economic and demographic variations in hospitals' environments.



## **2.5. Scope of This Study**

To investigate the impact of state community benefit laws, there are several key concepts that need to be clarified. First, the notion of hospital ownership, for the purpose of this proposed research, is limited to private for-profit and not-for-profit short-term general community hospitals. Public hospitals are not the focus of the study because they operate under a very different set of financial incentives as well as social obligations. Their government-supported nature requires that they provide a disproportionate amount of community benefits. Therefore, their patient mix and financial structure are largely different from those of private hospitals. Further, public hospitals have been shielded from the public debate about hospitals' entitlement to tax advantages precisely because of their mandated social obligations. This proposed study will focus on hospitals in the private sector only.

Second, the concept of community benefit is difficult to clearly delineate. As described in the previous section, California and Texas community benefit laws define community benefit broadly to include four aspects: (1) hospital programs/activities, (2) financial contributions and personnel activities, (3) special needs populations, and (4) efficiency. Community-oriented wellness and health promotion programs, prevention services, adult day care, child care, food, shelter, education, outreach and transportation are programs that hospitals can provide to fulfill their community benefit responsibility. Charity care, uncompensated care to the uninsured and underinsured, indigent programs, financial and in-kind support of public health programs, as well as personnel devoted to relevant community health activities are examples of the financial contributions hospitals make to enhance commitment to their communities. The law also emphasizes hospitals' role in

providing health services to vulnerable populations (Medicaid patients) through previously mentioned programmatic and financial means. Finally, cost containment and administrative efficiency that enhance health care access are also considered as community benefit.

The all-encompassing nature of community benefit has created difficulties for researchers to operationalize this concept in a uniformly satisfactory manner (Owens, 2005). A literature review reveals that the most commonly used estimate of community benefit or social good is uncompensated care derived from the sum of charity care and bad debt. Many researchers have pointed out that charity care should not be conflated with bad debt. However, the wide range of variation in hospital accounting practices makes it practically impossible to differentiate the two measures as an indication of insufficient payment received from patients. (Claxton et al., 1997; Clement et al., 1994; Desai et al., 2000; Young et al., 1997; Thorpe et al., 2000) In some instances, researchers do not specify the source of uncompensated care. They are simply aggregated as services provided to the uninsured. (Norton and Staiger, 1994; Blumenthal et al., 2000)

Access to programs or health services aimed to promote community health status is reported as another form of community benefits. These programs or services are often unprofitable to the hospitals. Shortell and colleagues (1986) delineated a cadre of nontraditional services including ambulatory care, geriatric care, health promotion, home care and outpatient diagnostic services and compared their availability among investor-owned and not-for-profit hospitals. Lee et al. (2003, 2004) evaluated hospitals' community orientation by the availability of 17 specific health service programs such as child wellness, fitness center, health screening, nutrition program, and social work. This measure of

community benefits is extremely difficult to quantify in terms of monetary values. Instead, their cumulative sum usually forms the basis for analysis.

Some studies have attempted to capture the breadth of community benefits by devising an index representing a combination of myriad potential benefits offered by the hospitals. Clement and colleagues (1994) developed a value of total community benefits derived from the sum of uncompensated care, education and research, net income, money-losing services and price discounts as a percentage of the total assets of the hospital. Several assumptions about the hospitals total assets and service price setting practices were made in order to standardize this measurement. Arrington and Haddock, (1990) in their rebuttal of the Herzlinger and Krasker's 1987 study, used a combination of seven specific community services and emergency room visits as a proxy for access to compare the level of community benefits offered by a hospitals. In Schlesinger et al. (1997) study of psychiatric hospitals, an index of hospital service mix and the level of uncompensated care constitute the dependent variables in the comparative analysis.

Further, resources devoted to research and education has been measured as a potential community benefit because knowledge and skills generated by these programs benefit the community at large. Blumenthal et al. (2000) investigated the changes in the commitment to graduate medical education in three teaching hospital conversions. Hospital teaching status or commitment has been used as a community benefit outcome as well (Potter, 2001). Research found that hospitals with teaching programs treat a more costly mix of patients, maintain larger reserve margins and have larger staff, and offer more extensive treatment options than do non-teaching hospitals (Potter, 2001; Thorpe, 1988). Since these

hospitals are typically not reimbursed the full cost of such care, their teaching commitment is viewed as a proxy for provision of community services (Potter, 2001).

Occasionally, there are efforts to quantify social responsibility or quality of care as part of the community benefits index. Phillips (1999) used the median household income and number of Medicaid patient days as a percentage of total patient days to depict the level of Medicaid and indigent patients that the hospitals serve. In a managed care study by Schlesinger et al. (1996), community benefit was defined as public goods, information created and disseminated, and a complex array of quality of care measures.

In sum, researchers often choose to highlight a singular aspect of community benefit in their studies for the ease of analysis and interpretation of outcomes. As a result, they inevitably sacrifice the conceptual validity and the breadth of the notion of community benefit. Based on the stipulation of the state community benefit laws, it is reasonable to assume that policy makers construe community benefit as a broad and multifaceted concept that is not limited to one interpretation. Therefore, this dissertation study seeks to focus on and derives key dependent variables from three (programmatic, financial and special population) aspects of community benefit. Due to data limitation and a lack of explicit definitions, administrative efficiency cannot be addressed in the study. By using three aspects of community benefit as dependent variables, this dissertation study attempts to improve upon past research by eliminating some of the validity threats to the operationalization of community benefit.

## **2.6. Significance of This Study**

The access to health services among the under- and uninsured are an important social challenge facing this nation. Being key suppliers of health services, hospitals' ability and willingness to participate in charitable activities and community health services contribute greatly to alleviate the social and financial burdens of this growing population. Policy efforts by state governments to encourage and/or regulate hospitals' provision of community benefit are commended and they require systematic evaluation to ensure policy efficiency and effectiveness.

Further, the lack of federal enforcement of the tax laws has created opportunities for states to experiment with policy innovations to command not-for-profit hospitals' social commitment. Community benefit laws represent important state policy change that urges hospitals to uphold and balance their commitment to the public and the medically needy amid conflicting and difficult circumstances. Though the most recent policy debates on hospital community accountability have been fueled by fiscal interests of state, local and federal governments, the policy relevance of community benefit laws is so profound that more than 30 states have pondered and proposed legislative propositions to better define and regulate community benefits standards for their not-for-profit hospitals (Buchmueller and Feldstein, 1996; Moskowitz, 1993). To date, seventeen states have instituted community benefits standards and laws with varying scopes and noncompliance penalty measures (Maiuro et al., 2004; Community Catalyst, 1999 and 2003; Illinois Hospital Association, 2003; Revised Code of Washington, 70.170.060; Kaiser Daily Health Policy Report, 2006). At least one state, Massachusetts, has also imposed community benefits guidelines for HMOs requiring them to contribute a fund to pay for free care (Community Catalyst, 2001). More states are

likely to face the decision of whether to continue tax exemption and how better to define community benefit standards for not-for-profit hospitals.

Not-for-profit hospitals, regarded by many as central, civic, and almost sacred institutions, are recognized for their long and honorable history of caring for the medically indigent through a preferential tax treatment by the government (Scott et al., 2000). Facing intense economic and market pressures, not-for-profit hospitals are struggling to uphold their charitable missions and to survive (Unland, 2004; Weissman, 2005; Currie and Fahr, 2004; Lee et al., 2004). Contrary to their laudable reputation, news of not-for-profit hospitals overcharging and practicing aggressive collection techniques on the uninsured have saturated the press since early 2004 (Fonda, 2004; Majumder, 2004; Moreney et al., 2004; Abelson and Glater, 2004). The resulting pending class-action law suits (Fonda, 2004; Majumder, 2004; Moreney et al., 2004; Unland, 2004) and revocation of tax exempt status of Provena Covenant Medical Center in Urbana Champaign, Illinois, (Unland, 2004; Maiuro et al., 2004) signaled to hospitals that they shall no longer take their tax privileges for granted. In the meantime, industry experts and policy makers question whether current laws stipulate sufficient details on hospitals' charitable purposes in terms of their definitions and quantity (Majumder, 2004).

Movement towards community benefit regulation is a reality in the health care sector. As recent as January 24, 2006, Illinois Attorney General proposed the Tax-Exempt Hospital Responsibility Act to tighten the requirements of its original Community Benefits Act enacted in 2003 (Kaiser Daily Health Policy Report, 2006). On March 19, 2006, the New York Times reported that congressional leaders are concerned that many not-for-profit

hospitals are not providing enough charity care to justify their tax-exempt status. These policy makers declared that they will set standards for the industry if it does not do so itself.

This evaluation of state community benefit laws is timely because state governments and hospitals continue to wrestle with the issues of community benefit standard, in relation, but not limited, to criteria for tax exemptions (Owens, 2005; Weissman, 2005). Community advocacy groups also welcome these health policy debates as an opportunity to assert their influences to enhance hospital-community relationships and better community health outcomes (Community Catalyst, 2003). Sufficient time has passed since the first wave of community benefit laws were established to allow for a systematic evaluation of the effectiveness of the laws from a longitudinal perspective. Results of the study not only contribute to the understanding of community benefit laws in terms of their impact on hospitals behavior, but also inform future policy formation on similar regulations in response to the pending lawsuits against not-for-profit hospitals.

## **CHAPTER 3**

### **CONCEPTUAL FRAMEWORK AND HYPOTHESES**

This dissertation research aims to examine three central questions: (1) how has not-for-profit hospitals' provision of and financial expenditure on community-oriented health services changed as a result of state community benefit laws; (2) whether not-for-profit hospital compliance to community benefit laws is contingent upon their organizational characteristics (e.g. size, managed care contracts, membership in health systems and networks) and the level of market competition; (3) whether there are spill-over effects in the provision of and financial expenditure on community benefit by for-profit hospitals as a result of state community benefit laws.

#### **3.1. Conceptual Framework**

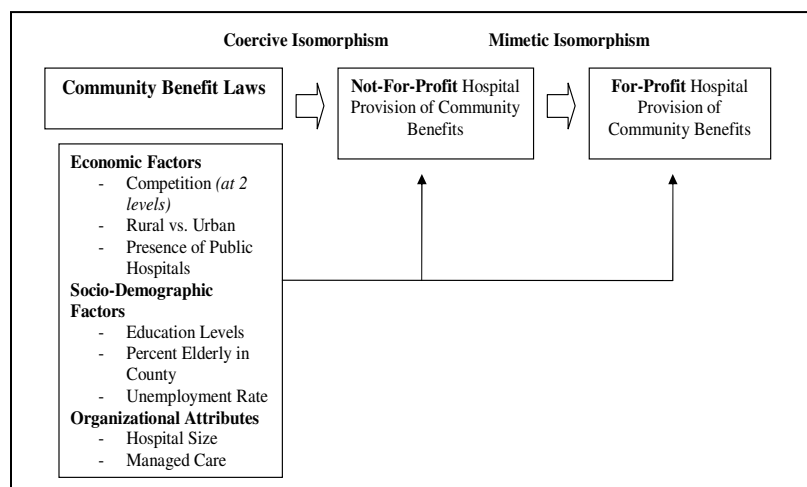
Drawing on the open systems perspective (Scott, 2000), hospital provision of community benefits is conceptualized to be the direct result of environmental constraints imposed by state community benefit laws and hospitals' response to these pressures. More specifically, the conceptual framework for this study is derived from the institutional and resource dependence theories. Combined, these two theories adopt an open systems perspective where organizations are not only influenced by, but also dependent upon interchanges with the environment in order to maintain their viability (Buckley, 1967; Pfeffer,



1982; Scott, 1998). They also explain hospital response to the state regulation in terms of resource accessibility while accounting for the unique historical values and characteristics of hospitals in the US society.

Other factors that may influence hospital behavior include economic, socio-demographic, and political factors as well as hospital attributes (Figure 3.1). Past literature suggested that market competition, hospital location and presence of public hospitals within a market area were highly associated with hospital provision of nontraditional and community oriented programs (Shortell et al., 1986; Sanders, 1993; Norton and Staiger, 1994; Olden and Clement, 2000; Lee et al., 2003). Socio-demographic factors express community needs and therefore potential demands for hospital services (Reinhardt, 2003). Hospital attributes, such as size, ownership and location, influence hospitals' financial and administrative capacity to provide services (Olden and Clement, 2000; Potter, 2000).

**Figure 3.1. Conceptual Framework for the Impact of Community Benefit Laws on Hospital Provision of Community Benefits**



### **3.2. Institutional Theory**

Hospitals, particularly not-for-profit hospitals, possess a unique social standing as charitable organizations in the United States. To understand the inception and impact of state community benefit laws on hospital behaviors, it is imperative that one first understands the symbolic values of hospitals, and the social context or institutional environment in which hospitals reside. Institutional theory, with its great emphasis on the taken-for-granted character of social realities, provides valuable insights into the historical and political processes by which hospital behaviors are shaped.

According to the institutional theory, organizations are different from institutions. As an organization is often thought of as a physical entity, an institution is seen as a shared system of socially constructed norms and values that governs and provides guidance for relations of individuals to each other (Parsons, [1934] 1990: 326 (p.15 Scott, 2001); Berger and Luckmann, 1967 (p.17, Scott, 2001)). The process by which organizations become infused with these shared values is called institutionalization (Selznick, 1957; Scott, 2001). Berger and Luckmann (1967) characterized three phases of institutionalization as externalization, objectification, and internalization. Externalization describes the process where people and/or organizations create, from their social interactions, a set of symbolic rules or structures whose meanings come to be shared by participants. As more people and organizations come to recognize these rules and structures, these symbolic structures become objectified as a reality readily experienced by others. Finally, the perpetuation of these rules and structures back into the social consciousness completes the internalization process. Once an organization is institutionalized, it embodies a distinct identity with a particular set of values developed from its unique history, organizational mission and purpose as well as

employee influence. Maintenance of these institutions is no longer a perfunctory mechanical matter, but a struggle to preserve a set of unique values (Scott, 2001).

To illustrate this process, hospitals began as organizations with religious affiliations extending mercy to the society and imparting appropriate morals onto the sinful social deviants (Rosenberg 1987). As a result, in the first modern federal tax law of 1894 that later evolved into the Income Tax Act of 1913, voluntary or not-for-profit hospitals were granted exemptions based on their charitable, religious or educational purposes (Marmor et al. 1987; Mancino 2001). Throughout the years, not-for-profit hospitals then used their community image to mobilize resources and sustain donations and fees. The symbolic images of morality and altruism became hospitals' institutional identities that left a lasting impression in the American conscience and set the tone for future health policy making.

Fundamental to the conception of institution are the qualities of durability and duality (p.49 and 50, Scott, 2001). Because institutions are made up of symbolic elements, social activities and material resources, these ideas and practices are passed down from generation to generation. Giddens (1984) called them the “enduring features of social life”, resistant to change. In this sense, institutions impose restraints and restrictions on activities and behaviors by defining legitimacy, stability and order. This is not to say that institutions do not undergo changes themselves. In fact, institutions are susceptible to changes, both incremental and revolutionary. The duality of institutions refers to their properties as an existing social order but also as a process, institutionalization or deinstitutionalization. Scott (2001) further attributes these properties to three building blocks of institutional structures. He posits that institutions are consisted of and shaped by cultural-cognitive, normative, and

regulative structures and activities that provide stability and meaning to social behavior (Scott, 1995; Scott, 1998).

First, the cultural-cognitive structures refer to socially and culturally constructed belief and rule systems that provide frameworks from which institutions are created and organized (Scott, 1998). Within this paradigm, an individual or organization's behavior is perceived as the direct result of their interpretations of external stimuli. Culture, the symbolic external environment, provides the contextual framework for a person's internal interpretive processes. As a result, common meanings arise from personal interactions and are maintained and transformed to make sense of happenings. Eventually, individual and organizational compliance occurs because routines are established and taken for granted (Scott, 2001). Meyer and Rowan (1977) further argued that widely held beliefs can be perceived as true and necessary to accomplish a given end. In sum, the cultural-cognitive conception of institutions emphasizes the critical role played by the socially mediated construction of a common framework of meaning (Scott, 2001).

Second, norms and values that define the moral framework for individual and organizational conducts are referred to as the normative structures of institutions. More specifically, values define preferences and norms specify how things should be done. Combined, they forge standards to which behaviors are compared and define legitimate means to pursue valued ends. This normative paradigm introduces a prescriptive, evaluative and obligatory dimension into social life (Scott, 2001). As such, it dictates social roles, rights and responsibilities as well as expectations by imposing constraints on social behaviors, or by empowering and enabling social actions (Scott, 1998). In general, the normative conception of institutions highlights the stabilizing influence of social beliefs and norms.

Finally, rules and codes are the basis for the regulative structures imposed on organizations. From this perspective, institutions can be viewed as a stable system of rules. Commonly used regulatory processes include rule-setting, monitoring and sanctioning activities to influence organizational behaviors. These formal or informal regulatory mechanisms can come from external sources as the nation-state, or internal governance systems. Institutional stability is often achieved through coercion as individuals and organizations comply with these rules out of force, fear or expediency (Scott, 2001). In the application of this regulative perspective, North (1990) argues that an essential function of an organization reflects balancing the cost of ascertaining violations from the rules and the severity of punishment within its institutional environment. Overall, the regulative dimension of institutions focuses on the systems of formal and informal rules and their subsequent surveillance and sanctioning power on organizations (Scott, 2001).

Central to institutional theory is the notion of legitimacy. For an organization to survive in an institutional environment, it requires social acceptability and credibility. In other words, it must possess legitimacy. The organization needs to be deemed desirable, proper or appropriate within the accepted social system of norms, values, beliefs and definitions (Suchman, 1995). This could mean that the organization is established legally and acting in accordance with relevant laws and regulations. Sometimes, professional certification or accreditation confers legitimacy. An organization can be compelled to fulfill social and moral obligations beyond the requirements of the law. Moreover, legitimacy can be derived from the cultural context where an organization's functions and existence align with contemporary cultural values and are somehow taken-for-granted.

Institutional theorists have long explored processes by which organizations obtain legitimacy. Meyer and Rowan (1977) posited that organizations that succeed in conforming to the institutional environment gain the legitimacy and resources for survival. Later, DiMaggio and Powell (1983) focused on the importance of social fitness and introduced the notion of isomorphism as three specific mechanisms organizations undertake to become more similar to each other within an organizational field to gain legitimacy. They are coercive, normative and mimetic isomorphism.

Coercive isomorphism, relating to the regulative conception of institutions, results from formal or informal external pressures exerted by other organizations or cultural expectations upon which the focal organization is dependent (DiMaggio and Powell, 1983). While legal mandates are a common source of coercive authority, subtle forces affect organizational behavior as well. As a result, the focal organization is compelled to adopt new structures or procedures in order to maintain a viable relationship with the pressure sources. For example, car manufacturers may adopt new pollution control technologies to conform to environmental regulations. A growing company may feel pressure to formalize their accounting practices, performance evaluations and human resources policies in order to appear more official in their business transactions with large corporations.

Under the cognitive-cultural conception of institutions, mimetic isomorphism is a common strategy to achieve legitimacy in times of uncertainty (Scott, 2001; DiMaggio and Powell, 1983). Contrary to the process of coercive isomorphism, organizations may change their behaviors voluntarily, without the presence of an overt pressure source. When an organization temporarily loses sight of their organizational goals or when it struggles to understand its environment, it may elect to model after another organization that seems

similar in its goals and functions yet more legitimate and successful (DiMaggio and Powell, 1983). In the social services field, best practice models are often collected and disseminated by philanthropic foundations among their grantees in an attempt to provide better services and achieve better health status for a large and diverse population.

Normative isomorphism describes mechanisms of change under the normative pillar of institutions. Practically, it stems primarily from professionalization. As members of an occupation are defined as a profession, they can be perceived as a collective striving for stability and legitimacy for their work and livelihood. DiMaggio and Powell (1983) asserted that the professional socialization people experience in universities and other educational or training sites contributes greatly to the development and establishment of norms among professionals and their staff. Further, professional and trade associations represent another vehicle propagating normative rules about organizational and professional behavior. This type of information exchange among professionals has many benefits to organizations. For example, an organization can obtain and bring back information about industry trends and common business practices from professional meetings. By following these trends and common practices, the organization's legitimacy may increase.

According to institutional theory, organizations are viewed more as passive players responding to institutional pressures and expectations. This theoretical framework emphasizes the over-powering force of the institutional environment on organizations by focusing on the taken-for-granted character of the socially constructed rules, myths, and beliefs and on the processes by which organizations are influenced and become instilled with values and meanings (Oliver, 1991). Organizations are thought to respond to environmental pressures only by conforming their structural and procedural characteristics in order to obtain

and sustain stability and legitimacy (DiMaggio and Powell, 1983). Given its deterministic predisposition, the institutional theory has been criticized for its lack of attention to the role of organizational self-interest (Oliver, 1991).

### **3.3. Resource Dependence Theory**

Complementing the institutional theory, resource dependence theory highlights organization's adaptability in responding to the external environment. Pfeffer and Salancik (1978) put it simply that "[what] happens in an organization is not only a function of the organization, its structure, its leadership, its procedures, or its goals. What happens is also a consequence of the environment and the particular contingencies and constraints deriving from that environment." Resource dependence theory contrasts and complements institutional theory in stressing organizations' proactive negotiations with environmental constraints in order to achieve optimal autonomy and viability (Pfeffer, 1982).

According to resource dependence theory, environments are collective and interconnected. Organizations must be responsive to external demands and expectations in order to survive (DiMaggio and Powell, 1983; Oliver, 1991). Moreover, organizations exist and survive to the extent that they can manage their resources effectively (Pfeffer and Salancik, 1978). Given that organizations are embedded in an environment comprised of many other organizations, they must interact and maintain relationships with a variety of resource suppliers, often with conflicting interests. According to Pfeffer and Salancik (1978), three factors determine the dependence of one organization on another. One, where the organization can function with a certain resource and what proportion of the total inputs or outputs is accounted by this resource? Two, how much discretion does a resource supplier



have over resource allocation and use? Three, can the focal organization access the same resources from multiple suppliers?

To achieve stable and low cost resource relations with their environment, resource dependence theorists argue that organizations must account for these dependency issues and actively and effectively exercise power and control in negotiating interdependencies with external organizations (Oliver, 1991). As such, organizations may alter their structures and behaviors to attend to or negotiate with external demands to achieve optimal degree of freedom from environmental demands (Pfeffer, 1982; Ulrich and Barney, 1984). They may also manipulate external dependencies or exert power over the allocation of critical resources (Pfeffer and Salancik, 1978; Oliver, 1991).

Compared to institutional theory, resource dependence theory assumes that organizations have a certain level of power and influence over their environment. While facing external pressures, institutional theory emphasizes the advantage of conformity. Resource dependence theory, in contrast, focuses on the organizational necessity to adapt to environmental uncertainty. Active management and control over resource flow is the primary strategy to achieve organizational stability, legitimacy and survival.

Combining the strengths of both institutional and resource dependence theories, Oliver (1991) proposed a typology of organizational strategic responses to institutional processes. This hybrid theory attempts to refine the institutional perspective to accommodate organizations' self-interest seeking behaviors within the institutional environment. It posits that organizations' response to institutional pressures may in fact range from passive acquiescence to proactive manipulation of their circumstances depending on the nature and context of the institutional pressures (Oliver, 1991).

According to Oliver (1991), the first level of organizational strategic response to institutional processes is acquiescence. It describes an organization's common and passive acceding position to external pressures, as emphasized by institutional theory. At the most passive level, organizations may unconsciously or blindly succumb to institutional pressures by repeating history or reproducing actions out of habit or taken-for-granted rules (Scott, 1998). This occurs most often when the institutional force is so strong that it has established itself as a social fact. On the next level, organizations may consciously or unconsciously imitate a more successful business model or accept advice from professional organizations (DiMaggio and Powell, 1983). They may also choose to comply with external pressures in anticipation of specific benefits. Although the degree of awareness of institutional pressures is the key distinction between these three forms of acceding behaviors, the action of compliance encompasses all three of the isomorphic mechanisms described by DiMaggio and Powell (1983). Oliver (1991) further asserts that the cause, constituent, content, control and context of the institutional processes can all influence organizational response to these pressures. In the case of acquiescence, Oliver (1991) predicts that when organizations anticipate a gain in economic benefits or social legitimacy, they are more likely to conform to or comply with institutional pressures. Moreover, when an organization's dependence on the source of the external pressures is high, it is more likely to give in to its demands. Other conditions that help contribute to an acceding response include a fairly uniform constituent expectation, a consistent institutional norms and requirements with organizational goal, a high degree of legal coercion.

A step above acquiescence is organizations' attempt to balance, pacify and bargain with external constituents. Oliver (1991) generalizes these actions as compromises. From a

strategic perspective, organization may strive to accommodate internal and external demands from multiple stakeholders (Rowan, 1982). They may also choose to conform to the minimum requirements imposed by the demand source (Scott, 1983). They may even negotiate, via professional associations or unions, with external sources to reduce the stringency of requests (Pfeffer and Salancik, 1978). Compromise is the most probable strategic choice of action when there is a high multiplicity of interests among and a high dependency on constituents, along with a high level of uncertain in the institutional environment.

Avoidance is viewed as a rather proactive strategic response to institutional processes, according to Oliver (1991). Organizations' attempt to preclude the necessity of conformity by concealing their nonconformity, buffering themselves from institutional pressures, or escaping from institutional rules and expectations are all examples of all part of the avoidance tactics. Organizations are likely to use the avoidance technique when there is a perceived low degree of social legitimacy and efficiency attainable from conformity. A high level of conflicting constituent expectations, constraint on organizational resources and environmental uncertainty also contribute to an avoidance tendency (Oliver, 1991).

Defiance benchmarks the proactive part of the organizational strategic response continuum. Organizations may choose to dismiss, challenge or attack institutional pressures and expectations. Dismissal is the ignoring of institutional rules. Oliver (1991) asserted that the temptation to ignore authority is exacerbated with a deficient understanding of the rationale behind institutional pressures and consequences of noncompliance. To go the offensive and contest accepted rules and expectations is considered an act of challenge. Often, organizations with a strong vision and their own insular view are more likely to

challenge or contest the rationalized norms and rules of the institutional environment. Attack is the most intense and aggressive of the defiance acts. That is, organizations deliberately assault, belittle, or denounce institutionalized values. This is most likely to occur when the organization itself feel discredited or threatened in their rights and autonomy.

Manipulation is the most active strategic response organizations take to try to change or exert power over the institutional environment. This is defined as purposeful attempt to co-opt, influence or control institutional pressures and evaluations (Oliver, 1991). In response to institutional pressures, organizations may attempt to forge ties with other organizations or the source of institutional pressures to bolster their acceptability and legitimacy (Benson, 1975; DiMaggio, 1983). They may also go so far as to lobby public agencies to change the institutional rules. When the institutional expectations are localized and weakly promoted, organizations may even exert power to shape or neutralize the pressure sources (Oliver, 1991).

Oliver's typology of organizational strategic responses to institutional processes provides a more well-rounded and balanced perspective than institutional or resource dependence theory alone can offer. Focused on the force of environment, institutional theory has been criticized for its lack of attention to the role of organizational active agency in responses to social pressures and expectations (Oliver, 1991). Resource dependence theory alone maps the versatility of organizational agency, but neglects the power of history and social consciousness. In contrast, Oliver's hybrid theory capitalizes on the strengths of both theories and captures the power of and tension between institutional norms and organizational self-interests. In the application of hospital responses to state community

benefit laws, this typology accounts for the unique historical and institutional environment from which hospitals developed and the contemporary fiscal struggles they face.

### **3.4. Theoretical Applications and Research Hypotheses**

In the health care industry, the institutionalization process for hospitals evolved over a period of 300 years. In the early 1800s, hospitals were first established under the sponsorship of religious entities to dispense free medical care for the indigent population with the financial support of their wealthy patrons (Rosenberg, 1987; Stevens, 1989). Later in the 18<sup>th</sup> and 19<sup>th</sup> centuries, the first voluntary hospitals were established and developed with the help of local philanthropists and religious leaders, who actively transformed hospitals—their charity projects—into practicing laboratories for physicians (Stevens, 1989). By the end of the Civil War, most of the US hospitals were private not-for-profit and nearly half of them were associated with a religious institution.

Throughout much of the 20<sup>th</sup> century, not-for-profit hospitals remained the standard and preferred organizational form in the hospital sector. They relied and capitalized on federal and state tax subsidies, private donations and, in some cases, religious affiliations to aid their steady expansion and growth. Physicians preferred the not-for-profit organizational form as a means to minimize the threat of corporate control on their professional authority (Marmor et al., 1987). At the height of consumerism, physicians, hospitals and medical associations joined forces to encourage client trusts and elevated their own professional status above the commercial ends of for-profit entities. Not-for-profit hospitals, in turn, capitalized on and infused their identities with the American ideals of democracy, voluntarism and charity. As these ideologies were internalized by the social consciousness,

not-for-profit hospitals were able to rely on this socially constructed mythical image to mobilize resources for survival (Stevens, 1989).

Complementing this institutionalization process is the history of US tax policy development. In the first modern federal tax law of 1894 that later evolved into the Income Tax Act of 1913, not-for-profit hospitals were granted exemptions based on their charitable, religious or educational purposes (Marmor et al., 1987; Mancino, 2001). Throughout the US history, the favoritism of government agencies and courts towards tax subsidies for indigent care, the absolution from tort liability, the increased community commitment to local hospitals, and the promotion of hospitals' voluntary images by medical professions all constituted a positive reinforcing mechanism that secured the tax exemption status of not-for-profit hospitals. In fact, the values of US society aligned with and supported the professed voluntary and charitable characteristics of hospitals so well that these organizations were later named community hospitals (Montoya and Meyer 1998). As a result, the altruistic mission of not-for-profit hospitals towards the medically indigent has become a myth - a widely held public opinion legitimated by history and rationalized by contemporary tax policies.

#### 3.4.1. Effect of Community Benefit Laws on Not-for-Profit Hospitals

In the context of contemporary health care industry, the institutionalized not-for-profit hospitals have experienced great constraints in their roles, operations and reactions to the environment. As an institution that was created as a symbolic commitment to preserve the value of social benevolence and charity towards the medically needy, not-for-profit hospitals are expected to shoulder a disproportionate share of the burden of the indigent.

Despite efforts to keep pace with the industry care quality and technological demands, not-for-profit hospitals' social legitimacy is largely derived from the fulfillment of their charitable role. It is as if this taken-for-granted social expectation has imposed an additional weight on not-for-profit hospitals' responsibilities.

Internally, not-for-profit hospitals may have deemed provision of community benefit and charity care as their social obligation without the enforcement of laws. Though not the most powerful motivator, such internalized norm can dictate not-for-profit hospitals' organizational goals, rules and conventions. In an economically competitive environment, not-for-profit hospitals may willingly sacrifice scarce resources to render indigent care in order to do the right thing while their for-profit counterparts reap financial gain from paying patients. Compliance may reduce the chance that not-for-profit hospitals' vulnerability to negative assessment of their conduct or services.

Looking at their resource environment, not-for-profit hospitals depend heavily on federal, state and local government funding and subsidies to sustain their capital updates and constructions, services for the vulnerable population, as well as educational and research functions. They interact with the Internal Revenue Services to ensure the validity of their 501(c)3 status which allows them access to no-interest bonds for service expansion and capital construction, tax-deductible philanthropic donations, and federal, state and local tax exemptions (Montoya and Meyer 1998; Mancino 2001). The community at large forms a formidable source of support to not-for-profit hospitals as well. Public opinions affect their donor pool, donation income and volunteer resources.

Between 1990 and 2002, several important policy changes have altered the landscape of the uninsured population and the Medicaid program. First, Medicaid expenditures

exploded between 1988 and 1992 as a result of enrollment growth attributable to economic recession, a number of federal eligibility mandates and the growth of disproportionate-share hospital payments<sup>3</sup> (Holahan et al., 1998; Coughlin and Liska, 1997; Coughlin et al., 2004). States began seeking out ways to use managed care as a tool to control Medicaid program costs (Holahan et al., 1998). Still looking to reduce the cost of Medicaid programs, Congress enacted the welfare reform law that replaced Aid to Families with Dependent Children (AFDC) with Temporary Assistance for Needy Families (TANF) and de-linked Medicaid from the welfare programs (Kronebusch, 2001). The new block grant TANF program resulted in a drastic decrease in the Medicaid enrollment of low-income children (Kronebusch, 2001). The Balanced Budget Act of 1997 (BBA of 1997) then introduced the State Children's Health Insurance Program (SCHIP) to again expand insurance coverage to low-income children (Ullman et al., 1998). All of these political maneuvering to shift costs of the medically vulnerable has left the health care industry in a permanent state of transition. Hospitals must constantly keep pace with these policy changes and adjust their service delivery and program configurations accordingly.

In the meantime, governmental budgetary cut-backs raised real concerns about the scarcity of present and future resources, resulting in scrutiny in hospital charitable activities and the establishment of state community benefit laws. The regulations that challenge hospital ownership status pose a real and significant threat to not-for-profit hospitals' operational strategies and survival. Most importantly, not-for-profit hospitals must juggle to

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<sup>3</sup> Congress established the Medicaid Disproportionate Share Hospital (DSH) program in the early 1980s to provide financial relief to hospitals with high Medicaid or low-income inpatients. States had much freedom in deciding which hospitals qualify for DSH payments and in setting payment levels for those hospitals. In the late 1980s and early 1990s, states began using creative means to induce larger federal matching funds. The DSH financing mechanism became a highly contentious issue between the state and the federal government, and Congress enacted legislation on several occasions to restrict its use by states (Coughlin et al., 2004).



meet the demands of their funders within the charitable regulatory parameters while competing with for-profit hospitals to achieve financial solvency and provide the best quality, most accessible services to patients.

Facing the enactment of state community benefit laws, not-for-profit hospitals could respond in different ways. From a regulative perspective, community benefit laws are a formal rule levied by state government to regulate not-for-profit hospital provision of community benefit. Social expectations of community accountability on the part of not-for-profit hospitals also assert direct pressures on these hospitals to comply with the regulatory measures and provide tangible community-oriented services. Given that these demands coincide with the social ethos of charity, not-for-profit hospitals may perceive the benefit of an elevated degree of social legitimacy upon compliance. Further, for not-for-profit hospitals that already considered provision of community benefit and charity care as an appropriate norm, this new legislation merely re-affirms their beliefs. Using Oliver's (1991) schema, there appeared substantial consistency between the institutional demands and organizational goals.

In terms of constituent multiplicity, the federal, state and local governments have long encouraged not-for-profit hospitals to provide community benefit and charity care through other laws and regulations. For example, as early as in 1946, the Hill-Burton Act was designed to subsidize the much-needed expansion and construction of not-for-profit and public health care facilities. The program purposely required grantees to provide a specified amount of charity care and allocated more funding to poorer states (Sloan et al., 1986; Stevens, 1989; Gamm, 1996), expressing a distinct interest in not-for-profit hospitals' participation in social purposes. As a result, the program also bolstered public expectation

and demand for community accountability on the part of not-for-profit hospitals. To date, the public enthusiasm about not-for-profit hospitals' fulfillment of their social obligations of caring for the indigent never wavered. Community groups continue to question the basis for the tax-exempt status of hospitals, arguing that hospitals that fail to play a significant role in improving community health should not receive tax exemptions and other support (Proenca et al., 2000; Russel, 1995; Sigmond and Seay, 1994; Hasan 1996). As such, there seems a minimum degree of conflict in terms of constituent interest and expectations when it comes to the social goals of state community benefit laws.

Finally, the enactment of state community benefit laws imposes a strong coercion on not-for-profit hospital behavior. The regulations were not devised simply as a practice guideline for not-for-profit hospitals. They were established as laws and in some cases with non-compliance penalties. Given these reasons, not-for-profit hospitals are expected to take an acceding position, according to Oliver's (1991) typology, towards state community benefit laws. They would likely gear up their provision of community benefit according to the specifications of state community benefit laws in order to retain their ownership status and the subsequent financial and non-financial benefits.

**Hypothesis Ia: There would be an increase in not-for-profit hospitals' provision of community benefit activities (in terms of community-oriented programs, financial expenditures and special population served) after the implementation of state community benefit laws.**

Douglass North (1990) stressed the power of regulatory rules and enforcement mechanisms imposed by nation-state. He asserted that an essential part of the functioning of institutions is the costliness of ascertaining violations and the severity of punishment. Base on this argument, not-for-profit hospitals' compliance to state community benefit laws may also depend on the severity of noncompliance penalty prescribed by the laws. Therefore, it is

postulated that Texas not-for-profit hospitals will be more compliant with their state community benefit law which clearly delineates non-compliance penalties.

**Hypothesis Ib: The increase in not-for-profit hospitals' provision of community benefits activities (in terms of programs, financial expenditures, and special population served) will be greater in Texas than that in California as a result of the implementation of community benefit laws.**

#### 3.4.2. The Contingency Factors

In the 2002 hospital charity policy study, Sutton et al. described challenges faced by hospital survey respondents to encompass (1) a lack of dedicated staffing and resources; (2) a lack of sub-county data on health needs; (3) obstacles to coordination with local public health agencies; (4) competition and turf issues among community stakeholders; and (5) a lack of internal policies and procedures that encourage quality improvement and foster increased accountability. These insights suggest that hospital operation and service provision decisions are made in accordance to its interpretation of external pressures and internal assets (Davis, 1991; Galaskiewicz, 1991; Scott, 1995; Proenca, 2000). While it is difficult to examine all the factors mentioned by Sutton et al. (2002), the second set of research questions aims to explore structural and environmental factors that may potentially facilitate and/or hinder hospital compliance with community benefit laws. Specifically, the analysis focuses on exploring the influence of hospital resources (size, managed care and network status) as well as market competition on hospital behavior.

Many sociological and economic theories predict organizational behaviors. Some suggest that hospitals trade off margins or profits against the costs of providing social goods (Frank and Salkever, 1991; Gruber, 1994; Norton and Staiger, 1994; Banks, Paterson, and

Wendel, 1997; Gaskin, 1997; Thorpe et al., 2000). Scott (1995) argues that other than economic incentives, hospital response to external pressures, such as state imposed regulations, may differ according to their position in the organizational network, their organizational goals and interests and their perception of the type and intensity of the pressures (David, 1991, Galaskiewicz, 1991; Proenca, 2000). Complexity, uncertainty, fragmentation and conflict in the constantly changing health care industry climate are also likely to cause variation in organizational response (Goodrink and Salancik, 1996; Proenca et al., 2000). Under these circumstances, hospitals' abilities and willingness to comply with state community benefit laws may depend on not only their self-interest, but also their assessment of internal attributes, and the extent of their active participation in balancing, placating and/or shaping these environmental pressures (Oliver, 1991).

First, size may be an important contingency factor in hospitals' strategic response to state regulations. Large firms attract greater attention from the state, the media and various interest groups (Meyer, 1979; Powell, 1991). Increased visibility represents a form of power but also makes organizations vulnerable to public scrutiny (Pfeffer and Salancik, 1978; Proenca et al., 2000). Therefore, conformity to external pressure becomes a strategic response of choice for large not-for-profit hospitals to ensure legitimacy. Further, large hospitals are associated with having more financial and human resources that are required to facilitate hospitals' abilities to comply with the law and to optimize the effect of the state interventions. Access to financial resources may be key conditions that allow hospitals to accept the new guidelines to the law without having to compromise too much of their original goals or existing activities.

**Hypothesis IIa: Compared with smaller hospitals, larger hospitals will respond more positively to the community benefit laws in their provision of community benefits.**

Managed care organizations represent a key constituency in the health care industry. They impose strict expectations of effective and efficient service delivery to their enrolled populations by contracted hospitals (Proenca et al., 2000). In the interest of depressing cost and maximizing profit, their goal is to maintain a generally healthy status among all of their enrollees. As a result, managed care organizations prefer and promote access to preventive care among its enrollees rather than dispensing high-cost curative procedures to individuals. Sigmond (1994) and Proenca (2000) found that having a managed care affiliation is positively related to hospitals' professed community orientation. In this case, not-for-profit hospitals that are dependent on managed care are likely to respond to state community benefit laws by developing their community-orientation capacities to comply with the laws.

However, managed care organizations also practice strict financial controls over contracted hospitals through their utilization review and capitation systems. Their service contracts focus on cost saving and impose more stringent financial restraints on hospitals (Campbell and Alexander, 2005). For example, as states convert their Medicaid program to the managed care model, they use various approaches to determine capitation rates for payment. Often, these rates are set based on fee-for-services costs adjusting for the 5-10 percent expectant savings for managed care. Risk adjustment methods based on utilization management data, then, are used to prevent serious over- or underpayment (Holalan et al., 1998).

Studies have found that the cost-savings objectives of managed care programs often outweigh their goals to improve access to care (Holalan et al, 1998). Therefore, participation

in managed care contracts is expected to impede not-for-profit hospitals' abilities to comply with the laws. In fact, the notion of free care, though it serves to maintain public health, is counter intuitive to managed care organizations' profit orientation. Even if hospitals and managed care organizations possess the long-term vision of a healthy and low-cost community, the immediate potential fiscal loss may prevent hospitals affiliated with managed care from committing to community benefits standards.

**Hypothesis IIb: Hospitals with managed care contracts will respond more negatively to community benefit laws in their provision of community benefits.**

Organizational conformity, in part, depends on the level of interconnectedness among institutional organizations (Oliver, 1991). When organizations have closer ties with other organizations, they share information, values and practices more readily. Network structures also serve as a vehicle for technological and administrative innovations diffusion (Westphal et al., 1997). Further, they provide a convenient setting for mimetic and normative isomorphic processes because institutional pressures seem more consistent and spread more rapidly (DiMaggio and Powell, 1983; Proenca, 2000). Therefore, not-for-profit hospitals that belong to systems and alliances have greater exposure to institutional expectations and norms. They are also more likely to recognize the potential social benefits of state community benefit laws. At the same time, they may exchange best practices and community linkages to facilitate implementation of community health promotion activities and programs.

**Hypothesis IIc: Compared to freestanding hospitals, those that belong to networks, systems, or alliances will respond more positively to community benefit laws in providing community benefits.**

Market competition is an external contingency factor that may attenuate the effects of state community benefit laws. On the one hand, it may intensify hospitals' need to maintain

or heighten their good will image to retain and recruit customers. On the other hand, it may reduce hospitals' financial ability provide non-profitable services. In this complex blend of public private health care system, not-for-profit hospitals are subject to different types of competition for survival. In a market where more hospitals compete for the same paying population, maintaining their reputation as a legitimate social service provider is very important. In fact, Shortell and colleagues (1986) found that systems hospitals offer more services when competition is high than when it is low. Moreover, not-for-profit hospitals offer more alternative services under highly competitive conditions. This evidence suggests that not only do hospitals compete for financial viability, their social validity hinges on their abilities to contribute to public welfare. Further, competition cultivates the impression of uncertainty in a market place. Illusions of market instability, in turn, also facilitate conformity (Oliver, 1991; Scott, 1995; Shortell et al., 1986). Therefore, this study postulates that competition would improve not-for-profit hospitals' compliance with state community benefit laws.

**Hypothesis IId: Hospitals locating in counties with greater market competition will respond more positively to community benefit laws in their provision of community benefits.**

#### 3.4.3. Spill-Over Effects of Not-for-Profit on For-Profit Hospital Behavior

The third and last set of research questions investigates the spill-over effect of state community benefit laws on for-profit hospitals' community benefit activities. Even though for-profit hospitals are not the intended subject of state community benefit laws, their service configurations may be affected indirectly by the new policy for several reasons. First, for-profit hospitals share a competitive market and service niche with not-for-profit hospitals.

They experience the same environmental pressures from the rapid expansion of managed care and prolonged economic recession in the early and mid-1990s, as well as the rampant growth of the uninsured and under-insured populations (Weissman et al., 2003). It is around this time that the public's demand for community accountability among hospitals has raised expectations with regard to hospitals' fulfillment of their social roles (Clement et al., 2002).

From a consumer's perspective, the ownership differences within the private health care sector are often subtle and blurred. In other words, people may associate a hospital's quality with its name and reputation, but they do not always know the hospital's ownership status. In this case, for-profit hospitals are exposed to the same kind of institutional environment and cultural-cognitive standards to which not-for-profit hospitals are exposed. That is to say, as not-for-profit hospitals derive their social legitimacy from their charitable functions and their trustworthy characteristics, for-profit hospitals are judged by the same criteria by the public despite legal differences. In an empirical study, Gray (1991) posits that for-profit hospitals, also, recognize that they could lose business if they fail to meet community expectations regarding provision of uncompensated care. In an attempt to secure their social legitimacy and appease constituent demands, for-profit hospitals may bolster their provision of community benefits as a compromising strategy.

Second, DiMaggio and Powell (1983) suggest that mimicry is a probable organizational response to uncertainty in an institutional environment. This argument stipulates two fundamental requirements: (1) the focal organizations or organizational decision makers must perceive uncertainty in the institutional environment and (2) the focal organization must perceive the modeled target to be more successful in some way. Given the health care landscape is constantly changing with the establishment of new policies and



regulations, advances in pharmaceutical innovations and transformations of service delivery and contract models, hospitals often perceive turbulence and uncertainty in their environment (Lee et al., 2004). The transition of Medicaid programs from its original fee-for-service configuration to managed care models, to its delinking from the welfare program and finally to the expansion of children's health insurance coverage through SCHIP certainly resulted in great fluctuations in the uninsurance population and heightened public awareness about this growing problem.

Moreover, in the US health care market, not-for-profit hospitals constitute the majority of the private hospital sector (Marmor et al. 1987). Historically, they embody the essence of quality and scientific advancement (Crimm 1995; Rosenberg 1987; Marmor et al. 1987). Certainly in terms of social symbolism, not-for-profit hospitals retain a good-neighbor image much more so than for-profit hospitals do. Hospitals need to maintain a good neighbor image in order to attract business. Provision of community benefits are thought to be a good strategy to convey this message and bolster a hospital's social legitimacy. Clement and colleagues (2002) found that not-for-profit hospitals' service provision behaviors help set community expectations regarding the amount of charity care hospitals ought to supply to a community in general. For-profit hospitals facing greater expectations are likely to align their service configurations to these public demands. Although it is possible that for-profit hospitals allow not-for-profit hospitals in the market to bear most of the burden of charity care (Clement et al., 2002), Ginn and Moseley (2006) found that for-profit hospitals residing in states with community benefit laws/guidelines reported significantly more community health orientation activities than for-profit hospitals residing in the other control states. It appears that for-profit hospitals operating in

communities where not-for-profit hospitals must comply with the new laws confront public pressures about community accountability therefore are expected to increase their charity care productivity. Assuming social legitimacy is a critical element of survival, heightened consumerism and the consistently changing health care landscape will forfeit profit margins as the sole concern of for-profit hospital management. Therefore, it is likely that for-profit hospitals will model after not-for-profit hospital's behavior in increasing their provision of community benefit and charity care as a result of state community benefit laws.

**Hypothesis III: For-profit hospitals' provision of community benefits activities (in term of programs and financial expenditures) will be positively correlated with not-for-profit hospital provision of community activities.**

## **CHAPTER 4**

### **STUDY DESIGN AND DATA**

#### **4.1. Study Design**

This study uses time-series data to examine changes in hospitals' reaction to community benefit laws in California, Texas, and Florida over a twelve-year period from 1991-2002. The three states are selected because of their variation in the community benefit laws. The law in California was enacted in 1994 and implemented in 1996. It adopted a process approach that required NFP hospitals to perform annual assessment of community health needs, and design and evaluate a plan to meet those needs. The law in Texas was passed and became effective in 1993 and it subscribed to a more stringent prescriptive approach that specified the level of charity care and community health services (no less than 5% of net patient revenue) to be provided by NFP hospitals. It was later amended in 1995 and 1997. No similar law has been established in Florida and hospitals in the state will serve as a comparison group. The variation in state regulations allows for the average treatment effect differences before and after the establishment of the laws in one treatment state to be compared with the average treatment effect differences before and after the same time period in the control state. Therefore, the impact of the community benefit laws on hospitals' provision of community health services and charity care is examined based on (1) the differences in states with and without the law, (2) the differences in states (California and

Texas) that adopted different designs of the law, and (3) the differences in California and Texas before and after the law was enacted, implemented and/or amended.

In addition to using the two treatment states and a control state in the study design, the chronology of these state community benefit laws are divided into pre-enactment, post-enactment and post amendment periods. Combined, this case-control quasi-experimental set-up in a pre-/post- panel data format permits the usage of the difference-in-difference (DD) and difference-in-difference-in-difference (DDD) estimation method to answer the three research questions: (1) how has hospitals' provision of and financial expenditure on community-oriented health services changed as a result of state community benefit laws; (2) whether hospital compliance to community benefit laws is contingent upon their organizational characteristics (e.g. size, managed care contracts, membership in health systems and networks) and the level of market competition; (3) whether there are spill-over effects in the provision of and financial expenditure on community benefit by for-profit hospitals as a result of state community benefit laws. The DD and DDD estimation methods are commonly used to analyze the effects of policy change because it potentially reduces the threat of internal validity and offers a direct and reliable answer the policy change question without emphasizing the causal pathways.

#### **4.2. Data Source**

To examine the effectiveness of community benefit laws, it is essential to have specific hospital programmatic and financial data that span time periods before and after the implementation of these regulatory interventions. Given that the establishment, implementation and amendments to the community benefit laws in Texas and California

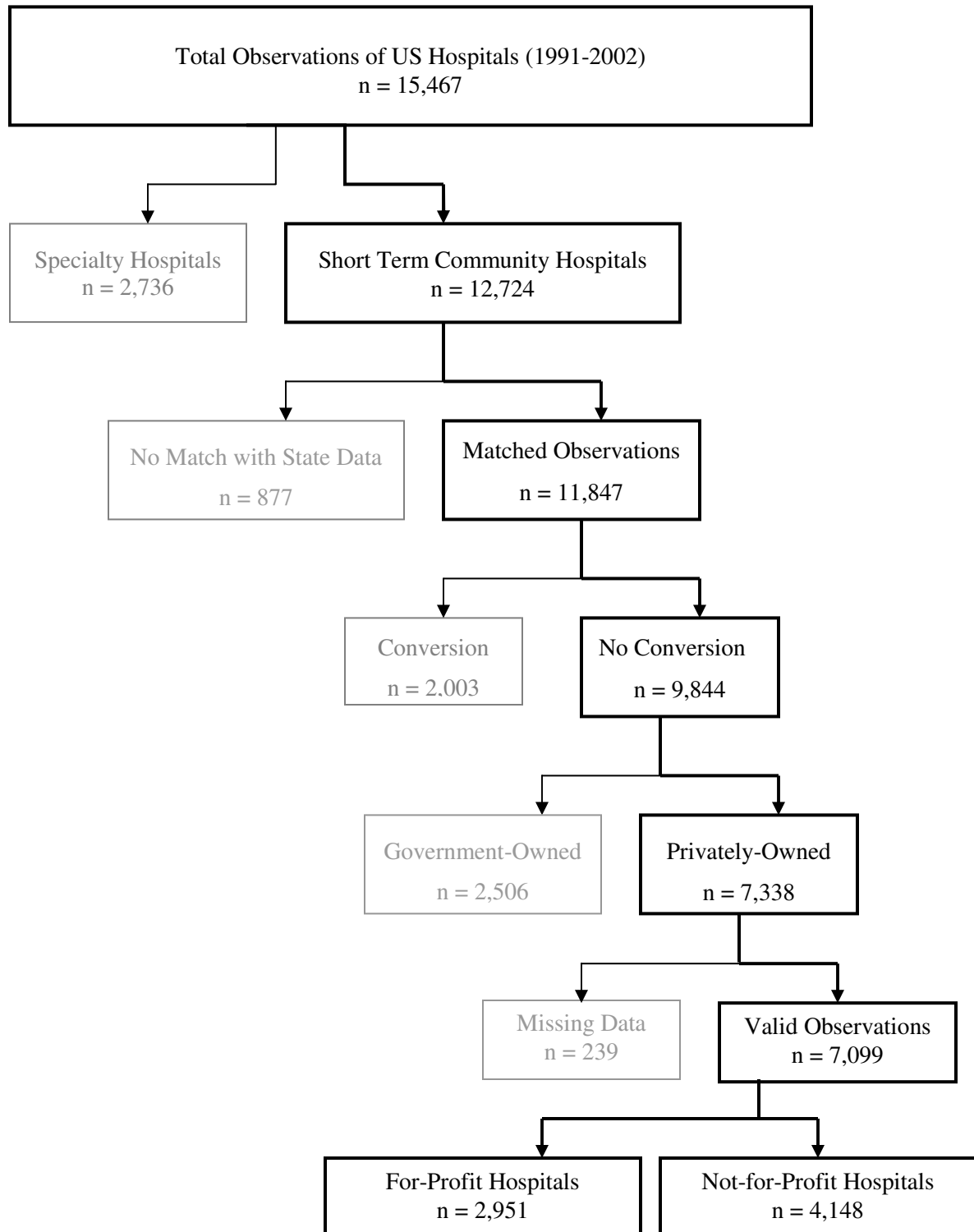
occurred in the 1990s, hospital information between 1991 and 2002 were secured for the study. More specifically, data were obtained from six sources: (1) American Hospital Association's (AHA) Annual Hospital Surveys; (2) hospital utilization and financial data from the California Statewide Office of Health Planning and Development (OSHPD); (3) cooperative Texas Department of Health TDH/AHA/THA Annual Surveys of Hospitals; (4) the Florida Hospital Financial Surveys; (5) the Area Resource File (ARF); and (6) the CMS Medicaid and SCHIP expenditure report.

The AHA Annual Survey of Hospitals has been conducted annually since 1946. It is administered to more than 6000 AHA registered and non-registered hospitals with an average response rate of 82% (<http://www.hospitalconnect.com/ahadata/data.html>). The Annual Hospital Surveys provide nationwide information on community hospitals' organizational characteristics, bed capacity, service pattern, staffing, participation in community health activities and inter-organizational linkages (Lee et al., 2003). The OSHPD data include utilization and financial information on all health care organizations operating in California. The TDH/AHA/THA Annual Surveys of Hospitals collect aggregate programmatic, utilization and financial information on all licensed Texas hospitals. It also includes data on Texas hospitals' provision of community benefits and compliance with the law. Florida Hospital Financial Surveys contain state work sheets on hospital fiscal information. The ARF contains health and demographic statistics for all US counties and is used to measure the socio-economic conditions of the hospital's local market, defined as the county in which the hospital is located. Finally, the CMS reports provide net Medicaid and SCHIP expenditures reported by all fifty states.

### **4.3. Sampling Method**

To construct the study sample, private community hospitals that resided in the three study states and participated in the AHA Annual Hospital Survey between 1991 and 2002 are first pooled (Figure 4.2). Specialty hospitals whose mission may vary from a general community orientation and that may compete under different market conditions are then excluded from the sample. The remaining AHA hospitals are matched with state hospital data. An average of 90% of hospitals matched successfully, yielding a total of 11,847 hospital-year observations in the panel data. For the purpose of the study, 178 hospitals (n=2,003) that experienced ownership conversion during the study period are partitioned for a separate analysis. All public hospitals (n=2,506), though serving a community oriented mission are subject to different kinds of government regulations, are removed from the sample population. Lastly, missing demographic information from the Area Resource Files dictated elimination of data from 20 hospitals (n=239) from the state of Florida. The remaining 7,099 hospital-year observations representing private hospitals residing in the states of California, Texas and Florida between 1991 and 2002 comprise the primary data set for the study. Among them, 4,148 hospital-year observations representing not-for-profit hospital data are employed in the main effect and contingency effects analyses of state community benefit laws. The remaining 2,951 for-profit hospital-year observations are used in the spill-over effects analysis.

**Figure 4.1. Sampling framework for study analysis**



The final study sample consisted of an average of 261 (75 for-profit and 186 not-for-profit), 216 (109 for-profit and 107 not-for-profit), and 106 (52 for-profit and 54 not-for-profit) hospitals from California, Texas and Florida, respectively (Table 4.4). During the study period, there is a slight downward trend in the hospital populations in all three states, with the exception of not-for-profit hospitals in Texas. California, as a state, experienced the largest decrease in hospital population, followed by the state of Florida. Texas, on the other hand, maintains a fairly stable hospital population. Though not shown, the number of public hospitals in all three states also dwindled during this time. Therefore, it is safe to assume that ownership conversions may not be the primary contributor to hospital population changes. Mergers and closures may be the likely culprit for decreasing numbers of hospitals.

**Table 4.1. Hospital Population and Change between 1991 and 2002**

|           |     | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | Change |
|-----------|-----|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| <b>CA</b> | NFP | 197  | 195  | 196  | 195  | 194  | 189  | 187  | 185  | 177  | 173  | 171  | 170  | -13.7% |
|           | FP  | 88   | 83   | 81   | 81   | 82   | 79   | 79   | 71   | 67   | 66   | 63   | 63   | -28.4% |
| <b>TX</b> | NFP | 104  | 106  | 103  | 110  | 109  | 111  | 109  | 108  | 106  | 105  | 103  | 104  | -0%    |
|           | FP  | 110  | 107  | 111  | 115  | 117  | 110  | 115  | 106  | 105  | 104  | 103  | 104  | -5.5%  |
| <b>FL</b> | NFP | 57   | 58   | 58   | 57   | 56   | 54   | 53   | 51   | 50   | 50   | 50   | 50   | -12.3% |
|           | FP  | 66   | 65   | 67   | 65   | 64   | 63   | 61   | 59   | 58   | 58   | 58   | 57   | -13.6% |

Further, in this study sample, Texas had the largest hospital population, split evenly between not-for-profit and for-profit hospitals. California had the second largest hospital population dominated by not-for-profit hospitals. In fact, there were nearly 2.5 times as many not-for-profit hospitals as for-profit hospitals in California. Over the 12-year study period, both not-for-profit and for-profit hospitals in California experienced significant decreases. However, the not-for-profit to for-profit (2.5:1) ratio remained fairly constant. Florida has the smallest hospital population size among the three study states. Although not-



for-profit institutions occupied a slightly larger percentage of the hospital market share in 1991, the not-for-profit and for-profit hospital size converged towards a near (1:1) ratio, as seen in Texas.

#### **4.4. Variables**

##### **4.4.1. Dependent Variables**

To comprehensively assess the effectiveness of state community benefit laws, three categories of dependent variables are constructed. Consistent with state community benefits laws, these categories of dependent variables included programmatic, financial and special populations. Each of these dependent variables, by itself, is limited and assesses only a single aspect of hospitals' commitment to local health needs. Assessing these variables together represents an important contribution of the study, over and beyond that of previous research, and it allows a comprehensive evaluation of hospitals' reaction to community benefit laws. A hospital, for example, may try to meet the requirements of the state regulation by offering many programmatic activities but contributes very little to serving disadvantaged populations in the local community. Another hospital may serve a disproportional share of the disadvantaged populations and as a result lacks the financial means to provide a comprehensive array of preventive and social services that are aimed to improve the health status of the community. Such variation can best be captured by including all three dependent variables in the study.

#### *4.4.1.1. Percent Community-Oriented Programs*

The first dependent variable involves hospitals' provision of community-oriented health programs. Creation and elimination of these often unprofitable services are perceived to indicate hospitals' commitment to local communities (Lee et al., 2003). The dependent variable also provides a reliable measure of hospitals' community service configurations irrespective of any accounting changes prompted by the implementation of community benefit laws. More specifically, the AHA Annual Hospital Survey contained information about the provision of 67 services offered by individual hospitals. Ideally, a subset of 21 distinct services aimed at promoting community health through preventive and educational programs, as specified by state community benefit laws and prior literature (Lee et al. 2003; Lee et al., 2004), would be compiled to create a community service composite index for all study years (Table 4.1). However, due to the content changes in the national and state hospital surveys, only 13 categories of community oriented programs were reported between years 1991 and 1993 (Table 4.2). Based on a national sample, the composite index for those years was shown to have good reliability with an average Cronbach's alpha coefficient of 0.85.

**Table 4.2. List of Community Benefits Programs between 1991 and 1993**

|                    |                     |                        |                    |
|--------------------|---------------------|------------------------|--------------------|
| Community Outreach | Health Information  | Patient Representation | Transportation     |
| Burn Unit          | Occupational Health | Birthing Center        | Volunteer Services |
| Fitness Center     | Patient Education   | Social Work            | Women's Center     |
| Emergency Room     |                     |                        |                    |

Between the years 1994 and 2002, the composite index was made out of 21 services (Table 4.2) and also yielded good reliability with an average Cronbach's alpha coefficient of 0.94. To reconcile the variation in community-oriented program availability, the programmatic

dependent variable was constructed as a percentage of programs offered by hospitals each year.

**Table 4.3. List of Community Benefits Programs between 1994 and 2002**

|                    |                     |                        |                    |
|--------------------|---------------------|------------------------|--------------------|
| Community Outreach | Health Fair         | Patient Education      | Transportation     |
| Crisis Prevention  | Health Information  | Patient Representation | Volunteer Services |
| Child Wellness     | Health Screening    | Social Work            | Women's Center     |
| Burn Unit          | Nutrition           | Support Groups         | Birthing Center    |
| Fitness Center     | Occupational Health | Teen Outreach          | Meals on Wheels    |
| Emergency Room     |                     |                        |                    |

#### *4.4.1.2. Bad Debt, Charity Care and Uncompensated Care per bed*

The second set of dependent variables involves hospitals' financial contribution to bad debts, charity care and total uncompensated care adjusted for cost-charge ratio and hospital size. More specifically, charity care is free hospital services programs provided without expectations of reimbursement (Kane and Wubbenhorst, 2000; Sutton and Stensland, 2004). Bad debts, on the other hand, are care for which payment is expected but never received (Kane and Wubbenhorst, 2000; Blewett et al., 2003). Because bad debt and charity care have been conflated in hospital accounting practices, researchers have often used sum of bad debt and charity care, namely uncompensated care) as a proxy for hospitals' charitable contributions (Sutton and Stensland, 2004).

In this study, hospital bad debt and charity care were extrapolated from itemized deductions from total revenue from state hospital surveys and financial statements. As hospital accounting practices vary, bad debts and charity care can also be reported as expenses. In this case, the absolute values of bad debts and charity care were used. To adjust for hospital's overall markup, a cost-charge ratio was constructed by dividing the total operating expenses by the total patient revenues produced by each hospital. Missing values

in cost-charge ratio were imputed by the average cost-charge ratio per hospital across the study period. Further missing values were imputed by the county-wide and state-wide average cost-charge ratio in the same year. Bad debts and charity care charges values were then multiplied by these cost-charge ratios to approximate each hospital's average cost of these items. Finally, the final financial dependent variables are achieved by dividing these adjusted figures by the number of hospitals beds to adjust for hospital size.

#### *4.4.1.3. Percent Medicaid Inpatient Load*

Medicaid inpatient days are constructed by dividing Medicaid inpatient by the total inpatient days reported by each hospital year. The chronically ill represent the highest health care spending group in the country (Keehan et al., 2004). In fact, Medicaid spending has reached over 15 percent of the gross domestic product (GDP) in 2003 (Kronick and Rousseau, 2007). With a comparatively low reimbursement rate (Bazzoli et al., 2005), hospitals' willingness and abilities to provide services to this population indicate their commitment to community health. This measure also corresponds to the law's focus on special needs populations.

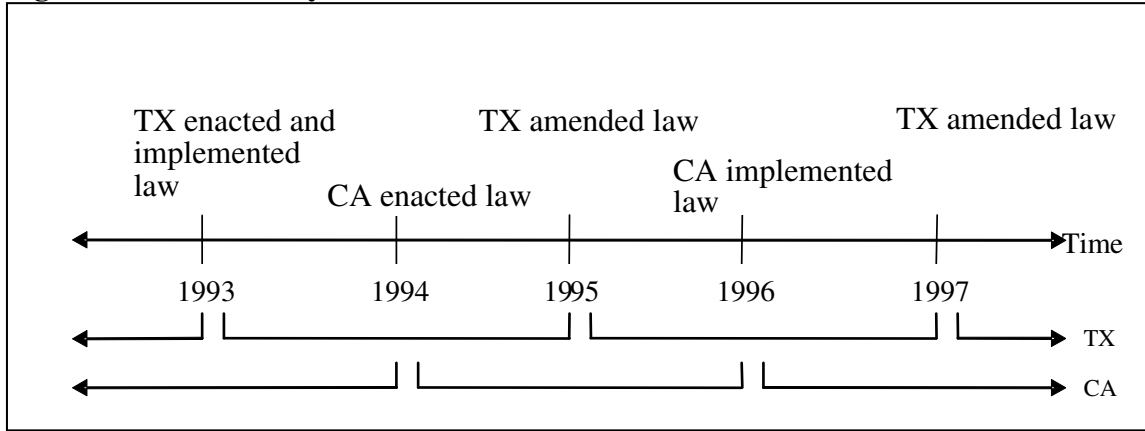
#### 4.4.2. Independent Variables

##### *4.4.2.1. Community Benefit Laws Timeline*

Three sets of independent variables are included in the study. The first and most important set pertains to the community benefit laws and is derived from the timeline of these laws (Figure 4.1). Some state community benefit laws have gone through several modifications since their enactment between 1991 and 2002. In Texas, the law was enacted

in 1993, but amended in 1995 and 1997. Using the pre-1993 era as the reference, a dummy variable (yr93to95) was constructed to indicate the first time period after law enactment as the beginning of 1993 through the end of 1994. Similarly, two more dummy variables (yr95to97 and yr97to02) were constructed to capture the years from 1995 through the end of 1996 and the post-1997 era. In California, there was a lag period between the enactment and the implementation of community benefit law during the study period. Using the pre-1994 years as a reference, a dummy variable (yr94to96) was constructed to indicate the time from the beginning of 1994 through the end of 1995. The last dummy variable (yr96to02) was used to signal the eventual implementation of the California law.

**Figure 4.2. Community Benefit Laws Timeline**



#### 4.4.2.2. Proportion of not-for-profit Community Benefits

To capture the indirect effects of community benefit laws on for-profit hospitals, for-profit hospitals' provision of community benefits are modeled in relations to not-for-profit hospitals' behaviors. Therefore, the weighted mean of community benefits provided by not-for-profit hospitals (vis-à-vis that of for-profit hospitals) in the same county is used as independent variables in the estimation models (Clement et al. 2002). In the first part of the spill-over effect estimation, the proportion of community-oriented programs was calculated

by dividing the sum of community oriented program provided not-for-profit hospitals by the total community-oriented services provided by all public and private community hospitals in a county. In the financial estimate of spill-over effects, the sum of uncompensated care provided by all not-for-profit hospitals is divided by the sum of uncompensated care provided by all hospitals in the county to yield the weighted mean of not-for-profit uncompensated care. Lastly and similarly, the weighted mean of not-for-profit Medicare and Medicaid load is calculated by the dividing the sum of not-for-profit load by that of all hospitals' in the same county.

#### *4.4.2.3. Contingency Variables*

In testing the contingency effects of the community benefit laws, four variables are used—hospital size, managed care contracts, systems affiliation, and market competition. Hospital size is measured by the total number of staffed beds reported in the AHA survey. In the regression analysis, this value is scaled down by 100 fold to yield coefficients of comparable scale as other covariates.

Two dichotomous variables—whether the hospital had formal contracts with HMOs and PPOs – are used to by the AHA annual hospital survey to indicate managed care affiliations between 1991 and 1997. Starting in 1998, the annual survey modified its questionnaire and required hospital to report the actual numbers of HMO and PPO contracts in possession. In the main and spill-over effects analyses, HMO and PPO contracts are included in the regression models as separate dichotomous control variables indicating possession of more than one HMO and PPO contracts, respectively. However, in the contingency effects analysis, managed care is conceptualized as a broad notion. Therefore,

variables PPO contracts and HMO contracts are combined into a single dichotomous managed care variable. Those without any HMO or PPO contracts are assigned a value of zero for this variable.

System affiliations are operationalized as any connections with or membership in hospital systems, alliances as well as networks. Between 1991 and 1993, the AHA Annual Survey only recorded hospital affiliations with systems and alliances. Starting in 1994, it added a network connection variable. Affiliations with any of these two or three forms of organizational coalitions are identified as the treatment group. Freestanding hospitals then are defined as those that reported no association with hospital systems, networks or alliances.

Market competition is operationalized by two measures. One derives from county Herfindahl index that measures hospital market concentration. It is used to calculate the level of competition within the focal hospital's county. Two, a separate Herfindahl index that takes into account all hospitals in all adjacent counties capture more accurately the hospitals' market demand characteristic. Market competition measures are constructed as (1-Herfindalh Index). Based on the regression results from the direct and spill-over effects analyses of community benefit laws, the surrounding county market condition is rarely a statistically significant contributing factor to hospitals' provision of community benefit. Therefore, only county-level market competition is used as a potential factor examined in the contingency effects analysis.

#### 4.4.3. Control Variables

Additional factors, including hospitals' geographic locations and related socio-demographic characteristics, their teaching status and financial allocations from recent

policies, that may influence changes in the hospitals' provision of community benefit are included in the estimation models as control variables. The location of hospitals is indicated by whether they reside in a metropolitan (vs. rural) area, as designated by the AHA's metropolitan statistical area size. Social and economic resources are often not as readily available in rural areas as in the more populated metropolitan locales. With fewer health care facilities present, rural hospitals can serve as the only health care facility to care for a wide variety of patients and shoulder all charitable responsibilities in their localities regardless of their ownership status (Ricketts and Heaphy, 2000). Presence of public hospitals has been found to have a crowding-out effect on private hospitals' provision of uncompensated care (Sloan et al., 1998; Thorpe and Phelps, 1992). Presence of public hospitals in a county has been incorporated as a dichotomous variable in the estimation model to control for these effects.

Hospital's teaching status provides information about hospitals' commitment to medical education, research and training as well as their access to the Medicaid and Medicare populations. It exposes hospitals to the most vulnerable populations in the market place and, therefore, affects their charitable behaviors. Empirical evidence has also shown that large urban teaching hospitals tend to provide a disproportionate share of uncompensated care, especially in areas with high managed care concentration (Gaskin, 1997; Weissman et al., 2003). Hospitals' case mix would influence its service provision decisions. In this analysis, average length of stay is constructed using the total inpatient days divided by total admissions. It serves as a proxy for hospital case mix.

Research found that members of minority groups are far more likely to be uninsured, particularly if they have income below 200 percent of the federal poverty level (Friedman,



2005). Given that chronic illness is more prevalent among the elderly and minorities are more likely to be uninsured (Friedman, 2005), percentages of the elderly and non-white populations in a county represent measures of need. The county unemployment rate is the percentage of people in the county who are in the labor force and who are unemployed. It serves as another indicator of community needs. Because one would expect that those with limited education are less likely to find employment with comprehensive benefits, educational attainment is incorporated as a social proxy of need. County education level is the percentage of adults older than 25 years of age that have a high school diploma.

State Children's Health Insurance Program (SCHIP) funding reflects the total annual SCHIP expenditure reported by states. Since its implementation in 1997, SCHIP has given states the authority and funding to expand health insurance coverage to low-income children by broadening Medicaid eligibility (Assessing the New Federalism: Eight Years Later. Urban Institute). Urban Institute found that SCHIP reduced unmet health needs and out-of-pocket spending for children. As a result, it may affect the charity care pool and/or community benefit programs provide by hospitals. Further, program development and participation in SCHIP and Medicaid vary substantially by state. The inclusion of total annual state SCHIP expenditure in the analysis provides a proxy for the extent of program participation in state.

**Table 4.4. List of study variables**

| Variable   | Definition  | Type                           | Data Source  |
|--|---|--------------------------------|--|
| <b>Dependent Variables</b>                                   |   |                                |  |
| Programmatic Category  |   |                                |  |
| Percent of Community Oriented Services Available             | Percent of total Community Oriented Service cataloged by AHA (total=13 between 1991 and 1993; total=21 between 1994 and 2002) | Continuous<br>Ranging from 0-1 | AHA  |
| Financial Category   |   |                                |  |
| Bad Debt   | Revenue deductions on Bad Debt adjusted for cost-charge ratio   | Continuous                     | OSHDP<br>TDH/AHA/THA<br>FL Hosp Survey               |
| Charity Care   | Revenue deductions on Charity Care adjusted for cost-charge ratio   | Continuous                     | OSHDP<br>TDH/AHA/THA<br>FL Hosp Survey               |
| Uncompensated Care   | Sum of adjusted bad debt and adjusted charity care  | Continuous                     | OSHDP<br>TDH/AHA/THA<br>FL Hosp Survey               |
| Special Needs Populations Category                           |   |                                |  |
| Medicaid   | Medicaid Inpatient Days/Total Inpatient Days  | Continuous                     | AHA  |
| <b>Independent Variables</b>                                 |   |                                |  |
| H1: Law  | Various time periods during evolution of Community benefit laws   | Dichotomous                    | N/A  |
| H2: Hospital Size  | # of staffed beds in each hospital  | Continuous                     | AHA  |
| H2: Systems Affiliations                                     | Affiliations with Hospital Systems, or Networks or Alliances  | Dichotomous                    | AHA  |
| H2: Managed Care Contracts                                   | 1= yes, 0= no   | Dichotomous                    | AHA  |
| H2: Market Competition I                                     | 1 - County Herfindahl Index   | Continuous<br>Between 0 and 1  | AHA  |
| H3: Not-for-profit hospitals provision of community benefits | Proportions of community benefits provided by not-for-profit hospitals in the same county                                     | Continuous                     | OSHDP<br>TDH/AHA/THA<br>FL Hosp Survey<br>AHA<br>ARF |
| <b>Control Variables</b>                                     |   |                                |  |
| Hospital Attributes  |   |                                |  |
| Hospital Teaching Status                                     | Inpatient days/total admissions<br>1= yes, 0= no  | Dichotomous                    | AHA  |
| Rural  | 1= rural, 0=urban   | Dichotomous                    | AHA, ARF   |
| Length of Stay   | Inpatient days/Total admissions   | Continuous                     | AHA  |
| Socio-demographic Factors                                    |   |                                |  |
| Education Level  | % of people over 25 years of age with a high school education in each   | Continuous                     | ARF  |

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|                    |                                       |                 |          |
|--------------------|---------------------------------------|-----------------|----------|
| Percent Elderly    | county                                |                 |          |
| Percent Minority   | % elderly in each county              | Continuous      | ARF      |
|                    | non-white population/total population |                 |          |
|                    | in a county                           |                 |          |
| Unemployment Rate  | # of unemployed / county population   | Continuous      | ARF      |
| Per Capital Income | Per capita Income                     | Continuous      | ARF      |
| Economic Factors   |                                       |                 |          |
| Market Competition | 1 - Neighboring County Herfindahl     | Continuous      | AHA      |
| II                 | Index                                 | Between 0 and 1 |          |
| Public Hospitals   | Presence of Public Hospitals within   | Dichotomous     | AHA, ARF |
|                    | the same County                       |                 |          |
| SCHIP expenditures | Total Reported SCHIP expenditure by   | Continuous      | CMS      |
|                    | state                                 |                 |          |

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## **CHAPTER 5**

### **THE EFFECT OF STATE COMMUNITY BENEFIT LAWS ON NOT-FOR-PROFIT HOSPITAL BEHAVIORS**

This chapter investigates the effectiveness of community benefit laws on not-for-profit hospitals' community benefit activities in California and Texas, compared to those in Florida. It uses a pre-post quasi-experimental study design to test two hypotheses: (1) there would be an increase in not-for-profit hospital's willingness and provision of community benefit activities after the implementation of community benefit laws; and (2) the increase in not-for-profit hospitals' willingness and provision of community benefit activities would be greater in Texas than that in California after the implementation of community benefit laws. The panel data allow for observation of hospital behavior patterns over time and direct comparisons of California and Texas hospital provision of community benefit activities before and after the implementation of community benefit laws, in reference to the control cases in Florida.

#### 5.1. Study Sample

##### *5.1.1. Study Sample for Analysis on Community-Oriented Programs*

This estimation of the main effects of state community benefit laws on hospital community benefit activities employs the full study sample of private not-for-profit hospitals participating in both the AHA and state Annual hospital surveys from 1991 to 2002. A total

of 4,148 hospital-year observations are used (Table 5.1). In terms of hospitals attributes, this sample consists of primarily medium size hospitals that staff an average of 227 beds. Between 62 and 67% of these hospitals are involved in managed care activities through PPO or HMO contracts. Seventeen percent of the observations maintain no affiliations with hospital systems, networks or alliances. On average, these hospitals provide 47% of the community oriented programs surveyed by AHA to their local residents.

#### *5.1.2 Trends in Hospital Provision of Community Oriented Programs 1991-2002*

Of the 4,148 hospital-year observations included in the analysis, only 3,571 observations represent hospitals that provide one or more community-oriented programs (Table 5.2). These tend to be slightly larger hospitals with 232 staffed beds, compared to an average of 227 staff beds in the total sample population. They are also more likely to have HMO and PPO contracts. In terms of environmental attributes, these hospitals reside in areas where there are fewer hospitals within the surrounding counties. However, their residing counties tend to have a slightly lowered per capita income (\$24,470), compared to that of the general hospital population (\$24,935).

State-specific subgroup analysis shows that, among not-for-profit hospitals that do provide positive quantities of community-oriented programs (n=3,571), not-for-profit hospitals in California, Texas and Florida provided a comparable level of community oriented services between 1991 and 1993 (Figure 5.1). However, by 1993, Texas and Florida not-for-profit hospitals' provision of these services increases drastically. Texas not-for-profit hospitals continue the increasing trend to reach the highest percentage of community oriented services by the end of the study period. California not-for-profit

hospitals, in contrast, maintain a steady provisional behavior before increasing these activities in 2002.

### *5.1.3. Trends in Hospital Provision of Bad Debts, Charity Care and Uncompensated Care 1991-2002*

Analyses on the effectiveness of community benefit laws in terms of bad debt, charity care and uncompensated care include a sample of 3,738 hospital-year observations. Of the total 4,148 hospital-year observations, 410 are missing financial variables. Hospital financial information is obtained from state hospital surveys. After adjusting for cost-charge ratios, hospitals appear to incur an average of \$2.39 million in bad debt, and spend an average of \$1.96 million on charity care per hospital per year. In total, they provide an average of \$4.35 million on uncompensated care, the sum of adjusted bad debt and adjusted charity care, per hospital per year. Further adjustment for hospital size reveal that not-for-profit hospitals incur an average of \$10,802 bad debt, \$7,510 charity care, and \$18,313 uncompensated care per bed (Table 5.3).

In general, not-for-profit hospitals that have incurred or provided positive values of bad debt, charity and uncompensated care share very similar organizational attributes with those in the total sample (Table 5.3). In term of state differences, California not-for-profit hospitals report the least amount of bad debt, charity and uncompensated care per bed throughout the study period, with the exception of Florida after 2001 (Figure 5.2-5.4). In fact, California not-for-profit hospitals record a steady and lower level of bad debt, charity and uncompensated care between 1991 and 1996, despite the implementation of the state community benefit law in 1994. It is after the amendment of the law in 1996, California not-for-profit hospitals begin increasing their reporting of bad debts and charity care.

Texas not-for-profit hospitals rank the highest in their incurrence of bad debts, charity and uncompensated care throughout most of the study period (Figure 5.2-5.4). Between the implementation of Texas community benefit law in 1993, Texas not-for-profit hospitals provide similar levels of bad debt as well as charity care as their Florida counterparts. After 1995, Texas hospitals begin to dispense markedly higher charity care than Florida hospitals did (Figure 5.3). In Florida, without state policy intervention, not-for-profit hospitals' provision of charity care appears fairly steady between 1991 and 2002. However, their averaged bad debt increases drastically between 1994 and 2000, only drops back down to the 1991 level in 2002 (Figure 5.2). Combined, the Florida not-for-profit hospitals' total uncompensated care shows an elevating trend between 1994 and 2000 (Figure 5.4).

#### *5.1.4. Trends in percent Medicaid inpatient days 1991-2002*

Based on the AHA data, not-for-profit hospitals in the three study states carry an average of 16 percent Medicaid inpatient days throughout the study period. Only 86 hospital-year observations indicate no Medicaid inpatient days. Not-for-profit hospitals with a positive Medicaid load are more likely to have PPO contracts than those in the full sample do (Table 5.4).

Time trends show that percent Medicaid inpatient days remained consistent in not-for-profit hospitals in California and Florida throughout the study period (Figure 5.5). In Texas, there are more variations in the average Medicaid inpatient days among not-for-profit hospitals between 1991 and 2002. There are two major dips in these hospitals' Medicaid inpatient load in the 1995-1996 and the 1998-1999 periods. After 2000, the averaged Medicaid inpatients days bounces back to the pre-1993 level.

## **5.2. Model Specifications**

The impact of state community benefit laws on hospital behavior is estimated using regression analysis according to the following specifications:

$$Community\ Benefit_{sth} = f[State_s, Time_t, State \cdot Time_{st}, Economic\ Factors_{sth}, Socio-demographic\ Factors_{sth}, Organizational\ Factors_{th}, \mu_{st}, \nu_{sth}] \quad (5.1)$$

Community benefit behavior categories, such as percent community oriented programs, uncompensated care, and percent Medicaid inpatient days, are abbreviated as dependent variable *Community benefit<sub>sth</sub>*. The *h* subscript indicates individual hospital; the *s* subscript indicates treatment or control state group; and the *t* subscript indicates policy change time periods. Each of these three continuous dependent variables is modeled as a function of the time dummies, state variables, the interaction between the treatment states and time dummies, and time-varying organizational, demographic and environmental factors.

The interaction terms between state and law timeline represent primary independent variables that capture the effect of these state regulations on hospital behaviors. More specifically, the evolution of policy changes in California and Texas is modeled according to their individual timelines (Figure 4.2). It is hypothesized that the enactment, amendment and implementation of community benefit laws would have differential impact on hospital behavior. Since the time before the enactment of the law is treated as reference time frame, the time between the enactment and implementation of the law affords a transitional period for hospitals to ramp up their service provisions. In California, the pre-1994 period is considered the reference time. Two time dummies are constructed to represent the 1994-1996 and post-1996 times. In Texas, the reference time is pre-1993. Time dummies are constructed to represent the 1993-1995, 1995-1997 and post 1997 periods. The interactions



between states and time dummies allow for across time comparison of dependent variables within states.

Finally, the model controls for various economic, socio-demographic factors and hospital fixed effects. Unspecified time invariant and time-varying state heterogeneities are represented in the model as  $\mu_{st}$  and  $v_{hst}$ , respectively. State specific regulations that extend beyond the beginning and the end of the study period, at the same time affect the implementation of community benefit laws may be one example of the time-invariant heterogeneity. Time varying heterogeneity may come from changes in the Medicaid or Medicaid-related policy, state macro-economy or the demographic distributions of the population.

### **5.3. Estimation Methods**

The effects of state community benefit laws on hospital provision of community benefit are estimated using a two-part model (2PM). Both parts employed the difference-in-difference (DD) model as the primary estimation method. The DD modeling strategy compares changes of hospital community benefits provision behaviors in intervention states to changes of hospital community benefit provision behaviors in the control state. The first difference compares the post-law and pre-law hospital community benefit activities in an intervention state. The second difference compares the community benefit activities differentials between one of the study states (i.e. Texas or California) and the control state of Florida.

Specifically, a diagnostic examination of the distributions of dependent variables show that 14% of observations contained a zero value for the provision of community

oriented programs. The distributions of bad debt, charity care and uncompensated care also yield 3.5%, 6.2% and 3.0% zero values. Moreover, the distributions of Medicaid inpatient days showed a 2.1% of zero values. Given the distributions of all the dependent variables are skewed with zero values, separate equations were used to estimate hospitals' decision to provide community benefit and their decision about how much community benefit to provide in response to state community benefit laws. The times series setup further allows for a longitudinal perspective in answering these two questions.

Traditionally, the first part of the 2PM estimating the probability of hospitals providing any community benefits employs a logit or probit model. However, given the nature of panel data, estimations and inferences from these non-linear models are difficult. Further, the available estimation models are limited to fixed-effects logit and random-effects probit only. Since hospitals that did not provide community benefits may persist in their behaviors, it is likely that a large proportion of the observations in a group would have the same outcomes throughout the study period. In a standard fixed-effects model, all these observations will be dropped from the analysis. The potential time-series effect in hospital behaviors may also introduce significant bias into fixed-effects logit models. Random-effects probit models impose strict error term assumptions upon the unobservables. Since it is unlikely that these unobservables are completely uncorrelated with explanatory variables, random-effects probit may not be the best estimation approach, either. Instead, a linear probability model (LPM) is proposed as the alternative estimation method for this part of the analysis (equation (5.2)). In this case, the binary outcome of whether hospitals provide community benefit, in terms of community oriented program provision, revenue deductions on bad debts and charity care, as well as Medicaid inpatient days, is predicted as a function

of time representing the state laws and other control variables using ordinary least squares (OLS).

$$p_i = \Pr(Y_i = 1) = X_i\beta \quad (5.2)$$

In the second part of the 2PM, ordinary least squares, random effects, fixed effects estimators are used and compared with the support of specification test statistics in order to get the most efficient and consistent estimates of the effects of community benefit laws that are not induced by unobserved individual hospital heterogeneity. The distributions of adjusted bad debt, charity and uncompensated care, in particular, are right skewed as were typical of distributions of monetary values. The Wooldridge test (Wooldridge 2000) that compares residual squares from a logged dependent variable model with that of the unlogged model is used to determine the functional forms of the dependent variables. Results of the test indicate that unlogged forms of all three variables are preferred to the logged forms.

Upon application of the same battery of specification tests, all the dependent variable categories of community oriented programs, uncompensated care and special populations yield the same results. Random effects estimates are preferred to OLS in the Breusch-Pagan test of random effects. Subsequent Hausman test rejects random effects estimates in favor of the consistent fixed effects estimates. Finally, a White (1980) test indicates that the errors of the fixed effects estimates are heteroskedastic. One source of such heteroskedasticity could be potential omitted time-varying unobservables caused by state level hospital policy changes regarding certificate of needs, or free care legislations. Therefore, robust standard errors are applied to correct for the downward biased standard errors in the final results.

In testing the proposed hypotheses regarding the impact of state community benefit on not-for-profit hospital behaviors, key variables of interests are represented by the interaction

terms between time dummies and state treatment groups. These linear probability and fixed/random effects within estimators each uses the program provisional variations in different states within the same time period to calculate the effect of policy change. For example, let  $\beta$  represent the coefficient estimate for the interaction terms among Year 1994-1996 and the state California. The resulted regression estimate can be interpreted as the difference between provision of community benefits before and after the 1994-1996 time period in California not-for-profit hospitals minus the difference between provision of community benefits before and after the same period of time in Florida not-for-profit hospitals (equation (5.3)).

$$\beta = (Y_{Yr94to96, CA} - Y_{pre94, CA}) - (Y_{Yr94to96, FL} - Y_{pre94, FL}) \quad (5.3)$$

The full incremental effects of policy change variables in the 2PM are derived from the product of the marginal probabilities of the LPM and the marginal expected values of the fixed or random effects outcome. Due to the interaction terms of the difference-in-difference model, the resulting incremental effects estimator is expanded into the long equation (5.4) where the subscript  $Yr$  indicates time and subscript  $St$  indicates states. More specifically,  $Yr = 1$  represents a specific time period in the evolution of the state community benefit law and  $Yr = 0$  represents the pre-law period. Similarly,  $St = 1$  refers a specific treatment state California or Texas while  $St = 0$  refers to the control states of Florida.

$$\begin{aligned} IE = & [(\Pr(y>0|_{Yr=1, St=1}) - \Pr(y>0|_{Yr=0, St=1})) - \\ & (\Pr(y>0|_{Yr=1, St=0}) - \Pr(y>0|_{Yr=0, St=0}))] \times E[y|y>0] \\ & + [\Pr(y>0|_{Yr=1}) - \Pr(y>0|_{Yr=0})] \times (E[y|y>0, St=1] - E[y|y>0, St=0]) \\ & + [\Pr(y>0|_{St=1}) - \Pr(y>0|_{St=0})] \times (E[y|y>0, Yr=1] - E[y|y>0, Yr=0]) \\ & + \Pr(y>0) \times [(E[y|y>0, Yr=1, St=1] - E[y|y>0, Yr=0, St=1]) - \\ & (E[y|y>0, Yr=1, St=0] - E[y|y>0, Yr=0, St=0])] \end{aligned} \quad (5.4)$$

Given both year and state are dummy variables, each of the four terms in this log equation can be simplified (equation (5.5)). For example, the difference-in-difference

probabilities in the first term can be replaced by the coefficient estimate of the interaction between time and state in the LPM. In the second term, the marginal probabilities by year in can be replaced by the coefficient estimate of the year variable in the LPM and the marginal expected values by states can be replaced by the coefficient estimate of the state variable in the fixed or random effects model. Finally, the standard errors of these full incremental effects are obtained by bootstrapping.

$$IE = (\beta_{Yr \times St}^{LPM} \times E[y|y>0]) + (\beta_{Yr}^{LPM} \times \beta_{St}^{FE/RE}) + (\beta_{St}^{LPM} \times \beta_{Yr}^{FE/RE}) + [Pr(y>0) \times \beta_{Yr \times St}^{FE/RE}] \quad (5.5)$$

To test hypothesis Ib, it is necessary to compare the statistical significance and magnitudes of coefficient estimates for the three-way interactions by state. Since they yield the average treatment effect of community benefit laws in California not-for-profit hospitals compared to that of Florida, and the average treatment effect of community benefit laws in Texas not-for-profit hospitals compared to that of Florida, the magnitude difference between the coefficient estimates reveals the relative differential effect of the law in the two states.

## **5.4. Results**

### *5.4.1. The Effect of Law on Hospital Provision of Community Oriented Programs*

The impact of state community benefit laws is estimated by categorizing the study period into specific chronological orders based on the evolutions of California and Texas community benefit laws. In the first part of the 2PM analysis, the linear probability model predicts hospitals' decision to provide any community oriented programs at all between 1991 and 2002 (Table 5.5). Compared to the reference state of Florida, California not-for-profit hospitals are 7% more likely to provide any community oriented programs (p=0.004) and

Texas not-for-profit hospitals are 10% more likely to provide the same kind of programs ( $p=0.001$ ).

OLS regression results of community oriented program provision further show that the California community benefit law does not propel not-for-profit hospitals' decision to provide community-oriented programs (Table 5.6). After the establishment of the law, Californian not-for-profit hospitals decrease their willingness to provide these programs by 17 percentage points. This likelihood rebounds by 5 percentage points once the law is implemented in 1996. However, compared to the pre-law period, California not-for-profit hospitals are still less willing to begin offering these programs after 1996. In Texas, not-for-profit hospitals decrease their willingness to provide community oriented programs after the implementation of the state community benefit law by 8.7 percentage points between 1993 and 1995 ( $p=0.009$ ). After the first and second amendments of the law, Texas not-for-profit hospitals do not exhibit any statistically significant difference in their willingness to begin offering these programs as the pre-law period.

The second part of the 2PM predicts the impact of community benefit laws conditional on hospitals' participation in community oriented program provision. The primary assumption is that Florida hospital community benefit activities are not influenced by the enactment or implementation of any direct government regulations between 1991 and 2002 due to the absence of community benefit laws. Therefore, the provision of community oriented programs differentials among not-for-profit in Florida before and after a specific time period should not change and would serve as the difference-in-difference estimates in the analysis model. Accordingly, a statistically significant positive coefficient estimate from the 2-way interaction terms among the time and variables would indicate a positive effect of

state community benefit law in the community oriented program provision among not-for-profit hospitals in California and Texas, compared to that of Florida hospitals.

The fixed-effects regression results show that the averaged community oriented program provision gap between California not-for-profit hospitals before and after 1994 lags the same comparison in Florida hospitals in the same time periods by a magnitude of 0.046 ( $p=0.001$ ). This difference-in-difference estimate in hospital behavior maintained at negative 0.091 ( $p<0.001$ ) after the California law was implemented in 1996, compared to the pre-law period. In Texas, not-for-profit hospitals do not show a statistically significant difference in the levels of their community benefit program provision until after the second amendment of state community benefit law, compare to the relative change seen in the reference Florida state. After 1997, Texas not-for-profit hospitals decrease their provision of community-oriented programs by 2.8 percentage points ( $p=0.047$ ), compared to the pre-law period before 1993.

To examine the relative effect of the California and Texas community benefit laws, the magnitudes of the fixed effects coefficients after the full implementation of each community benefit law are compared. Based on the evolutionary timeline of the laws, the full implementation of the final version of the Texas law is implemented in 1997. California has gone through a transitional period where the law was enacted but not implemented between 1994 and 1996. The California regulation is finally fully implemented in 1996. Results from the fixed effects estimates show that the changes in California not-for-profit hospitals' provision of community oriented programs after 1996 and before 1994, lag behind that of Florida not-for-profit hospitals in the same time period by a magnitude of 0.091 ( $p<0.001$ ). In Texas, the full implementation of the law in 1997 only decreases not-for-profit

hospitals' provision of the same programs by 2.8 percentage points ( $p=0.047$ ). Therefore, it appears that both California and Texas state community benefit laws have a negative effect on hospitals' provision of community-oriented programs. However, these negative effects are more prominent among California not-for-profit hospitals, despite regulatory efforts.

Results of the 2PM analyses also show that several organizational and market variables are correlated with not-for-profit hospitals' decision to provide community oriented programs (Table 5.5). In general, hospitals' teaching status, possession of managed care contracts, an elevated per capita income and presence of public hospitals in the same county as well as an increased SCHIP expenditure contribute positively to their probability of providing services geared towards the general welfare of the local community. PPO contracts, in particular, are the most significant contributors to hospitals' decision to provide these services at a magnitude of 0.24 ( $p<0.001$ ). Network status and same county market competition negatively impact not-for-profit hospitals' decision to provide any community services at all.

Consistent with previous research (Lee, Alexander and Bazzoli 2003; Proenca, Rosko, and Zinn 2000), hospitals with HMO contracts ( $p=0.008$ ) tend to provide more community oriented programs. Networked hospitals and those residing in counties with higher per capita income also tend to provide more of these services. On the contrary, hospitals with PPO contracts, those with sicker patients who have longer length of stay and those residing in counties with public hospital presence provide fewer community oriented programs. Finally, hospitals residing in counties with more high school graduates tend to lower their service provision percentage by 0.83 points ( $p<0.001$ ).



The full incremental effect of the changes in the policy variables across both parts of the 2PM shows that the community benefit law decreased California not-for-profit hospital provision of community-oriented programs by 12 percentage points and 13 percentage points between 1994 and 1996 and after 1996, respectively (Table 5.6). The Texas community benefit law, in contrast, significantly decreases not-for-profit hospitals' provision of the same activities by 5.0 percentage points after 1993.

#### *5.4.2. The Effect of Law on Hospital Bad Debt, Charity Care, and Uncompensated Care*

The effect of state community benefit laws on hospital reported bad debt, charity care and uncompensated care are also analyzed using the two-part model. Results from the first part LPM (Table 5.8) show that California not-for-profit hospitals are not more likely to report bad debt and charity care than Florida not-for-profit hospitals in general. In contrast, Texas not-for-profit hospitals have a statistically significant higher probability to report both bad debt and charity care than Florida not-for-profit hospitals.

According to the California legislative timelines, not-for-profit hospitals show a 3.8 percentage point ( $p=0.058$ ) gain in their probability to carry bad debt after the enactment of community benefit law in 1994 (Table 5.7). This likelihood is maintained at 3.1 percentage points level after the official implementation of the law in 1996 ( $p=0.088$ ). No statistical significant finding is yielded from California not-for-profit hospitals' likelihood to offer charity care.

The impact of state community benefit laws on the quantity of bad debt reported by hospitals is estimated by the fixed effects model. Results from this analysis show that even though California community benefit law positively influences their not-for-profit hospitals' decisions to carry bad debt, it does not affect the amount of bad debt hospitals carry. In

contrast, the California legislation does not affect not-for-profit hospitals' decision to offer charity care, but negatively affects the amount of charity care provided by these hospitals. After the enactment of the law in 1994, California not-for-profit hospitals carry a negative differential of \$1,449.13 per bed per year ( $p=0.002$ ) in charity care, compared to that of Florida not-for-profit hospitals. Between 1996 and 2002, the negative trend continues and hospitals incur another negative differential of \$989.44 per bed per year in charity care.

Combined, the California community benefit law encourages more not-for-profit hospitals to incur uncompensated care both after the enactment and implementation of the law. However, among not-for-profit hospitals that already provide these financial assistance to the poor, the state policy change depresses the quantity of total uncompensated care a differential of \$1570, compared to that of Florida not-for-profit hospitals ( $p=0.094$ ).

Results from the full incremental effect across both parts of the 2PM show that the community benefit law has mostly negative effects on California not-for-profit hospitals' financial contribution to assist the indigent (Table 5.8-5.10). However, only one statistically significant incremental effect is seen in the negative impact on California not-for-profit hospital reporting of charity care between 1994 and 1996. The enactment of the California legislation has propelled not-for-profit hospitals in the state to decrease their averaged provision of charity care by \$1136 per bed per year.

In Texas, the state community benefit law has a negative impact on hospitals' incurrence of bad debt and charity care after the initial implementation of the law in 1993 (Table 5.7). Between 1993 and 1995, not-for-profit hospitals' willingness to report bad debt and charity care decreases by 5.1 percentage points and 4.8 percentage points, respectively.

Upon amendment of the law in 1995, Texas not-for-profit hospitals' decisions to carry bad debt and offer charity care are no longer affected by the law.

Even though the Texas community benefit law does not appear to affect the quantity of bad debt not-for-profit hospitals carried, its prescriptive approach positively influences hospitals' provision of charity care. After the initial implementation of the Texas legislation, not-for-profit hospitals incur a positive differential of \$1272 per bed per year in charity care, compared to that of the Florida hospitals. This positive trend continues and is augmented after the first and second amendments of the laws. Between 1995 and 1997, Texas not-for-profit hospitals increase their provision of charity care by \$3138 per bed per year ( $p < 0.001$ ). After 1997, the positive differential grows to \$4021 per bed per year ( $p < 0.001$ ). Finally, in term of the combined measure of uncompensated care, the Texas state community benefit law positively attenuates not-for-profit hospitals' financial contributions to the indigent after the first and second amendments of the law.

The full incremental effects analysis shows that state policy change has negative but non-significant effects on Texas not-for-profit hospitals' incurrence of bad debt (Table 5.8-5.10). However, it does have an increasingly positive and significant influence on their provision of charity care after 1995. After the first amendment of the Texas legislation, the state policy change contributes to an averaged increase of \$3,009 per bed per year in charity care among not-for-profit hospitals, compared to the pre-law period. Similarly between 1997 and 2002, the policy change renders a \$3,431 increase in not-for-profit contribution to charity care, also. Combining bad debt and charity care, the state community benefit law in Texas yields a \$3,493 increase in not-for-profit hospitals' financial assistance to the poor after 1997.

Other factors contribute to not-for-profit hospitals probability of carrying bad debt, charity care, and uncompensated care. In general, larger hospitals and those with PPO contracts are more likely to report any bad debt, charity care and uncompensated care at all. Having a teaching status reduces hospitals' probability of render bad debt, charity care and uncompensated care. Hospitals with sicker patients as reflected in longer average length of stay are less likely to have bad debt and charity care. Networked hospitals are also less likely to render uncompensated care. Hospitals residing in a higher educated community have a lowered probability of having bad debt and providing uncompensated care. Hospitals residing in counties with more minorities are less inclined to report any bad debt, charity or uncompensated care. Finally, unemployment rate is negatively associated with hospitals' provision of charity care, in terms of their decision to participate in the services as well as the amount of charity care provision upon participation.

Even though larger hospitals accumulated larger sums of bad debt, charity and uncompensated care, fixed effects results show that they indeed provide significantly less bad debt, charity and uncompensated care per bed. Hospitals' network and membership status is associated with a statistically significant increase of \$977 per bed ( $p=0.007$ ) in bad debt provision but a significant decrease of \$760 per bed ( $p=0.018$ ) in charity care, compared to freestanding counterparts. Rural hospitals tend to incur significantly less charity (-793.39,  $p=0.066$ ) and uncompensated care (-1479.74,  $p=0.058$ ) per bed. Same county market competition reduces the amount of bad debt hospitals carry. Hospitals residing in a county with more high school graduates tend to have more bad debts, but rendered less charity care. Increase in per capital income is associated with increase in the provision of all three financial measures.

#### *5.4.3. The Effect of Law on Medicaid Inpatient Load*

Increased responsibility for the Medicaid populations is one of the important program dimensions enlisted in the California state community benefit law. Results from the first part LPM indicate that the community benefit law compelled California not-for-profit hospitals to increase their willingness to carry Medicaid inpatients days from 2.5% after the implementation of the law in 1996 (Table 5.11). In contrast, the Texas law does not appear to affect its not-for-profit hospitals decisions to carry Medicaid inpatient days between 1991 and 2002. Fixed effects regression results show that even though the California legislation encouraged not-for-profit hospitals' participation in Medicaid inpatient care, it reduces the Medicaid inpatient days among those facilities that had already served this population by 1.6 percentage points ( $p=0.033$ ) after 1996. Similarly, the implementation of Texas legislation reduces not-for-profit hospitals' percentage of Medicaid inpatient days by 1.6 percentage points both after 1995 ( $p=0.051$ ) and after 1997 ( $p=0.035$ ), compared to the pre-law period. The full incremental effect analysis confirms that negative effect of Texas state community benefit law on not-for-profit hospitals' percentage Medicaid inpatient days (Table 5.12). After the second amendment of the Texas legislation, not-for-profit hospitals reduce their Medicaid inpatient days by an average of 1.9 percentage points.

Other factors that contribute to not-for-profit hospitals' decision to carry Medicaid inpatient days are hospital size, patient mix, network and teaching status, market competition and per capita income (Table 5.11). Specifically, larger hospitals are more likely to carry Medicaid inpatient days at all. Hospitals with sicker patients have a slightly lowered probability of taking on any Medicaid inpatient days. Hospitals with a teaching status are in

fact less likely to have any Medicaid inpatient days. Surrounding county market competition stunts hospitals' decision to carry Medicaid inpatient days. Hospitals residing in communities with higher per capita income are less likely to carry special population loads as well.

Fixed effects regression results show that not-for-profit hospitals with sicker patients are more likely to carry a higher percentage of Medicaid inpatient days. Hospitals network status is associated with a decrease in the percentage of Medicaid inpatient days. County-wide demographic characteristics such as education level and proportion of elderly population are negatively associated with not-for-profit hospitals Medicaid inpatient days.

## **5.5. Discussion**

As federal and state government continue to debate the tax exemption merits and social responsibilities of not-for-profit hospitals (Kaiser Daily Health Policy Report, 2007), state community benefit laws represent a landmark legislation that can potentially resolve a significant portion of the controversy. That is, if state governments are able to regulate not-for-profit hospitals' provision of community benefit, controversy concerning and public scrutiny of these hospitals' tax exemption status, as well as their contribution to community welfare would largely subside.

Different from past hospital accountability research that often focused on a singular dimension of hospital behavior (GAO, 2005; Ginn and Moseley, 2004; Clement et al., 2002; Shortell et al., 1986), analyses in this chapter aim to examine the effectiveness of state community benefit laws on not-for-profit hospital provision of community oriented programs, uncompensated care as well as Medicaid inpatient loads. The estimation models also allow

for investigation on the two-fold impact of state community benefit laws – one, on not-for-profit hospitals’ decision to provide community benefit at all, and two, on the amount of community benefit they would provide conditional on their service provision participation.

The overall results suggest that the California state community benefit law is not effective in inducing not-for-profit hospitals’ provision of community oriented programs, as prescribed by the law. In California where its community benefit law takes on a process approach, not-for-profit hospitals reduce their willingness to provide any community-oriented programs after the enactment and implementation of the law. Moreover, among not-for-profit hospitals that already render these services, the law reduces the quantity of the community oriented programs they offered. In the case of special population loads, the California state community benefit law compels more not-for-profit hospitals to begin taking on Medicaid inpatient services. However, among those hospitals with the services, the implementation of the law significantly reduces the average percentage of Medicaid inpatient days they carry. Even though the California legislation specifically delineates community oriented programs and special population services as community benefit activities, not-for-profit hospitals appear to reduce these services. According to Oliver’s theory (1991), not-for-profit hospitals in California have chosen to defy the institutional pressures from state community benefit laws. Given that the California legislation requires only annual written reporting of hospital community benefit efforts and does not impose non-compliance penalties, not-for-profit hospitals perceived limited external enforcement of the newly established institutional rule. Therefore, they have strategically ignored the state regulation by reducing their provision of community-oriented programs.

Instead, more not-for-profit hospitals in California begin reporting bad debts during this time. Yet, among hospitals that already provide charity care, there is a large deduction in the amount of charity care they provide per bed after 1994 and 1996. Given the market competition and financial pressures facing hospitals in recent years, not-for-profit hospitals choose to signal their commitment to community benefit by invoking bad debts, which may or may not reflect their financial commitment to the indigent. In actuality, California not-for-profit hospitals significantly reduce their provision of charity care after the enactment and implementation of the state community benefit law. Combined with bad debt, these hospitals also yield a significant reduction in their uncompensated care after controlling for hospitals size, compared with Florida counterparts.

The Texas legislation focuses on the financial aspect of community benefit provision, it is not surprising that Texas not-for-profit hospitals showed a decreased probability of offering any community oriented programs after the initial implementation of the law in 1993. Further, the second amendment of the law in 1997 does induce a statistically significant and negative change in terms of the amount of community oriented programs offered by Texas not-for-profit hospitals. It is possible that resources are being diverted to fulfill the financial aspects of community benefit via bad debt, charity care and uncompensated care.

While California's process approach to community benefit law aims to changing not-for-profit hospitals' service provision behavior, the Texas community benefit law specifies a minimum amount of community benefit in terms of financial values that hospitals must render in order to maintain their tax exemption status. However, results of the analysis show that fewer not-for-profit hospitals are compelled to report bad debt, charity and uncompensated care after the initial implementation of the state community benefit law.



This negative trend recovers after the first and second amendments of the law. No statistically significant differences are seen in not-for-profit hospitals' willingness to participate in carrying and offering bad debt and charity care after 1995 and 1997, compared to the Florida hospitals. Most importantly, the Texas state community benefit law is able to induce a significant increase in not-for-profit hospitals' contribution to charity care controlling for hospital size after the implementation and each legislative modification of the law.

Unlike California hospitals, Texas not-for-profit hospitals have chosen to comply with the state community benefit law in accordance to its specifications. A few reasons may contribute to the strength of the Texas legislation. One, it results from a highly publicized litigation against the not-for-profit Methodist Hospital in 1990 (Noble et al., 1998). Two, the financial requirements of the law are concrete and specific (Community Catalyst, 2003). Three, the law delineates an enforceable non-compliance penalty measure where the violating hospitals may be fined \$1,000 every day the report is not filed (Community Catalyst, 2003). As hospitals perceive consistency in institutional norm created by the media attention as well as the high potential for external reinforcement of rules specified by the law, it is likely that they have strategically chosen to accede to the new regulation.

In terms of the relative effectiveness of these community benefit laws, results of the analyses strongly confirm that the Texas prescriptive approach is more effective in influencing not-for-profit hospitals' community benefit behavior than the California process approach is (Sutton and Stensland, 2003). California's process approach focuses on assessing, evaluating, addressing, and documenting community needs. More importantly, the legislative language does not delineate any enforceable evaluative measures. The

descriptions on community benefit activities are intentionally broad in their scope, so that hospitals are not limited in their abilities to creatively meet community health needs. These policy formulation decisions inadvertently created ambiguity in ways by which not-for-profit hospitals would choose to comply with the law. On one hand, it is possible that California not-for-profit hospitals have bolstered their provision of community benefit activities in terms of quality and variety that were not reflected in the AHA annual survey. On the other hand, without any non-compliance penalty measures, not-for-profit hospitals in California lack incentive to devote resources to community benefit activities or to increase the variety of community oriented services available to its target communities.

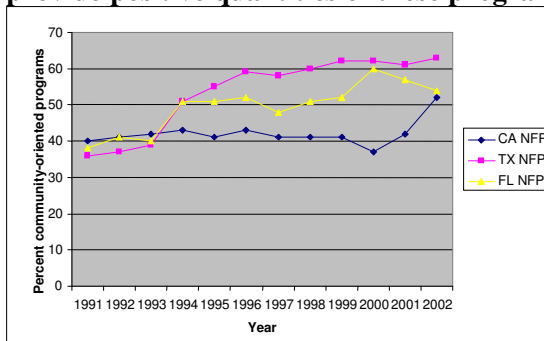
**Table 5.1. Summary statistics for analysis on effect of community benefit laws**

| Variable                    | Definition   | Total<br>(n=4,148) |                |
|-----------------------------|--|--------------------|----------------|
|                             |  | Mean               | Standard Error |
| Dependent Variables         |  |                    |                |
| Community-Oriented Programs | %Community Oriented Services Available                                       | 46.64              | 26.41          |
| Independent Variables       |  |                    |                |
| Year 94 to 96               | 1= yes, 0 = no   | 0.17               | 0.38           |
| Year 96 to 02               | 1= yes, 0 = no   | 0.57               | 0.50           |
| Year 93 to 95               | 1= yes, 0 = no   | 0.17               | 0.38           |
| Year 95 to 97               | 1= yes, 0 = no   | 0.17               | 0.38           |
| Year 97 to 02               | 1= yes, 0 = no   | 0.48               | 0.50           |
| Control Variables           |  |                    |                |
| Hospital Size               | # of staffed beds in each hospital   | 227.02             | 188.20         |
| Length of Stay              | Total inpatient Days/total admissions  | 6.65               | 10.29          |
| Networked Hospitals         | % Hospitals Affiliated with Systems, Networks or Alliances                   | 83.37              | 37.24          |
| HMO Contract                | 1= yes, 0= no  | 0.52               | 0.48           |
| PPO Contract                | 1= yes, 0= no  | 0.67               | 0.47           |
| Market Competition I        | 1 - County Herfindahl Index  | 0.73               | 0.28           |
| Market Competition II       | 1 - Neighboring County Herfindahl Index                                      | 0.93               | 0.08           |
| Teaching Status             | 1= yes, 0= no  | 0.25               | 0.43           |
| Rural                       | 1= rural, 0=urban  | 0.081              | 0.27           |
| Education Level             | % of people over 25 years of age with a high school education in each county | 76.10              | 6.88           |
| Percent Elderly             | % elderly in each county   | 12.73              | 5.09           |
| Percent Non-White           | % minority population in a county  | 40.39              | 18.26          |
| Unemployment Rate           | # of unemployed / county population  | 6.51               | 3.04           |
| Per Capita Income           | Per capital income per county  | 24,935.28          | 7961.50        |
| Public Hospitals            | Presence of Public Hospitals within the same County                          | 0.71               | 0.45           |
| SCHIP                       | State SCHIP expenditure/1,000,000  | 105.76             | 204.36         |

**Table 5.2. Summary Statistics for analysis on Hospital Provision of Community Oriented Programs**

| Variable                     | Total<br>(n=4,148) |                | With CB Provisions only<br>(n=3,571) |                |
|------------------------------|--------------------|----------------|--------------------------------------|----------------|
|                              | Mean               | Standard Error | Mean                                 | Standard Error |
| <b>Dependent Variables</b>   |                    |                |                                      |                |
| Community-Oriented Programs  | 46.64              | 26.41          | 54.17                                | 20.05          |
| <b>Independent Variables</b> |                    |                |                                      |                |
| Year 94 to 96                | 0.17               | 0.38           | 0.17                                 | 0.38           |
| Year 96 to 02                | 0.57               | 0.50           | 0.57                                 | 0.50           |
| Year 93 to 95                | 0.17               | 0.38           | 0.17                                 | 0.38           |
| Year 95 to 97                | 0.17               | 0.38           | 0.17                                 | 0.38           |
| Year 97 to 02                | 0.48               | 0.50           | 0.48                                 | 0.50           |
| <b>Control Variables</b>     |                    |                |                                      |                |
| Hospital Size                | 227.02             | 188.20         | 232.44                               | 193.67         |
| Length of Stay               | 6.65               | 10.29          | 6.60                                 | 10.34          |
| Networked Hospitals          | 83.37              | 37.24          | 80.74                                | 39.44          |
| HMO Contract                 | 0.52               | 0.48           | 0.72                                 | 0.45           |
| PPO Contract                 | 0.67               | 0.47           | 0.77                                 | 0.42           |
| Market Competition I         | 0.73               | 0.28           | 0.83                                 | 0.37           |
| Market Competition II        | 0.93               | 0.08           | 0.92                                 | 0.08           |
| Teaching Status              | 0.25               | 0.43           | 0.27                                 | 0.44           |
| Rural                        | 0.081              | 0.27           | 0.09                                 | 0.28           |
| Education Level              | 76.10              | 6.88           | 75.82                                | 6.89           |
| Percent Elderly              | 12.73              | 5.09           | 12.73                                | 5.19           |
| Percent Non-White            | 40.39              | 18.26          | 40.15                                | 18.32          |
| Unemployment Rate            | 6.51               | 3.04           | 6.59                                 | 3.02           |
| Per Capita Income            | 24,935.28          | 7961.50        | 24,470.36                            | 7,766.64       |
| Public Hospitals             | 0.71               | 0.45           | 0.70                                 | 0.46           |
| SCHIP                        | 105.76             | 204.36         | 101.09                               | 205.03         |

**Figure 5.1. Provision of Community Oriented Programs by Not-for-profit hospitals that provide positive quantities of these programs in California, Texas and Florida by Year (n=3,571)**

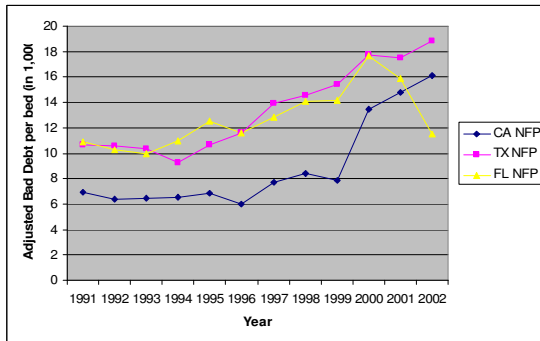


**Table 5.3. Descriptive statistics for Analysis on Bad Debt, Charity Care and Uncompensated Care per bed**

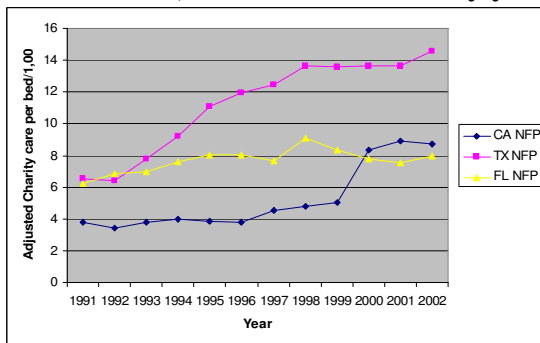
| Variable                     | Total<br>(n=3,738) |         | Positive Bad Debt<br>per bed only<br>(n=3,604) |         | Positive Charity<br>Care per bed only<br>(n=3,516) |         | Positive<br>Uncompensated<br>Care per bed only<br>(n=3,626) |         |
|------------------------------|--------------------|---------|--|---------|--|---------|---|---------|
|                              | Mean               | S.E.    | Mean   | S.E.    | Mean   | S.E.    | Mean  | S.E.    |
| <b>Dependent Variables</b>   |                    |         |  |         |  |         |   |         |
| Bad Debt/bed *               | 10.80              | 10.76   | 11.20  | 10.75   |  |         |   |         |
| Charity Care/bed *           | 7.51               | 11.89   |  |         | 7.98   | 12.11   |   |         |
| Uncompensated<br>Care/bed *  | 18.31              | 18.53   |  |         |  |         | 18.88   | 18.52   |
| <b>Independent Variables</b> |                    |         |  |         |  |         |   |         |
| Year 94 to 96                | 0.17               | 0.38    | 0.17   | 0.38    | 0.17   | 0.38    | 0.17  | 0.38    |
| Year 96 to 02                | 0.57               | 0.50    | 0.56   | 0.50    | 0.56   | 0.50    | 0.56  | 0.50    |
| Year 93 to 95                | 0.17               | 0.38    | 0.18   | 0.38    | 0.18   | 0.38    | 0.18  | 0.38    |
| Year 95 to 97                | 0.17               | 0.38    | 0.17   | 0.38    | 0.17   | 0.38    | 0.17  | 0.38    |
| Year 97 to 02                | 0.48               | 0.50    | 0.47   | 0.50    | 0.47   | 0.50    | 0.47  | 0.50    |
| <b>Control Variables</b>     |                    |         |  |         |  |         |   |         |
| Hospital Size                | 226.54             | 188.43  | 229.91   | 189.61  | 231.21   | 188.14  | 229.66  | 189.47  |
| Length of Stay               | 6.83               | 10.79   | 6.74   | 10.76   | 6.64   | 9.91    | 6.84  | 10.94   |
| Networked Hospitals          | 0.82               | 0.38    | 0.82   | 0.38    | 0.83   | 0.38    | 0.82  | 0.38    |
| HMO Contract                 | 0.65               | 0.48    | 0.66   | 0.47    | 0.66   | 0.47    | 0.66  | 0.47    |
| PPO Contract                 | 0.70               | 0.46    | 0.72   | 0.45    | 0.73   | 0.45    | 0.72  | 0.45    |
| Market Competition I         | 0.72               | 0.29    | 0.72   | 0.30    | 0.72   | 0.29    | 0.72  | 0.30    |
| Market Competition II        | 0.92               | 0.08    | 0.92   | 0.08    | 0.92   | 0.08    | 0.92  | 0.08    |
| Teaching Status              | 0.23               | 0.42    | 0.21   | 0.41    | 0.22   | 0.41    | 0.21  | 0.41    |
| Rural                        | 0.09               | 0.28    | 0.091  | 0.288   | 0.089  | 0.285   | 0.090   | 0.287   |
| Education Level              | 75.82              | 6.85    | 75.79  | 6.88    | 75.85  | 6.84    | 75.78   | 6.88    |
| Percent Elderly              | 12.79              | 5.19    | 12.83  | 5.21    | 12.84  | 5.26    | 12.82   | 5.20    |
| Percent Non-White            | 40.06              | 18.34   | 39.77  | 18.37   | 39.70  | 18.37   | 39.87   | 18.39   |
| Unemployment Rate            | 6.60               | 3.05    | 6.62   | 3.09    | 6.58   | 3.04    | 6.61  | 3.08    |
| Per Capita Income *          | 24470.65           | 7370.02 | 24369.27                                       | 7388.91 | 24403.92   | 7372.74 | 24386.61  | 7379.23 |
| Public Hospitals             | 0.70               | 0.46    | 0.70   | 0.46    | 0.70   | 0.46    | 0.70  | 0.46    |
| SCHIP **                     | 101.08             | 201.58  | 100.71   | 201.72  | 102.00   | 202.49  | 101.34  | 202.04  |

\* value reported in \$1,000. \*\* value reported in 1,000,000.

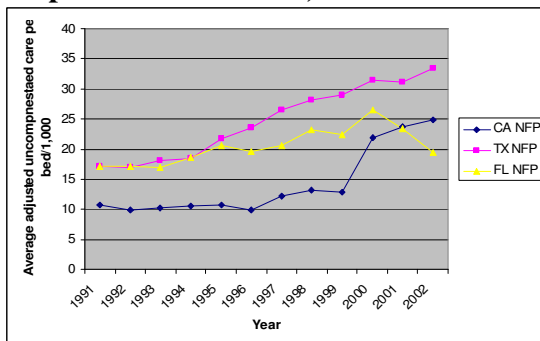
**Figure 5.2. Average Adjusted Bad Debt per bed incurred by Not-for-profit hospitals in California, Texas and Florida by year**



**Figure 5.3. Average Adjusted charity care per bed incurred by Not-for-profit hospitals in California, Texas and Florida by year**

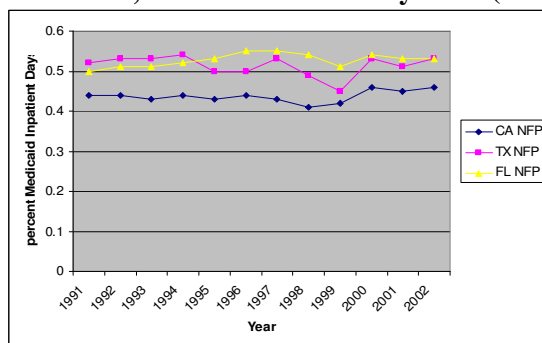


**Figure 5.4. Average Adjusted uncompensated care per bed incurred by Not-for-profit hospitals in California, Texas and Florida by year**



**Table 5.4. Summary Statistics for Analysis on Medicaid Inpatient Days**

| Variable                  | Total<br>(n=4,148) |                | Positive Medicaid Load<br>(n=4,062) |                |
|---------------------------|--------------------|----------------|-------------------------------------|----------------|
|                           | Mean               | Standard Error | Mean                                | Standard Error |
| Dependent Variables       |                    |                |                                     |                |
| % Medicaid Inpatient Days | 0.16               | 0.14           | 0.16                                | 0.14           |
| Independent Variables     |                    |                |                                     |                |
| Year 94 to 96             | 0.17               | 0.38           | 0.17                                | 0.38           |
| Year 96 to 02             | 0.57               | 0.50           | 0.57                                | 0.50           |
| Year 93 to 95             | 0.17               | 0.38           | 0.17                                | 0.38           |
| Year 95 to 97             | 0.17               | 0.38           | 0.17                                | 0.38           |
| Year 97 to 02             | 0.48               | 0.50           | 0.48                                | 0.50           |
| Control Variables         |                    |                |                                     |                |
| Hospital Size             | 227.02             | 188.20         | 230.06                              | 188.70         |
| Length of Stay            | 6.65               | 10.29          | 6.57                                | 10.33          |
| Networked Hospitals       | 0.83               | 0.37           | 0.83                                | 0.37           |
| HMO Contract              | 0.52               | 0.48           | 0.63                                | 0.48           |
| PPO Contract              | 0.67               | 0.47           | 0.67                                | 0.47           |
| Market Competition I      | 0.73               | 0.28           | 0.73                                | 0.29           |
| Market Competition II     | 0.93               | 0.08           | 0.93                                | 0.08           |
| Teaching Status           | 0.25               | 0.43           | 0.24                                | 0.43           |
| Rural                     | 0.081              | 0.27           | 0.082                               | 0.274          |
| Education Level           | 76.10              | 6.88           | 76.12                               | 6.90           |
| Percent Elderly           | 12.73              | 5.09           | 12.77                               | 5.12           |
| Percent non-White         | 40.39              | 18.26          | 40.24                               | 18.29          |
| Unemployment Rate         | 6.51               | 3.04           | 6.52                                | 3.05           |
| Per Capita Income         | 24,935.28          | 7961.50        | 24878.27                            | 7975.74        |
| Public Hospitals          | 0.71               | 0.45           | 0.70                                | 0.46           |
| SCHIP/1,000,000           | 105.76             | 204.36         | 104.71                              | 203.23         |

**Figure 5.5. Average Percentage of Medicaid Inpatient Days among not-for-profit hospitals in California, Texas and Florida by Year (n=4,062)**

**Table 5.5. Effect of state community benefit laws on hospital provision of community oriented programs from 1991 to 2002**

| Variable                    | OLS Coefficients<br>(n=4,148) | Fixed Effects<br>(n=3,571) |
|-----------------------------|-------------------------------|----------------------------|
| CA                          | 0.072 ***<br>(0.025)          |                            |
| TX                          | 0.10 ***<br>(0.03)            |                            |
| Year 94 to 96               | 0.069 ***<br>(0.026)          | 0.16 ***<br>(0.01)         |
| Year 96 to 02               | 0.049<br>(0.032)              | 0.20 ***<br>(0.01)         |
| Year 93 to 95               | -0.051 **<br>(0.020)          | 0.018 *<br>(0.009)         |
| Year 95 to 97               | -0.12 ***<br>(0.03)           | 0.034 **<br>(0.015)        |
| Year 97 to 02               | -0.15 ***<br>(0.03)           | 0.056 ***<br>(0.017)       |
| Year 94 to 96 · CA          | -0.17 ***<br>(0.03)           | -0.046 ***<br>(0.014)      |
| Year 96 to 02 · CA          | -0.12 ***<br>(0.03)           | -0.091 ***<br>(0.013)      |
| Year 93 to 95 · TX          | -0.087 ***<br>(0.033)         | -0.0046<br>(0.0140)        |
| Year 95 to 97 · TX          | -0.0038<br>(0.0366)           | -0.018<br>(0.015)          |
| Year 97 to 02 · TX          | -0.019<br>(0.033)             | -0.028 **<br>(0.014)       |
| Hospital Size/100           | -0.0016<br>(0.0027)           | 0.0056<br>(0.0045)         |
| Length of Stay              | -0.00041<br>(0.00041)         | -0.0023 ***<br>(0.0009)    |
| Freestanding Hospitals      | -0.069 ***<br>(0.012)         | 0.036 ***<br>(0.007)       |
| Teaching Status             | 0.075 ***<br>(0.011)          | 0.0065<br>(0.0103)         |
| Rural                       | 0.011<br>(0.019)              | 0.017<br>(0.013)           |
| PPO Contract                | 0.24 ***<br>(0.02)            | -0.017 **<br>(0.009)       |
| HMO Contract                | 0.15 ***<br>(0.02)            | 0.022 ***<br>(0.008)       |
| Market Competition I        | -0.092 ***<br>(0.026)         | 0.090 *<br>(0.054)         |
| Market Competition II       | -0.046<br>(0.072)             | -0.10<br>(0.14)            |
| Education Level/100         | -0.31 **<br>(0.12)            | -0.83 ***<br>(0.20)        |
| Percent Elderly/100         | 0.16<br>(0.13)                | 0.069<br>(0.396)           |
| Percent non-Whites/100      | -0.043<br>(0.049)             | -0.0099<br>(0.0900)        |
| Unemployment Rate/100       | 0.28<br>(0.21)                | -0.0058<br>(0.2204)        |
| Per Capital Income/1,000    | 0.0020 **<br>(0.0009)         | 0.0034 ***<br>(0.0010)     |
| Public Hospitals Presence   | 0.030 **<br>(0.013)           | -0.033 ***<br>(0.010)      |
| SCHIP Expenditure/1,000,000 | 0.000090 ***<br>(0.000026)    | 0.000018<br>(0.000015)     |
| Constant                    | 0.87 ***<br>(0.13)            | 1.00 ***<br>(0.22)         |

Robust standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level.



**Table 5.6. Full incremental effect of changes in community benefit laws on hospital provision of community-oriented programs**

|                           | <b>Mean</b> | <b>Standard Error</b> | <b>95 % Confidence Interval</b> |        |
|---------------------------|-------------|-----------------------|---------------------------------|--------|
| <b>CA x (Yr1994-1996)</b> | -0.12 *     | 0.02                  | -0.15                           | -0.09  |
| <b>CA x (Yr1996-2002)</b> | -0.13 *     | 0.02                  | -0.16                           | -0.10  |
| <b>TX x (Yr1993-1995)</b> | -0.050 *    | 0.017                 | -0.083                          | -0.015 |
| <b>TX x (Yr1995-1997)</b> | -0.014      | 0.019                 | -0.057                          | 0.022  |
| <b>TX x (Yr1997-2002)</b> | -0.029      | 0.017                 | -0.059                          | 0.007  |

Standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* Significance at 5% level.

**Table 5.7. Effect of state community benefit laws on Adjusted Bad Debt, Charity Care, and Uncompensated Care between 1991 and 2002**

| Variable                  | Adjusted Bad Debt       |                            | Adjusted Charity Care   |                             | Adjusted Uncompensated Care |                             |
|---------------------------|-------------------------|----------------------------|-------------------------|-----------------------------|-----------------------------|-----------------------------|
|                           | OLS<br>(n=3,738)        | Fixed Effects<br>(n=3,604) | OLS<br>(n=3,738)        | Fixed Effects<br>(n=3,516)  | OLS<br>(n=3,738)            | Random Effects<br>(n=3,626) |
| CA                        | 0.024<br>(0.017)        |                            | 0.013<br>(0.023)        |                             | 0.030 *<br>(0.016)          | 12032.81 ***<br>(3189.81)   |
| TX                        | 0.045 **<br>(0.020)     |                            | 0.074 ***<br>(0.026)    |                             | 0.042 **<br>(0.019)         | -4346.47<br>(3331.91)       |
| Year 94 to 96             | -0.010<br>(0.017)       | -135.39<br>(444.95)        | -0.017<br>(0.023)       | 1759.18 ***<br>(416.06)     | -0.013<br>(0.016)           | 1543.03 *<br>(807.12)       |
| Year 96 to 02             | -0.051 **<br>(0.022)    | -96.97<br>(656.04)         | -0.067 **<br>(0.028)    | 2003.17 ***<br>(589.30)     | -0.055 ***<br>(0.020)       | 1759.84 *<br>(1035.11)      |
| Year 93 to 95             | 0.032 **<br>(0.014)     | -1096.82 **<br>(447.03)    | 0.036 **<br>(0.017)     | 320.94<br>(318.84)          | 0.030 **<br>(0.013)         | -757.38<br>(658.80)         |
| Year 95 to 97             | 0.023<br>(0.020)        | -1292.73 *<br>(647.55)     | 0.036<br>(0.026)        | -318.47<br>(487.62)         | 0.021<br>(0.018)            | -1524.03<br>(952.43)        |
| Year 97 to 02             | 0.088 ***<br>(0.023)    | -652.13<br>(902.96)        | 0.11 ***<br>(0.03)      | -170.55<br>(636.52)         | 0.088 ***<br>(0.021)        | -659.12<br>(1147.82)        |
| Year 94 to 96 · CA        | 0.038 *<br>(0.020)      | -110.36<br>(519.26)        | 0.025<br>(0.026)        | -1449.13 ***<br>(458.17)    | 0.038 **<br>(0.018)         | -1404.69<br>(934.88)        |
| Year 96 to 02 · CA        | 0.032 *<br>(0.019)      | -711.74<br>(667.14)        | 0.027<br>(0.024)        | -989.44 *<br>(536.73)       | 0.034 **<br>(0.017)         | -1570.51 *<br>(936.69)      |
| Year 93 to 95 · TX        | -0.051 **<br>(0.022)    | -63.92<br>(611.32)         | -0.048 *<br>(0.029)     | 1271.52 **<br>(628.20)      | -0.050 **<br>(0.020)        | 1206.33<br>(1139.55)        |
| Year 95 to 97 · TX        | 0.0042<br>(0.0245)      | -860.74<br>(696.00)        | 0.013<br>(0.032)        | 3138.21 ***<br>(686.49)     | 0.0065<br>(0.0224)          | 2407.07 **<br>(1139.55)     |
| Year 97 to 02 · TX        | -0.030<br>(0.022)       | 256.67<br>(770.17)         | -0.039<br>(0.029)       | 4020.74 ***<br>(666.45)     | -0.031<br>(0.020)           | 4474.84 ***<br>(1069.85)    |
| Hospital Size/100         | 0.022 ***<br>(0.002)    | -22.55 ***<br>(3.61)       | 0.020 ***<br>(0.002)    | -945.93 ***<br>(226.10)     | 0.021 ***<br>(0.002)        | -2163.01 ***<br>(284.09)    |
| Length of Stay            | -0.00046 *<br>(0.00027) | -32.32<br>(24.94)          | -0.0012 ***<br>(0.0003) | 12.15<br>(19.55)            | 0.00034<br>(0.00024)        | -67.13 **<br>(31.42)        |
| Networked Hospitals       | -0.012<br>(0.008)       | 976.92 ***<br>(364.47)     | 0.0041<br>(0.0103)      | -760.20 **<br>(320.87)      | -0.014 **<br>(0.007)        | 370.71<br>(479.70)          |
| Teaching Status           | -0.10 ***<br>(0.01)     | -944.91<br>(668.44)        | -0.083 ***<br>(0.010)   | 2423.00 ***<br>(790.71)     | -0.098 ***<br>(0.007)       | 2517.80 ***<br>(805.59)     |
| Rural                     | 0.012<br>(0.013 )       | -269.90<br>(649.36)        | 0.0069<br>(0.0165)      | -793.39 *<br>(430.72)       | 0.012<br>(0.012)            | -1479.74 *<br>(780.78)      |
| PPO Contract              | 0.096 ***<br>(0.012)    | 78.45<br>(460.69)          | 0.11 ***<br>(0.02)      | -978.98 **<br>(424.68)      | 0.098 ***<br>(0.011)        | -673.38<br>(643.25)         |
| HMO Contract              | -0.0098<br>(0.0112)     | -174.39<br>(423.29)        | -0.013<br>(0.015)       | 1220.39 ***<br>(421.00)     | -0.017<br>(0.010)           | 909.44<br>(615.63)          |
| Market Competition I      | 0.019<br>(0.017)        | -4817.46 **<br>(2186.62)   | 0.057 **<br>(0.023)     | 102.16<br>(1766.13)         | 0.026 *<br>(0.016)          | -2864.41<br>(2706.34)       |
| Market Competition II     | -0.073<br>(0.048)       | -6157.18<br>(6490.13)      | -0.040<br>(0.063)       | 6229.88<br>(4907.27)        | -0.058<br>(0.044)           | 9714.58<br>(8428.18)        |
| Education Level/100       | -0.30 ***<br>(0.08)     | 378.77 **<br>(155.60)      | -0.096<br>(0.109)       | -50197.47 ***<br>(11273.65) | -0.31 ***<br>(0.08)         | -13722.17<br>(11132.73)     |
| Percent Elderly/100       | -0.027<br>(0.089)       | -236.22<br>(264.61)        | 0.14<br>(0.12)          | -38090.29 **<br>(17293.70)  | -0.014<br>(0.081)           | -53667.74 ***<br>(19463.50) |
| Percent non-Whites/100    | -0.15 ***<br>(0.03)     | 49.41<br>(58.51)           | -0.12 ***<br>(0.04)     | -9617.41 **<br>(4573.17)    | -0.13 ***<br>(0.03)         | -4556.69<br>(5321.10)       |
| Unemployment Rate/100     | -0.12<br>(0.14)         | -73.03<br>(152.38)         | -0.051<br>(0.188)       | -1668.28<br>(12477.91)      | -0.31 **<br>(0.13)          | -5470.86<br>(15422.26)      |
| Per Capital Income/1,000  | -0.00015<br>(0.00064)   | 0.30 **<br>(0.13)          | -0.0011<br>(0.0008)     | 205.99 ***<br>(60.93)       | -0.00070<br>(0.00059)       | 488.56 ***<br>(58.84)       |
| Public Hospitals Presence | -0.016 *<br>(0.009)     | -291.90<br>(492.26)        | -0.015<br>(0.011)       | -988.83 **<br>(472.01)      | -0.016 **<br>(0.008)        | -1280.76 *<br>(759.49)      |
| SCHIP                     | -0.000013<br>(0.000018) | 7.25 ***<br>(1.16)         | 0.000023<br>(0.000023)  | 4.15 ***<br>(0.88)          | 0.0000024<br>(0.0000161)    | 11.32 ***<br>(1.00)         |
| Expenditure/1,000,000     |                         |                            |                         |                             |                             |                             |
| Constant                  | 1.19 ***<br>(0.09)      | -7758.33<br>(15908.29)     | 0.93 ***<br>(0.11)      | 43822.37 ***<br>(11264.15)  | 1.20 ***<br>(0.08)          | 30461.56 **<br>(13607.87)   |

Robust standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level

**Table 5.8. Full incremental effect of changes in community benefit laws on hospital provision of bad debt**

|                    | Mean    | Standard Error | 95 % Confidence Interval |         |
|--------------------|---------|----------------|--------------------------|---------|
| CA x (Yr1994-1996) | 333.79  | 554.21         | -699.88                  | 1439.12 |
| CA x (Yr1996-2002) | -319.84 | 717.26         | -1691.33                 | 1168.76 |
| TX x (Yr1993-1995) | -693.81 | 654.67         | -1949.48                 | 609.18  |
| TX x (Yr1995-1997) | -833.62 | 756.99         | -2318.54                 | 507.34  |
| TX x (Yr1997-2002) | -126.83 | 774.04         | -1617.91                 | 1379.58 |

Standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* Significance at 5% level.

**Table 5.9. Full incremental effect of changes in community benefit laws on hospital provision of charity care**

|                    | Mean       | Standard Error | 95 % Confidence Interval |         |
|--------------------|------------|----------------|--------------------------|---------|
| CA x (Yr1994-1996) | -1135.69 * | 495.64         | -2071.03                 | -55.42  |
| CA x (Yr1996-2002) | -685.99    | 536.00         | -1655.90                 | 534.13  |
| TX x (Yr1993-1995) | 825.07     | 617.34         | -407.69                  | 1959.62 |
| TX x (Yr1995-1997) | 3008.95 *  | 664.29         | 1677.21                  | 4288.06 |
| TX x (Yr1997-2002) | 3431.32 *  | 652.34         | 2116.47                  | 4671.19 |

Standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* Significance at 5% level.

**Table 5.10. Full incremental effect of changes in community benefit laws on hospital provision of uncompensated care**

|                    | Mean      | Standard Error | 95 % Confidence Interval |         |
|--------------------|-----------|----------------|--------------------------|---------|
| CA x (Yr1994-1996) | -682.96   | 736.89         | -1985.16                 | 743.82  |
| CA x (Yr1996-2002) | -1056.23  | 891.34         | -2620.24                 | 1025.12 |
| TX x (Yr1993-1995) | 140.25    | 860.35         | -1524.80                 | 1873.44 |
| TX x (Yr1995-1997) | 2169.11   | 1087.91        | -63.43                   | 4292.44 |
| TX x (Yr1997-2002) | 3493.39 * | 1062.81        | 1161.27                  | 5466.13 |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* Significance at 5% level.

**Table 5.11. Effect of state community benefit laws on Medicaid inpatient load between 1991 and 2002**

| Variable                    | Medicaid Inpatient Days   |                            |
|-----------------------------|---------------------------|----------------------------|
|                             | OLS<br>(n=4,148)          | Fixed Effect<br>(n=4,062)  |
| CA                          | 0.014<br>(0.013)          |                            |
| TX                          | -0.00069<br>(0.01556)     |                            |
| Year 94 to 96               | 0.0018<br>(0.0134)        | 0.0081<br>(0.0063)         |
| Year 96 to 02               | 0.0016<br>(0.0165)        | 0.010<br>(0.008)           |
| Year 93 to 95               | -0.0037<br>(0.0103)       | 0.020 ***<br>(0.005)       |
| Year 95 to 97               | 0.0046<br>(0.0148)        | 0.029 ***<br>(0.008)       |
| Year 97 to 02               | 0.0026<br>(0.0170)        | 0.023 **<br>(0.009)        |
| Year 94 to 96 · CA          | 0.014<br>(0.015)          | -0.0014<br>(0.0074)        |
| Year 96 to 02 · CA          | 0.025 *<br>(0.014)        | -0.016 **<br>(0.007)       |
| Year 93 to 95 · TX          | -0.013<br>(0.017)         | -0.00053<br>(0.00733)      |
| Year 95 to 97 · TX          | 0.00098<br>(0.01884)      | -0.016 *<br>(0.008)        |
| Year 97 to 02 · TX          | -0.022<br>(0.017)         | -0.016 **<br>(0.007)       |
| Hospital Size/100           | 0.017 ***<br>(0.001)      | 0.0016<br>(0.0028)         |
| Length of Stay              | -0.00060 ***<br>(0.00021) | 0.0043 **<br>(0.0022)      |
| Networked Hospitals         | -0.015 **<br>(0.006)      | -0.015 ***<br>(0.005)      |
| Teaching Status             | -0.057 ***<br>(0.006)     | 0.0040<br>(0.0086)         |
| Rural                       | 0.0088<br>(0.0099)        | 0.0064<br>(0.0061)         |
| PPO Contract                | 0.0071<br>(0.0084)        | 0.00039<br>(0.00556)       |
| HMO Contract                | 0.0092<br>(0.0081)        | -0.0021<br>(0.0050)        |
| Market Competition I        | -0.0016<br>(0.0134)       | 0.013<br>(0.040)           |
| Market Competition II       | -0.14 ***<br>(0.04)       | -0.059<br>(0.069)          |
| Education Level/100         | 0.0012<br>(0.0636)        | -0.32 ***<br>(0.12)        |
| Percent Elderly/100         | 0.051<br>(0.067)          | -0.37 *<br>(0.21)          |
| Percent non-Whites/100      | -0.023<br>(0.025)         | -0.049<br>(0.064)          |
| Unemployment Rate/100       | -0.081<br>(0.110)         | 0.027<br>(0.125)           |
| Per Capital Income/1,000    | -0.00081 *<br>(0.00044)   | 0.00041<br>(0.00048)       |
| Public Hospitals Presence   | -0.0086<br>(0.0065)       | -0.0078<br>(0.0065)        |
| SCHIP Expenditure/1,000,000 | -0.000016<br>(0.000013)   | 0.000039 ***<br>(0.000001) |
| Constant                    | 1.10 ***<br>(0.07)        | 0.45 ***<br>(0.13)         |

Robust standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level

**Table 5.12. Full incremental effect of changes in community benefit laws on percent hospital Medicaid inpatient days**

|                                     | Mean     | Standard Error | 95 % Confidence Interval |        |
|-------------------------------------|----------|----------------|--------------------------|--------|
| <b>CA<sub>x</sub> (Yr1994-1996)</b> | 0.0011   | 0.0080         | -0.0149                  | 0.0164 |
| <b>CA<sub>x</sub> (Yr1996-2002)</b> | -0.011   | 0.007          | -0.027                   | 0.002  |
| <b>TX<sub>x</sub> (Yr1993-1995)</b> | -0.0026  | 0.0081         | -0.0188                  | 0.0130 |
| <b>TX<sub>x</sub> (Yr1995-1997)</b> | -0.016   | 0.008          | -0.030                   | 0.001  |
| <b>TX<sub>x</sub> (Yr1997-2002)</b> | -0.019 * | 0.008          | -0.034                   | -0.004 |

Standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

## **CHAPTER 6**

### **THE CONTINGENCY FACTORS ON NOT-FOR-PROFIT HOSPITAL BEHAVIORS**

This chapter investigates the structural and environmental factors that may potentially facilitate and/or hinder not-for-profit hospital compliance with community benefit laws. Scott (1995) argues that other than economic incentives, hospital response to external pressures, such as state imposed regulations, may differ according to their position in the organizational network, their organizational goals and interests and their perception of the type and intensity of the pressures (David, 1991, Galaskiewicz, 1991; Proenca, 2000). Due to data limitations, this analysis focuses on exploring how hospital size and network status, possession of managed care contracts and market competition affect not-for-profit hospitals' abilities and willingness to comply with state community benefit laws among the laws' intended subjects of private not-for-profit hospitals. More specifically, it aims to test hypotheses: (1) larger not-for-profit hospitals will respond more positively to community benefit laws in their provision of community benefits, compared to smaller not-for-profit hospitals; (2) not-for-profit hospitals with managed care contracts will respond more negatively to community benefit laws in their provision of community benefits; (3) networked not-for-profit hospitals will respond more positively to community benefit laws; and (4) not-for-profit hospitals residing in counties with greater market competition will respond more positively to community benefit laws.

## **6.1. Study Sample**

A total of 4,148 hospital-year observations, representing private not-for-profit short-term community hospitals participating in both the AHA and state Annual hospital surveys from 1991 to 2002, were included in the analyses of the contingency effects of community benefit laws. They represented the full sample used in the programmatic and special populations analyses. Since some hospitals failed to report financial information, only 3,738 hospital-year observations were used as full sample size in the financial aspect of analyses. Private for-profit and public hospitals were excluded from the study sample because they were not legally bounded by the requirements of the state community benefit laws.

### *6.1.1. Study Sample for Analysis on Community-Oriented Programs*

In the analysis to estimate the contingency effects of state community benefit laws on not-for-profit hospital provision of community oriented programs, a total of 4,148 hospital-year observations were used. On average, these hospitals provided 47% of surveyed community oriented programs to its local residents (Table 6.1). Of these, 3,571 hospital-year observations represented not-for-profit hospitals that do provide some level of community-oriented programs during the study period. A higher percentage of these hospitals had managed care contracts.

### *6.1.2. Data for analysis on bad debt, charity care and uncompensated care*

Analyses on the contingency factors influencing not-for-profit hospital's compliances to these laws in terms of bad debt, charity care and uncompensated care included a study

sample of 3,738 hospital-year observations. Hospital financial information was obtained from state hospital surveys. Once adjusted, hospitals appeared to incur an average of nearly \$11,000 in bad debt per bed, and spend \$7,500 per bed on charity care each year. In total, they provided an average of \$18,300 on uncompensated care per bed, the sum of adjusted bad debt and adjusted charity care, per year (Table 6.2).

Not all not-for-profit hospitals reported bad debt, charity care or uncompensated care consistently between 1991 and 2002. In fact, only 3,604 hospital-year observations represented not-for-profit hospitals that report positive bad debt and 3,516 and 3,626 hospital-year observations reported positive charity care and uncompensated care, respectively. A brief descriptive analysis showed that these hospitals that report bad debt and provide charity care shared similar organizational and environmental attributes as those that did not (Table 6.2).

#### *6.1.3. Data for contingency Analysis on Special Population Load*

Based on the AHA data, hospitals in the three study states carried an average of 16 percent Medicaid inpatient days throughout the study period. Very few hospitals reported zero Medicaid inpatient days. Study samples further indicated similar summary statistics after excluding hospitals that did not carry Medicaid inpatients (Table 6.3).

### **6.2. Model Specification**

The impact of these contingency factors associated with hospitals' compliance with state community benefit laws was estimated using regression analysis according to the following specifications:



$$\begin{aligned}
Community\ Benefit_{sth} = f[ & State_s, Time_t, Contingency\ Factor_h, State\cdot Time_{st}, \\
& State\cdot Contingency\ Factor_{sh}, Time\cdot Contingency\ Factor_{th}, \\
& State\cdot Time\cdot Contingency\ Factor_{sth}, Economic\ Factors_{sth}, \\
& Socio-demographic\ Factors_{sth}, Organizational\ Factors_{sth}, \mu_{st}, \nu_{sth}] \quad (6.1)
\end{aligned}$$

Community benefit behavior categories, such as percent of community oriented programs, expenditure on bad debt and revenue deductions on charity and uncompensated care, and percent special population, are abbreviated as dependent variable *Community Benefit<sub>hst</sub>*. The *h* subscript indicates individual hospital; the *s* subscript indicates treatment or control state group; and the *t* subscript indicates policy change time periods. Each of the three continuous dependent variables is modeled as a function of the time dummies, state variables, contingency factors, the interaction between treatment states, time dummies and hospital contingency factor, time fixed effects and time-varying organizational, demographic and environmental factors. The contingency factor is substituted with hospital size, freestanding status, managed care contracts and market competition, in each of the hypothesis testing.

While the coefficient estimates of these contingency factors indicate their main effects on hospitals' community benefit provision behavior over time, the coefficient estimates from the interactions between state, law timeline and the specified contingency factor, are also important. They represent the primary independent variables that capture the contingency effects on hospital behaviors. Similar to the estimation method used in the previous chapter, the evolution of policy changes in California and Texas is modeled according to their individual timelines (Figure 4.2). It is hypothesized that the enactment, amendment and implementation of community benefit laws would have differential impact on hospital behavior. Since the time before the enactment of the law is treated as reference time frame, the time between the enactment and implementation of the law affords a

transitional period for hospitals to ramp up their service provisions. In California, the pre-1994 period is considered the reference time. Two time dummies are constructed to represent the 1994-1996 and post-1996 times. In Texas, the reference time is pre-1993. Time dummies are constructed to represent the 1993-1995, 1995-1997 and post 1997 periods. The interactions between states and time dummies allow for across time comparison of dependent variables within states. The interactions between state, time dummies and hospital contingency factors allow for observation of changes given a contingency condition before and after a time period and across states.

Finally, the model includes time category fixed effects to capture time trend. Various economic, socio-demographic factors and organizational attributes are added as control variables. Unspecified time invariant and time-varying state heterogeneities are represented in the model as  $\mu_{st}$  and  $v_{hst}$ , respectively. State specific regulations that extend beyond the beginning and the end of the study period, at the same time affect the implementation of community benefit laws may be one example of the time-invariant heterogeneity. State specific regulations that extend beyond the beginning and the end of the study period, at the same time affect the implementation of community benefit laws may be one example of the time-invariant heterogeneity. In contrast, time varying heterogeneity may come from changes in the Medicaid or Medicaid-related policy, state macro-economy or the demographic distributions of the population.

### **6.3. Estimation Methods**

The contingency effects of hospital size, freestanding status, possession of managed care contracts and market competition on hospitals' compliance with state community benefit

laws are estimated using the difference-in-difference-in-difference (DDD) model as the primary estimation method. The DDD modeling strategy compares changes of hospital community benefits provision behaviors in intervention states to changes of hospital community benefit provision behaviors in the control state. The first difference compares the post-law and pre-law hospital community benefit activities in an intervention state. The second difference compares the community benefit activities differentials between one of the study states (i.e. Texas or California) and the control state of Florida. The last difference compares hospitals community benefit activities with changes in contingency conditions.

A diagnostic examination of the distributions of dependent variables shows that 13.9% of observations contain a zero value for the provision of community oriented programs. The distributions of bad debt, charity care and uncompensated care also yield 3.6%, 5.9% and 3% zero values. Moreover, the distributions of Medicaid inpatient days show 2.1% zero values. Given the distribution of all the dependent variables are skewed with zero values. This analysis employs the two-part model (2PM) which uses separate equations to estimate hospitals' decision to provide community benefit and their decision about how much community benefit to provide in response to state community benefit laws. The times series setup further allows for a longitudinal perspective in answering these two questions.

A linear probability model (LPM) is used to estimate whether not-for-profit hospitals provide community benefit, in terms of community oriented program provision, revenue deductions on bad debts and charity care, as well as Medicaid inpatient days, given each contingency factor. The ordinary least squares (OLS) regressions (equation (6.2)) is employed as the primary model estimator.

$$p_i = \Pr(Y_i = 1) = X_i\beta \quad (6.2)$$

In the second part of the 2PM, OLS, random effects, fixed effects estimators are compared with the support of specification test statistics in order to get the most efficient and consistent estimates of the effects of community benefit laws that are not induced by unobserved individual hospital heterogeneity. The distributions of adjusted bad debt, charity and uncompensated care, in particular, are right skewed as are typical of distributions of monetary values. The Wooldridge test (Wooldridge 2000) that compares the residual squares of the logged model with that of the unlogged model is used to determine goodness of fit with dependent variable functional forms. Results of the test indicate that unlogged forms of all three variables are preferred to the logged forms.

Upon application of the same battery of specification tests, all the dependent variable categories of community oriented programs, uncompensated care and special populations yielded the same results. Random effects estimates are preferred to OLS in the Breusch-Pagan test of random effects. Subsequent Hausman test rejects random effects estimates in favor of the consistent fixed effects estimates. Finally, a White (1980) test indicates that the errors of the fixed effects estimates are heteroskedastic. One source of such heteroskedasticity could be potential omitted time-varying unobservables caused by state level hospital policy changes regarding certificate of needs, or free care legislations. Therefore, robust standard errors are applied to correct for the downward biased standard errors in the final results.

Coefficient estimates from the 3-way interaction terms between time dummies, state treatment groups and specified contingency factors indicate the contingency impact of these organizational and market attributes on not-for-profit hospitals' willingness and abilities to

comply with state community benefit laws. These fixed effects within estimators use the variation in treatment status within each group to calculate the contingency effect on hospital behavioral change. For example, let  $\beta$  represent the coefficient estimate for the interaction terms among Year 1994-1996, California and hospital size. The resulting regression estimate can be interpreted as the difference between provision of community benefits before and after the 1994-1996 time period in California hospitals of a certain size minus the difference between provision of community benefits before and after the same period of time in Florida hospitals of the same size. This entire quantity is used to subtract the difference between community benefit provision difference before and after the same time period among California and Florida for-profit hospitals of a different size (equation (6.3)).

$$\begin{aligned} \beta = & [(Y_{Yr94to96, CA, Size1} - Y_{pre94, CA, Size1}) - (Y_{Yr94to96, FL, Size1} - Y_{pre94, FL, Size1})] \\ & - [(Y_{Yr94to96, CA, Size2} - Y_{pre94, CA, Size2}) - (Y_{Yr94to96, FL, Size2} - Y_{pre94, FL, Size2})] \end{aligned} \quad (6.3)$$

The full incremental effects of policy change variables in the 2PM are derived from the product of the marginal probabilities of the LPM and the marginal expected values of the fixed or random effects outcome. Due to the interaction terms of the difference-in-difference-in-difference model, the resulting incremental effects estimator is expanded into a equation (6.4) where the subscript  $Yr$  indicates time,  $St$  indicates states and  $CF$  indicates contingency factor. The standard errors of these full incremental effects are obtained by bootstrapping.

$$\begin{aligned} IE = & (\beta_{Yr St CF}^{LPM} \times E[y|y>0]) + (\beta_{Yr St}^{LPM} \times \beta_{CF}^{FE/RE}) + (\beta_{Yr CF}^{LPM} \times \beta_{St}^{FE/RE}) \\ & + (\beta_{Yr}^{LPM} \times \beta_{St CF}^{FE/RE}) + (\beta_{St CF}^{LPM} \times \beta_{Yr}^{FE/RE}) + (\beta_{St}^{LPM} \times \beta_{Yr CF}^{FE/RE}) \\ & + (\beta_{CF}^{LPM} \times \beta_{Yr St}^{FE/RE}) + [Pr(y>0) \times \beta_{Yr St CF}^{FE/RE}] \end{aligned} \quad (6.4)$$

## **6.4. Results**

### *6.4.1. The Contingency Effect of Size on Not-for-Profit Hospitals' Compliance with State Community Benefit Law*

Hospital size is often perceived as a reflection of its financial resources and vitality. In terms of not-for-profit hospitals' willingness and abilities to render unprofitable programs and services, it is reasonable to assume that those with a strong and healthy financial background would contribute more to these activities. Results from the regression analyses suggest that, as a direct effect, hospital size is an important determinant of not-for-profit hospitals' decision to participate in some community benefit activities. But, it is also associated with decreases in hospital financial contributions to these activities (Table 6.4). As a contingency factor, hospital size increases not-for-profit hospitals' compliance with state community benefit law by an elevated probability to make decisions to provide community oriented programs and the quantity of these programs in California. It also shows a facilitative influence on not-for-profit hospitals' financial contribution to charity care and services to special populations in Texas.

According to the first part OLS estimates, positive coefficients for hospital size in magnitudes of 0.014 ( $p=0.024$ ), 0.020 ( $p=0.014$ ) and 0.013 ( $p=0.030$ ) indicate that, in general, large hospitals are more likely to taking on bad debt, and providing charity and uncompensated care, respectively. This correlation appears the strongest in hospitals' likelihood to provide charity care at all by an increase of 0.02%. The coefficient estimate of 0.0063 ( $p=0.091$ ) also shows that larger not-for-profit hospitals are more inclined to take on any Medicare inpatient days. In contrast, among hospitals that already provide these community benefit, hospital size does not contribute to an elevated quantity of these activities. Regression results show that increase in hospital size is directly associated with a

\$33.26 decrease in hospital provision of bad debt per bed ( $p<0.001$ ). This trend persists with hospital provision of uncompensated care. A unit increase in hospital size decreases its average contribution to uncompensated care by \$21.74 per bed ( $p=0.002$ ). Finally, hospital size appears to increase the average percentage of Medicaid inpatient days by 0.020 ( $p=0.002$ ), but decrease the average percentage of Medicare inpatient days by 0.029 ( $p<0.001$ ).

To understand how size influences hospitals' willingness and abilities to comply with state community benefit laws in each of the treatment state, focus needs to be turned to the coefficient estimates for the three-way interaction terms among legislative timeline, treatment state and hospital size. In California, the positive OLS coefficient estimates of 0.041 ( $p=0.011$ ) and 0.024 ( $p=0.068$ ) indicate that size positively influences hospitals' decision to provide community oriented programs between 1994 and 1996 and after 1996. Compared to the reference Florida not-for-profit hospitals in the same periods, the fixed effects coefficient estimates for the key interaction term is 0.015 ( $p=0.012$ ) after 1996 indicating that size helps augment California hospitals' provision of community oriented program after the amendment of the state community benefit law.

In Texas where the state community benefit law stipulates not-for-profit hospital's financial contributions to the poor, fixed effects regression results show that increase in hospital size helps to facilitate a slight increase in hospital provision of charity care by an average of \$5.69 per bed after 1997 ( $p=0.049$ ). Further, during the same period, it increases hospital's likelihood to pick up Medicaid inpatients (0.014,  $p=0.070$ ) and the percentage of Medicaid inpatient days these hospitals serve (0.0096,  $p=0.019$ ).

Further, results from the full incremental effects analyses indicate that hospital size has statistically significant positive effect on California not-for-profit hospitals' abilities to comply with state community benefit law in terms of provision of community oriented programs after its enactment and implementation (Table 6.5). More specifically, a unit increase in hospital size increases hospitals' willingness and provision to community oriented programs by 3.5 percentage points between 1994 and 1996. The pattern persists between 1996 and 2002 where increased hospital size helps augment California not-for-profits willingness and provision of these programs by 2.8 percentage points over all.

In Texas, hospital size does not seem to have any influence on not-for-profit hospitals' compliance with the state community benefit law until after the second amendment of the law in 1997. By then, hospital size is seen to have positively increased not-for-profit hospitals' provision of charity care by \$621 per bed per year over all. It also has a combined positive effect on hospitals' percentage of Medicaid inpatient days by 1.1 percentage points.

#### *6.4.2. The Contingency Effect of Managed Care on Hospitals' Compliance with State Community Benefit Law*

Results of this analysis show that managed care has a mixed direct influence on not-for-profit hospitals' willingness and abilities to provide community benefit (Table 6.6). The effect of managed care on not-for-profit hospitals' willingness to participate in charity care (0.13,  $p=0.046$ ) is statistically significant and positive. Yet, among not-for-profit hospitals that already provide community oriented programs, the possession of managed care contracts diminishes the quantity of community oriented programs offered by hospitals in general by 0.13% ( $p<0.001$ ).



Specific to the influence of managed care on California not-for-profit hospitals' compliance with their community benefit law, managed care plays an important role in terms of not-for-profit hospitals' willingness to provide community oriented programs, bad debt and uncompensated care. The OLS coefficient estimates of 0.26 ( $p=0.003$ ) suggests that possession of managed care contracts positively influence California hospitals' decision to provide community oriented programs after the initial enactment of the law. However, managed care contracts seem to deter these hospitals' decisions to carry bad debt (-0.11,  $p=0.071$ ) and uncompensated care (-0.10,  $p=0.076$ ) during the same time period. The influence of managed care on both not-for-profit hospitals' willingness as well as their abilities to carry out community benefit activities diminishes to non-statistical significance after the implementation of the California regulation in 1996.

In Texas, managed care serves as a persistent negative force in not-for-profit hospitals' decisions whether to provide any community oriented programs. The OLS coefficient estimates of -0.22 ( $p=0.0027$ ) for the interaction term between 1993 and 1995, -0.44 ( $p<0.001$ ) between 1995 and 1997, and -0.34 ( $p<0.001$ ) between 1997 and 2002 suggest that this negative influence grows stronger with and is consistent over time. Moreover, among not-for-profit hospitals that offer these community oriented programs, managed care negatively attenuates the percentage of the programs provided, compared to the reference hospitals in Florida. The magnitude of this influence ranges from a decrease of 0.12% of community oriented programs ( $p=0.011$ ) between 1993 and 1995, to that of a 0.14% ( $p=0.002$ ) between 1995 and 1997, and to a similar decrease of 0.11% ( $p=0.010$ ) in these activities between 1997 and 2002.

As the Texas community benefit law stipulates the financial quantity of community

benefit, managed care positively encourages not-for-profit hospitals, that may not have done so before, to take on bad debt, charity and uncompensated care, as indicated by the positive OLS coefficients of 0.16 ( $p=0.010$ ), 0.24 ( $p=0.004$ ) and 0.17 ( $p=0.002$ ), after the second amendment of the law, respectively. However, this positive influence does not translate into statistically significant increases in not-for-profit hospital actual financial contributions to the poor. Further, the OLS regression analysis results show that managed care positively influences hospitals' decision to admit Medicaid (0.097,  $p=0.046$ ) between 1997 and 2002. However, it does not affect the level of Medicaid inpatient days these hospitals provide as a result of complying with state community benefit laws.

The full marginal effects analyses show that possession of managed care contracts has a combined positive 22 percentage points increase on California not-for-profit hospitals provision of community oriented programs between 1994 and 1996 (Table 6.7). In contrast, managed care status significantly decreases Texas not-for-profit hospital's provision of community-oriented programs by 24, 42 and 33 percentage points after 1993, 1995 and 1997, respectively. However, hospitals' managed care contract status positively affects Texas not-for-profit hospitals' provision of charity care by an average of \$3,275 per bed between 1997 and 2002.

#### *6.4.3. The Contingency Effect of Network Status on Hospitals' Compliance with State Community Benefit Law*

In this analysis, hospitals' network status is defined as any affiliation with alliances, network or health systems. As a direct influence, regression results show that none of the OLS coefficient estimates for coefficient *networked* is statistically significant (Table 6.8). This implies that hospitals' connectivity with other entities does not influence their decision

to participate in any of the community benefit activities as specified by this study. Among hospitals that already provide community-oriented programs, hospitals' network status decreases the percentage of Medicaid inpatient days they carry provide by 0.028% ( $p=0.040$ ).

In California, the contingency effect of not-for-profit hospitals' network status on their compliance with the law appears most prominent in influencing hospital decisions to participate in community benefit activities, if they do not before. The OLS coefficient estimates of -0.20 ( $p=0.009$ ) and -0.19 ( $p=0.006$ ) indicate that networked hospitals are less likely to begin providing any community oriented programs than their freestanding counterparts in response to the enactment and implementation of California community benefit law. However, among hospitals that do provide these programs, lack of affiliation with other organizations does not affect the level of hospitals' provision of these programs, compared to the reference hospitals in Florida.

In the financial category, hospitals' network status seems to discourage California not-for-profit hospitals' decision to provide bad debt, charity and uncompensated care especially after the implementation of the state regulation in 1996. In terms of bad debt, there is a 8.5% ( $p=0.076$ ) decreased probability to report such expenses among networked hospitals. They are also 14% ( $p=0.028$ ) and 12% ( $p=0.006$ ) less likely to report or incur charity and uncompensated care deductions than their freestanding counterparts during the same time period. Moreover, Texas not-for-profit hospitals respond to their state community benefit law in a similar fashion. After the second amendment of the law, networked hospitals become less likely to incur or report bad debt, charity and uncompensated care, compare to networked hospitals, by 11% ( $p=0.047$ ), 12% ( $p=0.097$ ) and 10% ( $p=0.042$ ) respectively.

In terms of services to special populations, hospitals' network status does not affect hospitals' decisions to admit Medicaid patients. In California, the random effects coefficient of -0.053 ( $p=0.007$ ) for years 1996 to 2002 signals a negative differential in the percentage of Medicaid inpatients among freestanding hospitals in response to the policy change at that time. Networked hospitals in Texas follow the same pattern. As the state law evolves, a random effects coefficient estimate of -0.051 ( $p=0.029$ ) suggests that hospitals' network status hinders their admittance of Medicaid inpatients in response to the regulation change.

Marginal effects analysis results reveal that hospitals' network status has negative effects on California not-for-profits' provision of community-oriented programs and percentage of Medicaid inpatient days (Table 6.9). As the law is first enacted in 1994, California hospitals' network status is associated with a 13 percentage points decrease in their provision of community oriented program, compare to networked hospitals. After the actual implementation of the law, the negative influence persists at the 9.1 percentage point level. During the same time, hospitals' network status decreases their percentage of Medicaid inpatient days by an overall 5.5 percentage points. In Texas, hospitals' network status does not yield statistical significant changes in their community benefit behaviors, except in the provision of community oriented programs.

#### *6.4.4. The Contingency Effect of County-Level Market Competition on Hospitals' Compliance with State Community Benefit Law*

Market competition has been known as a strong driving force in health care management (Gresenz, et al., 2007). Results from this analysis suggest that directly market competition has mixed effects on hospitals' community benefit behaviors (Table 6.10).

However, as a contingency factor, market competition seems to have positive effects on not-for-profit hospitals' decision to participate in and level of community benefit provisions.

As a direct effect, the OLS estimates of *market competition I* yields a -0.21 ( $p=0.008$ ) in terms of hospitals' decision to provide any community oriented programs. This outcome suggests that market competition dissuades hospitals from providing community oriented programs or adding to the variety of community oriented programs available to local residents. However, an OLS coefficient estimate of 0.13 ( $p=0.070$ ) shows that market competition seems to encourage not-for-profit hospitals to participate in providing charity care, if they do not before. Market competition also affects hospitals' services to special populations. Fixed effects regression results show that market competition, in general, is associated with a decrease in not-for-profit hospitals' percentage of Medicaid inpatient days (-0.30,  $p=0.012$ ).

As a contingency factor, market competition has a positive and significant effect on many aspects of California not-for-profits community benefit behaviors, especially after the implementation of the law in 1996. During the transition period between the enactment and the implementation of the law, market competition positively encourages more California not-for-profits to provide charity care (0.18,  $p=0.074$ ), if they do not already. After the implementation of the law, greater market competition seems to increase California not-for-profits' commitment to community benefit activities. Responding to the programmatic aspects of the law, market competition helps to increase the variety of community oriented programs provided by these hospitals by 14% ( $p=0.003$ ). Even without regulatory mandate, increasing saturation in hospital market helps augment California not-for-profits' levels of charity and uncompensated care per bed. Random effects results show that a unit percentage

increase in market competition is associated with an average of \$58.82 ( $p=0.003$ ) and \$67.44 ( $p=0.033$ ) boost in hospitals' spending on charity and uncompensated care, respectively. Marginal effects analysis confirms that the full incremental effect of market competition can boost California not-for-profits provision of charity care by a significant average of \$4727 per bed per year after 1996 (Table 6.11).

In Texas, the contingency effects of market competition are most prominently observed in not-for-profit hospitals' financial contributions to community benefit activities after the second amendment of the law in 1997. Fixed effects regression results suggest that a unit percentage increase in market competition is associated with an average increase of \$53.09 ( $p=0.054$ ) bad debt per bed. Similarly, market competition helps to facilitate Texas not-for-profit hospitals' contribution to uncompensated by an average of \$67.21 ( $p=0.054$ ) per bed during the same time period.

## **6.5. Discussion**

This chapter aims to examine organizational and environmental attributes that may influence hospitals' willingness and abilities to provide community benefit in compliance with state community benefit laws. The analysis focuses on four prominent factors: hospital size, managed care contract, freestanding status and market competition. Results from the analysis suggest that there is no single sweeping statement that can describe the effect of each of these factors on hospital behavior simply. Hospitals must make operational decisions amid a complex array of organizational and socio-economic considerations. These contingency factors influence hospital behaviors differently under different circumstances.

The first hypothesis of this chapter posits that larger hospitals will respond more positively to community benefit laws in terms of their provision of community benefit. Results of the study support this hypothesis among both California and Texas hospitals in general. Hospital size is often perceived as a reflection of its financial resources and vitality. Those with ample means also have flexibility in shifting resources to meet rising needs and changes. As the California legislation emphasizes the programmatic aspects of community benefit, increases in hospital sizes are seen to positively affect hospitals' decisions to participate in these activities. Further, after the implementation of the law in 1996, expansion of hospital size helps to augment the variety of community oriented program made available to patients and local residents.

In Texas, the facilitative influence of hospital size on hospitals compliance with the new state regulation is not as prominent as seen in California. There, not-for-profit hospitals have not experienced a legislative transitional period between the enactment and the implementation of the law, as in California. The Texas community benefit law was enacted and implemented in the same year 1993. It may be that hospitals scramble to comply with the law initially and are not as effective in maneuvering their resources to comply with the new regulation. As state legislators and hospitals modify and adjust to the requirements of the law, it does appear that large hospital size is associated with an increased spending on charity care after 1997. Albeit not specified in the legislative language, hospital size also helps propel Texas not-for-profits to participate in more Medicaid inpatient services as well as the amount of these services. With limited and diminishing government subsidies, hospitals are forced to find internal resources to support Medicaid patient services (Zwanzeger and Bamezai, 2006). Large hospitals are more likely to have access to resources

and flexibility to accommodate these needs. Therefore, findings from this analysis not only support the hypothesis that hospital size is a facilitative contingency factor in hospitals' compliance with state community benefit laws, they are also consistent with previous findings that not-for-profit hospitals gear their resources and assets in compliance with state community benefit laws in accordance to their legislative languages.

Managed care, as a financial management strategy to optimize hospitals' operational efficiencies and profit margins, has a great impact on hospitals' service configurations and their willingness to invest in social causes (Currie and Fahr, 2000; Davidoff, et al., 2000; Bian and Morrissey, 2006; Gresenz, et al., 2007). The contingency effect of managed care on hospitals provision of community benefit is not as clear-cut as that of hospital size. The study hypothesis posits that hospitals with managed care contracts would respond more negatively to community benefit laws reflected in the decreased provision of community benefit. In California, possession of managed care contracts actually compel more hospitals to participate in the provision of community oriented programs after the initial enactment of the law. However, among not-for-profit hospitals that already provide community oriented programs, possession of managed care contracts does not change the level of such services rendered. This outcome makes intuitive sense in that participation in managed care plans exposes hospitals to a wider clientele and a more community oriented service scheme, compare to their operational strategy under the fee-for-service model. Managed care plans strive to maintain an adequate health condition for the largest percentage of their enrollees possible. Community oriented programs specified by this study aim to educate and communicate health and disease management knowledge and skills, open access to preventative services, and provide auxiliary support to reduce the burden of care. By



offering community oriented programs to the community, hospitals previously lacking these programs align their service configuration with managed plans' focus on preventative care. In contrast, among California not-for-profits that already provide these community-oriented programs, there are few financial incentives under managed care to increase the variety of these services available to clients. Further, managed care pinches hospitals' profit margins as Bazzoli and colleagues (2005) point out that health maintenance organizations had tremendous power to constrain hospital payment growth between 1996 and 2002. As long as hospitals fulfill the requirements of the new law, bottom-line pressures from managed care participation may divert resources towards assessing and analyzing community health needs, as required by the law.

In terms of financial commitment to the indigent, managed care in fact negatively affect California not-for-profit hospitals' decision to take on any bad debt and uncompensated after the enactment and before the implementation of the law between 1994 and 1996. As the California law does not place emphasis on the fiscal aspects of community benefit, not-for-profit hospitals again have no incentive to devote resources in these causes.

In Texas, the influence of managed care on hospitals' compliance with the law can best be seen in hospitals' divergence from community oriented programs and decision to take on bad debt, charity and uncompensated care, as well as their decision to participate in Medicaid and Medicare inpatient care. Beginning from the enactment and implementation of the new law emphasizing not-for-profit hospitals financial contribution to community benefit, managed care status deters hospitals' effort to commit to any or provide more community-oriented programs. Instead, it becomes a driving force, after the second amendment of the law, for Texas not-for-profit hospitals to commit to the fiscal and special populations aspects

of community benefit if they have not already. Contrary to the predictions of the original hypothesis, managed care status does not affect the level of financial contributions Texas not-for-profits devote to patients in general. One exception is seen in the dramatic decrease of bad debt after the second amendment of the law. Results of this analysis suggest that managed care indeed serves as a fiscal management tool among Texas not-for-profit hospitals. As soon as the new law is implemented, managed care helps to divert resources away from unnecessary programs and services not required by the new regulations. In addition, participation in managed care may compel more Texas not-for-profit hospitals to comply with the new law by contributing to bad debt, charity and uncompensated care. Yet, it also depressed the amount of bad debt incurred by these hospitals by a large amount.

In this information era, hospitals' affiliations with industry alliances, networks and health care systems potentially serve to enhance their abilities to share information, and financial and human resources in response to the changing environment. Without such external connections, hospitals may trail industry movements in best practices, resource management and policy compliance (Oliver, 1991). Results of this analysis do not support the hypothesis that networked hospitals would respond more positively to state community benefit laws. In California where the community benefit law makes the largest impact on hospitals' provision of community oriented program, networked not-for-profit hospitals are in fact less likely, than those with external affiliations, to provide any community oriented programs. After the implementation of the law in 1996, hospitals' network status hinders incurrence of bad debt, charity and uncompensated care. Further, it is also associated with a significant decrease in the percentage of Medicaid inpatient days that a not-for-profit hospital carries. Similarly in Texas, after the second amendment of the law, networked hospitals are

less likely to incur any financial contributions to assist the indigent. However, this does not affect the actual level of bad debt, charity and uncompensated care provided by hospitals in all years after the enactment of the new policy.

This analysis outcome seems to suggest that even though freestanding hospitals do not have the advantage of information and resource sharing with other hospitals, legitimacy and survival may be their incentive to participate in community benefit activities. Without networked hospitals' support and program sharing capacities, freestanding hospitals must rely on their own services inventories to build reputation and client trust. However, as these hospitals may lack tangible and intangible resources compared to their networked counterparts, their freestanding status actually does not affect the level of community benefit activities they provide.

Finally, market competition defined by county level hospital saturation has served to be a positive contingency factor in California and Texas not-for-profit hospitals' policy compliance experience, as predicted by the study hypothesis. In California, market competition not only helps hospitals increase the variety of community oriented programs they offer, it also augments the amount of charity and uncompensated care incurred by these hospitals. Similarly in Texas, market competition facilitates an increase in the amount of bad debt and uncompensated care carried by not-for-profit hospitals after the second amendment of the law in 1997. Consistent with the theoretical underpinnings, market competition indeed serves as an external contingency factor that amplifies the positive effects of state community benefit laws in this study. It intensifies not-for-profit hospitals' need to maintain or heighten their good will image to retain and recruit customers. This outcome also confirms that a large part of not-for-profit hospitals' social validity hinges on their abilities to contribute to

public welfare. In addition, competition cultivates the impression of uncertainty in a market place which, in turn, facilitates conformity (Oliver, 1991; Scott, 1995; Shortell et al., 1986).

**Table 6.1. Summary Statistics for contingency analysis on Hospital Provision of Community Oriented Programs**

| Variable                    | Definition   | Total<br>(n=4,148) |                | With CB Provisions only<br>(n=3,571) |                |
|-----------------------------|--|--------------------|----------------|--------------------------------------|----------------|
|                             |  | Mean               | Standard Error | Mean                                 | Standard Error |
| Dependent Variables         |  |                    |                |                                      |                |
| Community-Oriented Programs | %Community Oriented Services Provided  | 0.47               | 0.26           | 0.54                                 | 0.21           |
| Independent Variables       |  |                    |                |                                      |                |
| Hospital Size               | # of staffed beds in each hospital   | 227.02             | 188.20         | 232.44                               | 193.67         |
| Freestanding Hospitals      | No affiliations with Hospital Systems, Networks or Alliances                 | 0.17               | 0.37           | 0.19                                 | 0.39           |
| HMO Contract                | 1= yes, 0= no  | 0.63               | 0.48           | 0.73                                 | 0.44           |
| PPO Contract                | 1= yes, 0= no  | 0.67               | 0.47           | 0.78                                 | 0.41           |
| Market Competition I        | 1 - County Herfindahl Index  | 0.73               | 0.29           | 0.72                                 | 0.30           |
| Control Variables           |  |                    |                |                                      |                |
| Length of Stay              | Total inpatient Days/total admissions  | 6.65               | 10.29          | 6.60                                 | 10.34          |
| Market Competition II       | 1 - Neighboring County Herfindahl Index                                      | 0.93               | 0.08           | 0.92                                 | 0.08           |
| Teaching Status             | 1= yes, 0= no  | 0.25               | 0.43           | 0.27                                 | 0.44           |
| Rural                       | 1= rural, 0=urban  | 0.08               | 0.27           | 0.09                                 | 0.28           |
| Education Level             | % of people over 25 years of age with a high school education in each county | 76.10              | 6.88           | 75.82                                | 6.89           |
| Percent Elderly             | % elderly in each county   | 12.73              | 5.09           | 12.73                                | 5.19           |
| Percent Non-White           | % minority population in a county  | 40.39              | 18.26          | 40.15                                | 18.32          |
| Unemployment Rate           | # of unemployed / county population  | 6.51               | 3.04           | 6.59                                 | 3.02           |
| Per Capita Income           | Per capital income per county  | 24,935.28          | 7,961.50       | 24,470.36                            | 7,766.64       |
| Public Hospitals            | Presence of Public Hospitals within the same County                          | 0.71               | 0.45           | 0.70                                 | 0.46           |
| SCHIP *                     | State expenditure on SCHIP   | 105.76             | 204.36         | 101.09                               | 205.03         |

\* value reported in 1,000,000.

**Table 6.2. Descriptive statistics for contingency analysis on Bad Debt, Charity Care and Uncompensated Care**

| Variable                         | Total<br>(n=3,738) |        | Positive Bad Debt<br>only<br>(n=3,604) |        | Positive Charity<br>Care only<br>(n=3,516) |        | Positive<br>Uncompensated<br>Care only<br>(n=3,626) |        |
|----------------------------------|--------------------|--------|--|--------|--|--------|---|--------|
|                                  | Mean               | S.E.   | Mean                                   | S.E.   | Mean                                       | S.E.   | Mean  | S.E.   |
| <b>Dependent Variables</b>       |                    |        |  |        |  |        |   |        |
| Bad Debt per bed *               | 10.8               | 10.8   | 11.2                                   | 10.7   | -  | -      | -   | -      |
| Charity Care per bed*            | 7.5                | 11.9   | -                                      | -      | 8.0  | 12.1   | -   | -      |
| Uncompensated Care<br>per bed *  | 18.3               | 18.5   | -                                      | -      | -  | -      | 18.9  | 18.5   |
| <b>Independent<br/>Variables</b> |                    |        |  |        |  |        |   |        |
| Hospital Size                    | 226.54             | 188.43 | 229.91                                 | 189.61 | 232.82                                     | 189.17 | 229.65  | 189.50 |
| Freestanding Hospitals           | 0.18               | 0.38   | 0.18                                   | 0.38   | 0.17                                       | 0.37   | 0.18  | 0.38   |
| HMO Contract                     | 0.65               | 0.48   | 0.67                                   | 0.47   | 0.67                                       | 0.47   | 0.66  | 0.47   |
| PPO Contract                     | 0.71               | 0.45   | 0.73                                   | 0.44   | 0.74                                       | 0.44   | 0.73  | 0.44   |
| Market Competition I             | 0.72               | 0.29   | 0.72                                   | 0.30   | 0.72                                       | 0.29   | 0.72  | 0.30   |
| <b>Control Variables</b>         |                    |        |  |        |  |        |   |        |
| Length of Stay                   | 6.92               | 10.79  | 6.74                                   | 10.76  | 6.64                                       | 9.93   | 6.84  | 10.94  |
| Market Competition II            | 0.92               | 0.08   | 0.91                                   | 0.08   | 0.92                                       | 0.08   | 0.92  | 0.08   |
| Teaching Status                  | 0.23               | 0.42   | 0.21                                   | 0.41   | 0.22                                       | 0.41   | 0.21  | 0.41   |
| Rural                            | 0.09               | 0.28   | 0.09                                   | 0.29   | 0.09                                       | 0.29   | 0.09  | 0.29   |
| Education Level                  | 75.82              | 6.85   | 75.79                                  | 6.88   | 75.83                                      | 6.83   | 75.78   | 6.88   |
| Percent Elderly                  | 12.79              | 5.19   | 12.83                                  | 5.21   | 12.94                                      | 5.27   | 12.82   | 5.20   |
| Percent Non-White                | 40.06              | 18.34  | 39.77                                  | 18.38  | 39.76                                      | 18.38  | 39.87   | 18.39  |
| Unemployment Rate                | 6.60               | 3.05   | 6.61                                   | 3.09   | 6.58                                       | 3.06   | 6.61  | 3.08   |
| Per Capita Income *              | 24.47              | 7.37   | 24.37                                  | 7.39   | 24.39                                      | 7.37   | 24.38   | 7.38   |
| Public Hospitals                 | 0.70               | 0.46   | 0.70                                   | 0.46   | 0.70                                       | 0.46   | 0.70  | 0.46   |
| SCHIP **                         | 101.08             | 201.58 | 100.71                                 | 201.72 | 101.82                                     | 203.17 | 101.31  | 202.07 |

\* value reported in \$1,000.

\*\* value reported in 1,000,000.

**Table 6.3. Summary Statistics for Analysis on Medicaid Inpatient Days**

| Variable                     | Total<br>(n=4,148) |                | Positive Medicaid Load<br>(n=4,062) |                |
|------------------------------|--------------------|----------------|-------------------------------------|----------------|
|                              | Mean               | Standard Error | Mean                                | Standard Error |
| <b>Dependent Variables</b>   |                    |                |                                     |                |
| % Medicaid Inpatient Days    | 0.16               | 0.14           | 0.16                                | 0.14           |
| <b>Independent Variables</b> |                    |                |                                     |                |
| Hospital Size                | 227.02             | 188.20         | 230.06                              | 188.70         |
| Freestanding Hospitals       | 0.17               | 0.37           | 0.17                                | 0.37           |
| HMO Contract                 | 0.63               | 0.48           | 0.63                                | 0.48           |
| PPO Contract                 | 0.67               | 0.47           | 0.48                                | 0.47           |
| Market Competition I         | 0.73               | 0.29           | 0.73                                | 0.29           |
| <b>Control Variables</b>     |                    |                |                                     |                |
| Length of Stay               | 6.65               | 10.29          | 6.57                                | 10.33          |
| Market Competition II        | 0.93               | 0.08           | 0.93                                | 0.08           |
| Teaching Status              | 0.25               | 0.43           | 0.24                                | 0.43           |
| Rural                        | 0.08               | 0.27           | 0.08                                | 0.27           |
| Education Level              | 76.10              | 6.88           | 76.12                               | 6.90           |
| Percent Elderly              | 12.73              | 5.09           | 12.77                               | 0.05           |
| Percent non-White            | 40.39              | 18.26          | 40.24                               | 18.29          |
| Unemployment Rate            | 6.51               | 3.04           | 6.52                                | 3.05           |
| Per Capita Income *          | 24.94              | 7.96           | 24.88                               | 7.98           |
| Public Hospitals             | 0.71               | 0.45           | 0.70                                | 0.46           |
| SCHIP **                     | 105.76             | 204.36         | 104.71                              | 203.23         |

\* value reported in 1,000; \*\* value reported in 1,000,000.

**Table 6.4. The Contingency Effect of Size on Hospitals' Compliance with State Community Benefit Laws from 1991 to 2002**

| Variable                        | Percent Community Programs |                       | Adjusted Bad Debt per bed |                          | Adjusted Charity Care per bed |                          | Adjusted Uncompensated Care per bed |                            | Percent Medicaid Inpatient Days |                       |
|---------------------------------|----------------------------|-----------------------|---------------------------|--------------------------|-------------------------------|--------------------------|-------------------------------------|----------------------------|---------------------------------|-----------------------|
|                                 | OLS                        | Fixed Effects         | OLS                       | Fixed Effects            | OLS                           | Random Effects           | OLS                                 | Random Effects             | OLS                             | Fixed Effect          |
|                                 | (n=4,148)                  | (n=3,571)             | (n=3,738)                 | (n=3,604)                | (n=3,738)                     | (n=3,516)                | (n=3,738)                           | (n=3,626)                  | (n=4,148)                       | (n=4,062)             |
| CA                              | 0.10 ***<br>(0.04)         |                       | 0.0083<br>(0.026)         |                          | 0.015<br>(0.034)              | -3430.19<br>(2459.39)    | 0.0046<br>(0.0238)                  | -10638.15 ***<br>(3964.35) | -0.024<br>(0.020)               |                       |
| TX                              | 0.12 ***<br>(0.04)         |                       | 0.019<br>(0.030)          |                          | 0.072 *<br>(0.039 )           | -689.74<br>(2503.77)     | 0.018<br>(0.027)                    | -6148.02<br>(4045.56)      | -0.034<br>(0.023)               |                       |
| Hospital Size/100               | -0.0076<br>(0.0095)        | -0.015<br>(0.011)     | 0.014 **<br>(0.006)       | -3326.58 ***<br>(710.29) | 0.020 **<br>(0.008 )          | -216.73<br>(430.69)      | 0.013 **<br>(0.006)                 | -2175.63 ***<br>(702.84)   | 0.0067<br>(0.0049)              | 0.020 ***<br>(0.007)  |
| Year 94 to 96                   | 0.071 **<br>(0.039)        | 0.12 ***<br>(0.02)    | -0.015<br>(0.026)         | -233.33<br>(941.42)      | -0.018<br>(0.034)             | 1691.99 **<br>(737.77)   | -0.017<br>(0.024)                   | 1588.85<br>(1206.37)       | 0.0083<br>(0.0202)              | 0.016<br>(0.010)      |
| Year 96 to 02                   | 0.027<br>(0.050)           | 0.16 ***<br>(0.02)    | -0.065 *<br>(0.033)       | -81.83<br>(1237.39)      | -0.084 *<br>(0.044)           | 2176.25 **<br>(961.28)   | -0.072 **<br>(0.031)                | 2454.75<br>(1569.53)       | 0.0077<br>(0.0255)              | 0.018<br>(0.013)      |
| Year 93 to 95                   | -0.076 **<br>(0.033)       | 0.029 **<br>(0.013)   | 0.041 *<br>(0.022)        | -1274.81<br>(796.69)     | 0.052 *<br>(0.029)            | 422.36<br>(635.48)       | 0.031<br>(0.020)                    | -449.15<br>(1020.42)       | -0.0034<br>(0.0167)             | 0.018 **<br>(0.009)   |
| Year 95 to 97                   | -0.15 ***<br>(0.05)        | 0.046 **<br>(0.021)   | 0.024<br>(0.032)          | -1160.03<br>(1146.36)    | 0.045<br>(0.041)              | -272.75<br>(912.82)      | 0.014<br>(0.029)                    | -765.71<br>(1467.36)       | 0.0040<br>(0.0237)              | 0.021 *<br>(0.012)    |
| Year 97 to 02                   | -0.16 ***<br>(0.05)        | 0.052 **<br>(0.024)   | 0.10 ***<br>(0.04)        | -839.17<br>(1336.42)     | 0.14 ***<br>(0.05)            | -559.20<br>(1053.34)     | 0.10 ***<br>(0.03)                  | -667.14<br>(1695.51)       | -0.0038<br>(0.0267)             | 0.035 *<br>(0.014)    |
| CA · (Hosp Size/100)            | -0.016<br>(0.011)          | 0.0088<br>(0.0132)    | 0.0034<br>(0.0073)        | 163.03<br>(834.11)       | -0.0024<br>(0.0096)           | -455.41<br>(522.95)      | 0.0083<br>(0.0037)                  | -583.70<br>(845.17)        | 0.013<br>(0.006)                | -0.025 ***<br>(0.008) |
| TX · (Hosp Size/100)            | -0.0061<br>(0.0128)        | 0.014<br>(0.013)      | 0.0077<br>(0.0085)        | 2292.27 ***<br>(814.70)  | -0.00011<br>(0.01104)         | -322.80<br>(511.63)      | 0.0071<br>(0.0077)                  | 869.50<br>(836.96)         | 0.010<br>(0.007)                | -0.018 **<br>(0.008)  |
| Year 94 to 96 · CA              | -0.25 ***<br>(0.05)        | -0.056 ***<br>(0.021) | 0.024<br>(0.032)          | 873.57<br>(1162.10)      | 0.017<br>(0.042)              | -1256.49<br>(933.58)     | 0.039<br>(0.030)                    | -525.79<br>(1495.75)       | 0.021<br>(0.025)                | -0.015<br>(0.013)     |
| Year 96 to 02 · CA              | -0.16 ***<br>(0.04)        | -0.10 ***<br>(0.02)   | 0.015<br>(0.030)          | -14.07<br>(1153.95)      | 0.0024<br>(0.0387)            | -369.83<br>(899.14)      | 0.040<br>(0.027)                    | -1329.28<br>(1450.32)      | 0.027<br>(0.022)                | -0.027 **<br>(0.012)  |
| Year 93 to 95 · TX              | -0.087 *<br>(0.050)        | -0.0042<br>(0.0205)   | -0.062 *<br>(0.033)       | 674.56<br>(1180.09)      | -0.070<br>(0.043)             | 832.58<br>(936.95)       | -0.058 *<br>(0.030)                 | 1134.49<br>(1523.55)       | -0.024<br>(0.026)               | -0.0038<br>(0.0132)   |
| Year 95 to 97 · TX              | 0.027<br>(0.056)           | -0.0094<br>(0.0237)   | -0.0020<br>(0.0373)       | 67.98<br>(1352.98)       | 0.0077<br>(0.0487)            | 3116.22 ***<br>(1071.50) | 0.0040<br>(0.0341)                  | 2566.78<br>(1743.28)       | -0.0098<br>(0.0286)             | -0.019<br>(0.015)     |
| Year 97 to 02 · TX              | 0.025<br>(0.050)           | -0.018<br>(0.022)     | -0.039<br>(0.034)         | 1376.50<br>(1273.12)     | -0.056<br>(0.044)             | 2912.86 ***<br>(1003.45) | -0.042<br>(0.031)                   | 3803.48 **<br>(1634.36)    | -0.053<br>(0.026)               | -0.039 ***<br>(0.014) |
| Year 94 to 96 · (Hosp Size/100) | -0.0016<br>(0.0119)        | 0.017 ***<br>(0.005)  | 0.0021<br>(0.0079)        | 86.71<br>(274.04)        | 0.00090<br>(0.01026)          | -43.69<br>(216.80)       | 0.0016<br>(0.0072)                  | 20.22<br>(354.74)          | -0.0024<br>(0.0061)             | -0.0035<br>(0.0003)   |
| Year 96 to 02 · (Hosp Size/100) | 0.0078<br>(0.0160)         | 0.015 **<br>(0.007)   | 0.0067<br>(0.0107)        | 87.35<br>(372.82)        | 0.0081<br>(0.0140)            | -230.06<br>(296.36)      | 0.0075<br>(0.0098)                  | -224.03<br>(482.58)        | -0.0023<br>(0.0082)             | -0.0027<br>(0.0041)   |
| Year 93 to 95 · (Hosp Size/100) | 0.010<br>(0.011)           | -0.0053<br>(0.0044)   | -0.0035<br>(0.0073)       | 88.82<br>(258.24)        | -0.0070<br>(0.0095)           | -87.80<br>(208.08)       | -0.00013<br>(0.00668)               | -110.94<br>(3331.34)       | 0.00013<br>(0.00565)            | 0.00084<br>(0.00285)  |
| Year 95 to 97 · (Hosp Size/100) | 0.011                      | -0.0061               | -0.00035                  | -45.69                   | -0.0037                       | -108.72                  | 0.0027                              | -299.89                    | 0.00068                         | 0.0033                |



|   |                       |                         |                       |                           |                         |                            |                        |                             |                           |                        |
|---|-----------------------|-------------------------|-----------------------|---------------------------|-------------------------|----------------------------|------------------------|-----------------------------|---------------------------|------------------------|
|   | (0.016)               | (0.0066)                | (0.01048)             | (367.36)                  | (0.0137)                | (296.11)                   | (0.0096)               | (473.19)                    | (0.00803)                 | (0.0040)               |
| Year 97 to 02 · (Hosp<br>Size/100)      | 0.0049<br>(0.0175)    | -0.00010<br>(0.00745)   | -0.0056<br>(0.0118)   | 91.26<br>(415.28)         | -0.013<br>(0.015)       | 30.63<br>(331.94)          | -0.0056<br>(0.0107)    | 16.44<br>(534.25)           | 0.0030<br>(0.0089)        | -0.0048<br>(0.0045)    |
| Year 94 to 96 · CA · (Hosp<br>Size/100) | 0.041 **<br>(0.016)   | 0.0091<br>(0.0070)      | 0.0067<br>(0.0107)    | -543.37<br>(380.17)       | 0.0026<br>(0.0140)      | -11.36<br>(311.76)         | 0.000065<br>(0.009816) | -512.79<br>(490.34)         | -0.0042<br>(0.0082)       | 0.0060<br>(0.0042)     |
| Year 96 to 02 · CA · (Hosp<br>Size/100) | 0.024 *<br>(0.013)    | 0.015 **<br>(0.006)     | 0.0083<br>(0.0090)    | -504.59<br>(335.61)       | 0.011<br>(0.012)        | -120.99<br>(269.17)        | -0.0024<br>(0.0082)    | -301.70<br>(427.77)         | -0.0014<br>(0.0067)       | 0.0040<br>(0.0036)     |
| Year 93 to 95 · TX · (Hosp<br>Size/100) | 0.0018<br>(0.0162)    | 0.0012<br>(0.0065)      | 0.0052<br>(0.0107)    | -338.52<br>(372.02)       | 0.0091<br>(0.0139)      | 20.33<br>(295.51)          | 0.0040<br>(0.0097)     | -4.42<br>(481.28)           | 0.0046<br>(0.0083)        | 0.0015<br>(0.0042)     |
| Year 95 to 97 · TX · (Hosp<br>Size/100) | -0.011<br>(0.018)     | 0.00025<br>(0.00739)    | 0.0035<br>(0.0117)    | -432.10<br>(417.56)       | 0.0018<br>(0.0153)      | 64.07<br>(328.95)          | 0.0023<br>(0.0107)     | -163.22<br>(537.86)         | 0.0043<br>(0.0091)        | 0.0010<br>(0.0046)     |
| Year 97 to 02 · TX · (Hosp<br>Size/100) | -0.017<br>(0.015)     | 0.00072<br>(0.00646)    | 0.0043<br>(0.0100)    | -522.71<br>(371.69)       | 0.0069<br>(0.0130)      | 569.38 *<br>(288.93)       | 0.0054<br>(0.0091)     | 230.76<br>(472.97)          | 0.014 *<br>(0.008)        | 0.0096 **<br>(0.0041)  |
| Length of Stay                          | -0.00034<br>(0.00041) | -0.0019 ***<br>(0.0006) | -0.00041<br>(0.00027) | -31.13<br>(29.25)         | -0.0011 ***<br>(0.0003) | -7.91<br>(25.40)           | 0.00038<br>(0.00024)   | -68.45 **<br>(31.48)        | -0.00055 ***<br>(0.00021) | 0.0042 ***<br>(0.0003) |
| Network Status                          | -0.066 ***<br>(0.012) | 0.039 ***<br>(0.007)    | -0.013 *<br>(0.008)   | 924.15 **<br>(377.42)     | 0.0038<br>(0.0104)      | -766.04 **<br>(299.33)     | -0.015 **<br>(0.007)   | 288.12<br>(481.68)          | -0.017 ***<br>(0.006)     | -0.015 ***<br>(0.004)  |
| Teaching Status                         | 0.077 ***<br>(0.011)  | 0.0033<br>(0.0117)      | -0.10 ***<br>(0.01)   | -848.51<br>(669.01)       | -0.084 ***<br>(0.010)   | 2913.01 ***<br>(489.27)    | -0.099 ***<br>(0.007)  | 2587.04 ***<br>(809.25)     | -0.059 ***<br>(0.006)     | 0.0045<br>(0.0071)     |
| Rural                                   | 0.012<br>(0.019)      | 0.0036<br>(0.0117)      | 0.011<br>(0.013)      | -342.61<br>(642.99)       | 0.0061<br>(0.0168)      | -913.33 *<br>(490.51)      | 0.013<br>(0.012)       | -1673.80 **<br>(799.62)     | 0.0044<br>(0.0100)        | 0.010<br>(0.007)       |
| PPO Contract                            | 0.24 ***<br>(0.02)    | -0.014<br>(0.008)       | 0.096 ***<br>(0.012)  | 8.92<br>(501.71)          | 0.11 ***<br>(0.02)      | -822.20 **<br>(395.90)     | 0.097<br>(0.011)       | -713.92<br>(645.77)         | 0.0057<br>(0.0084)        | 0.00081<br>(0.00516)   |
| HMO Contract                            | 0.15 ***<br>(0.02)    | 0.019 **<br>(0.008)     | -0.0093<br>(0.0113)   | -130.40<br>(481.10)       | -0.013<br>(0.015)       | 1077.11 ***<br>(377.72)    | -0.016<br>(0.010)      | 910.93<br>(618.28)          | 0.0098<br>(0.0081)        | -0.0023<br>(0.0049)    |
| Market Competition I                    | -0.086 ***<br>(0.026) | 0.088 *<br>(0.045)      | 0.012<br>(0.018)      | -4392.63 *<br>(2561.01)   | 0.054 **<br>(0.023)     | 1866.85<br>(1658.93)       | 0.020<br>(0.016)       | -2536.93<br>(2712.43)       | -0.014<br>(0.013)         | 0.014<br>(0.028)       |
| Market Competition II                   | -0.046<br>(0.072)     | -0.059<br>(0.146)       | -0.080<br>(0.049)     | -4619.95<br>(8176.16)     | -0.043<br>(0.063)       | 9981.32 *<br>(5169.30)     | -0.063<br>(0.044)      | 9743.01<br>(8459.51)        | -0.15 ***<br>(0.04)       | -0.069<br>(0.091)      |
| Education Level/100                     | -0.25 **<br>(0.13)    | -0.57 ***<br>(0.19)     | -0.27 ***<br>(0.09)   | 30956.18 **<br>(12257.67) | -0.081<br>(0.111)       | -37167.10 ***<br>(7048.47) | -0.29 ***<br>(0.08)    | -17608.79<br>(11425.11)     | 0.021<br>(0.064)          | -0.32 ***<br>(0.12)    |
| Percent Elderly/100                     | 0.14<br>(0.13)        | -0.030<br>(0.409)       | -0.037<br>(0.090)     | -19852.02<br>(23487.82)   | 0.14<br>(0.12)          | -27369.17 **<br>(12075.17) | -0.024<br>(0.083)      | -51950.74 ***<br>(19577.39) | 0.035<br>(0.067)          | -0.40<br>(0.24)        |
| Percent non-Whites/1000                 | -0.046<br>(0.049)     | -0.014<br>(0.095)       | -0.14 ***<br>(0.03)   | 4801.87<br>(5751.51)      | -0.12 ***<br>(0.04)     | -8341.76 **<br>(3300.85)   | -0.13 ***<br>(0.03)    | -4947.92<br>(5347.01)       | -0.018<br>(0.025)         | -0.054<br>(0.059)      |
| Unemployment Rate/100                   | 0.43 **<br>(0.22)     | 0.0016<br>(0.2206)      | -0.12<br>(0.15)       | -8856.70<br>(12820.33)    | -0.049<br>(0.194)       | -4370.95<br>(9535.01)      | -0.32 **<br>(0.14)     | -8380.25<br>(15501.83)      | -0.10<br>(0.11)           | 0.055<br>(0.134)       |
| Per Capital Income/1,000                | 0.0019 **<br>(0.0009) | 0.0026 ***<br>(0.0008)  | -0.00030<br>(0.00065) | 307.85 ***<br>(48.64)     | -0.0012<br>(0.0008)     | 215.63 ***<br>(37.21)      | -0.00078<br>(0.00059)  | 492.74 ***<br>(59.54)       | -0.00098 **<br>(0.00044)  | 0.00047<br>(0.00043)   |
| Public Hospitals Presence               | 0.030 **<br>(0.013)   | -0.030 ***<br>(0.011)   | -0.014 *<br>(0.009)   | -321.71<br>(608.94)       | -0.014<br>(0.011)       | -899.54 *<br>(464.85)      | -0.014 *<br>(0.008)    | -1312.98 *<br>(759.92)      | -0.0062<br>(0.0065)       | -0.0072<br>(0.0064)    |
| State SCHIP/1000000                     | 0.000090 ***          | 0.000019                | -0.000013             | 7.32 ***                  | 0.000023                | 3.79 ***                   | 0.0000023              | 11.33 ***                   | -0.000016                 | 0.000038 ***           |

|          |            |            |            |            |            |              |             |             |            |            |
|----------|------------|------------|------------|------------|------------|--------------|-------------|-------------|------------|------------|
|          | (0.000025) | (0.000014) | (0.000018) | (0.83)     | (0.000023) | (0.61)       | (0.0000161) | (1.00)      | (0.000013) | (0.000009) |
| Constant | 0.83 ***   | 0.83 ***   | 1.21 ***   | -4205.52   | 0.93 ***   | 28141.26 *** | 1.22 ***    | 33185.87 ** | 1.13 ***   | 0.46 ***   |
|          | (0.13)     | (0.23)     | (0.09)     | (13852.62) | (0.12)     | (8511.28)    | (0.08)      | (13807.20)  | (0.07)     | (0.14)     |

standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level;

**Table 6.5. Full contingency effect of hospital size on hospital compliance with state community benefit laws 1991-2002**

|                                  | Percent Community Benefit Program |                |                          |        | Bad Debt per bed |                |                          |        | Charity Care per bed |                |                          |         |
|----------------------------------|-----------------------------------|----------------|--------------------------|--------|------------------|----------------|--------------------------|--------|----------------------|----------------|--------------------------|---------|
|                                  | Mean                              | Standard Error | 95 % Confidence Interval |        | Mean             | Standard Error | 95 % Confidence Interval |        | Mean                 | Standard Error | 95 % Confidence Interval |         |
| <b>CA x Size x (Yr1994-1996)</b> | 0.035 *                           | 0.012          | 0.013                    | 0.059  | -514.70          | 396.10         | -1389.19                 | 184.96 | -19.51               | 255.36         | -529.24                  | 468.15  |
| <b>CA x Size x (Yr1996-2002)</b> | 0.028 *                           | 0.007          | 0.015                    | 0.043  | -450.57          | 430.95         | -1392.43                 | 311.16 | -36.34               | 242.56         | -477.94                  | 437.46  |
| <b>TX x Size x (Yr1993-1995)</b> | 0.0015                            | 0.0087         | -0.0166                  | 0.0172 | -36.74           | 350.95         | -709.78                  | 708.99 | 278.33               | 245.65         | -239.01                  | 743.94  |
| <b>TX x Size x (Yr1995-1997)</b> | -0.0093                           | 0.0114         | -0.0326                  | 0.0128 | -321.45          | 387.05         | -966.96                  | 402.27 | 115.58               | 275.60         | -458.26                  | 612.14  |
| <b>TX x Size x (Yr1997-2002)</b> | -0.0116                           | 0.0093         | -0.0368                  | 0.0034 | -77.82           | 384.71         | -998.00                  | 618.24 | 620.97 *             | 266.02         | 57.91                    | 1134.69 |

Standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

|                                  | Uncompensated Care per bed |                |                          |         | Percent Medicaid Inpatient Days |                |                          |        |
|----------------------------------|----------------------------|----------------|--------------------------|---------|---------------------------------|----------------|--------------------------|--------|
|                                  | Mean                       | Standard Error | 95 % Confidence Interval |         | Mean                            | Standard Error | 95 % Confidence Interval |        |
| <b>CA x Size x (Yr1994-1996)</b> | -579.02                    | 441.85         | -1489.56                 | 374.16  | 0.0057                          | 0.0039         | -0.0018                  | 0.0132 |
| <b>CA x Size x (Yr1996-2002)</b> | -456.51                    | 510.94         | -1398.72                 | 574.39  | 0.0041                          | 0.0038         | -0.0021                  | 0.0136 |
| <b>TX x Size x (Yr1993-1995)</b> | 233.37                     | 411.61         | -599.94                  | 1051.24 | 0.0019                          | 0.0035         | -0.0046                  | 0.0093 |
| <b>TX x Size x (Yr1995-1997)</b> | -106.44                    | 470.95         | -992.49                  | 821.54  | 0.0014                          | 0.0039         | -0.0060                  | 0.0086 |
| <b>TX x Size x (Yr1997-2002)</b> | 579.46                     | 467.57         | -256.06                  | 1556.30 | 0.011 *                         | 0.003          | 0.006                    | 0.018  |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

**Table 6.6. The Contingency Effect of Managed Care Status on Hospitals' Compliance with State Community Benefit Laws from 1991 to 2002**

| Variable                     | Percent Community Programs |                      | Adjusted Bad Debt per bed |                       | Adjusted Charity Care per bed |                       | Adjusted Uncompensated Care per bed |                          | Percent Medicaid Inpatient Days |                      |
|------------------------------|----------------------------|----------------------|---------------------------|-----------------------|-------------------------------|-----------------------|-------------------------------------|--------------------------|---------------------------------|----------------------|
|                              | OLS                        | Fixed Effects        | OLS                       | Fixed Effects         | OLS                           | Random Effects        | OLS                                 | Random Effects           | OLS                             | Random Effects       |
|                              | (n=4,148)                  | (n=3,571)            | (n=3,738)                 | (n=3,604)             | (n=3,738)                     | (n=3,516)             | (n=3,738)                           | (n=3,626)                | (n=4,148)                       | (n=4,062)            |
| CA                           | 0.059<br>(0.071)           |                      | -0.084 *<br>(0.051)       |                       | 0.0016<br>(0.0669)            | -3025.01<br>(2524.89) | -0.076<br>(0.047)                   | -9847.49 **<br>(3981.76) | 0.015<br>(0.040)                | -0.022<br>(0.029)    |
| TX                           | 0.021<br>(0.072)           |                      | -0.031<br>(0.051)         |                       | 0.084<br>(0.067)              | -27.46<br>(2571.16)   | -0.023<br>(0.047)                   | -2439.73<br>(4070.67)    | -0.044<br>(0.041)               | -0.066 **<br>(0.030) |
| Managed Care                 | 0.038<br>(0.068)           | -0.13 ***<br>(0.03)  | 0.018<br>(0.049)          | 1373.98<br>(1849.22)  | 0.13 *<br>(0.06)              | 2124.87<br>(1535.61)  | 0.017<br>(0.045)                    | 3454.44<br>(2389.17)     | 0.015<br>(0.039)                | -0.032<br>(0.021)    |
| Year 94 to 96                | -0.32 ***<br>(0.09)        | -0.038<br>(0.041)    | -0.14 **<br>(0.06)        | 2524.91<br>(2350.42)  | -0.049<br>(0.082)             | 2796.55<br>(1957.78)  | -0.13 **<br>(0.06)                  | 5447.69 *<br>(3016.32)   | -0.026<br>(0.048)               | -0.0089<br>(0.0256)  |
| Year 96 to 02                | -0.39 ***<br>(0.09)        | -0.015<br>(0.045)    | -0.24 ***<br>(0.07)       | 1531.40<br>(2491.50)  | -0.20 **<br>(0.09)            | 1779.98<br>(2063.80)  | -0.24 ***<br>(0.06)                 | 3665.71<br>(3182.12)     | -0.010<br>(0.050)               | -0.0049<br>(0.0264)  |
| Year 93 to 95                | -0.0015<br>(0.0503)        | 0.064 ***<br>(0.023) | 0.15 ***<br>(0.04)        | -1740.60<br>(1427.48) | 0.12 **<br>(0.05)             | 1057.96<br>(1150.30)  | 0.14 ****<br>(0.03)                 | -677.75<br>(1829.50)     | 0.042<br>(0.028)                | 0.013<br>(0.015)     |
| Year 95 to 97                | -0.12 **<br>(0.06)         | 0.086 ***<br>(0.032) | 0.13 ***<br>(0.05)        | -1736.38<br>(1741.82) | 0.14 **<br>(0.06)             | 366.21<br>(1402.12)   | 0.12 ***<br>(0.04)                  | -1045.85<br>(2234.72)    | 0.041<br>(0.034)                | 0.030 *<br>(0.018)   |
| Year 97 to 02                | -0.13 **<br>(0.07)         | 0.099 ***<br>(0.036) | 0.29 ***<br>(0.05)        | -1294.28<br>(1903.45) | 0.34 ***<br>(0.06)            | 895.01<br>(1525.42)   | 0.28 ***<br>(0.05)                  | 22.19<br>(2433.61)       | 0.036<br>(0.037)                | 0.032 *<br>(0.019)   |
| CA · Managed Care            | -0.060<br>(0.073)          | -0.0086<br>(0.0352)  | 0.11 **<br>(0.05)         | -7.28<br>(2033.49)    | 0.0053<br>(0.0687)            | -1738.90<br>(1690.65) | 0.11 **<br>(0.05)                   | -2132.66<br>(2616.18)    | -0.0054<br>(0.0413)             | 0.036<br>(0.022)     |
| TX · Managed Care            | -0.018<br>(0.077)          | 0.082<br>(0.037)     | 0.078<br>(0.055)          | 49.52<br>(2100.53)    | -0.012<br>(0.072)             | -1759.53<br>(1728.22) | 0.064<br>(0.050)                    | -1523.26<br>(2714.16)    | 0.057<br>(0.043)                | 0.022<br>(0.024)     |
| Year 94 to 96 · CA           | -0.26 ***<br>(0.08)        | -0.066<br>(0.041)    | 0.13 ***<br>(0.06)        | -1308.61<br>(2205.43) | -0.00062<br>(0.0760)          | -2992.60<br>(1818.40) | 0.12 **<br>(0.05)                   | -4677.37 *<br>(2830.60)  | 0.017<br>(0.045)                | 0.0050<br>(0.0239)   |
| Year 96 to 02 · CA           | -0.10<br>(0.07)            | -0.070 *<br>(0.038)  | 0.091 *<br>(0.053)        | -397.53<br>(2096.18)  | 0.0043<br>(0.0700)            | -1562.37<br>(1722.87) | 0.099 *<br>(0.049)                  | -2775.07<br>(2662.90)    | 0.0088<br>(0.0417)              | -0.0056<br>(0.0226)  |
| Year 93 to 95 · TX           | 0.21 **<br>(0.09)          | 0.13 ***<br>(0.04)   | -0.064<br>(0.066)         | -755.26<br>(2479.15)  | -0.10<br>(0.09)               | 304.02<br>(2008.92)   | -0.074<br>(0.060)                   | -375.92<br>(3208.70)     | 0.027<br>(0.052)                | 0.023<br>(0.027)     |
| Year 95 to 97 · TX           | 0.44 ***<br>(0.09)         | 0.13 ***<br>(0.04)   | 0.019<br>(0.062)          | 209.16<br>(2349.74)   | -0.036<br>(0.080)             | 2712.31<br>(1916.72)  | 0.0064<br>(0.0561)                  | 2893.46<br>(3034.88)     | 0.011<br>(0.048)                | -0.0052<br>(0.0260)  |
| Year 97 to 02 · TX           | 0.35 ***<br>(0.08)         | 0.083 **<br>(0.039)  | -0.13 **<br>(0.06)        | 1251.22<br>(2210.24)  | -0.21 ***<br>(0.07)           | 1975.13<br>(1811.30)  | -0.15 ***<br>(0.05)                 | 3241.55<br>(2849.71)     | -0.11 **<br>(0.04)              | -0.012<br>(0.024)    |
| Year 94 to 96 · Managed Care | 0.33 ***<br>(0.09)         | 0.21 ***<br>(0.04)   | 0.13 **<br>(0.07)         | -2874.28<br>(2431.58) | 0.036<br>(0.085)              | -1605.92<br>(2025.78) | 0.13 **<br>(0.06)                   | -4492.75<br>(3135.70)    | 0.021<br>(0.051)                | 0.018<br>(0.027)     |
| Year 96 to 02 · Managed Care | 0.40 ***<br>(0.09)         | 0.22 ***<br>(0.05)   | 0.22 ***<br>(0.07)        | -1562.32<br>(2599.24) | 0.17 *<br>(0.09)              | -134.62<br>(2161.78)  | 0.22 ***<br>(0.06)                  | -1821.87<br>(3351.22)    | 0.00024<br>(0.05340)            | 0.013<br>(0.028)     |
| Year 93 to 95 · Managed Care | -0.00051<br>(0.05390)      | -0.043 *<br>(0.025)  | -0.13 ***<br>(0.04)       | 599.97<br>(1508.91)   | -0.095<br>(0.053)             | -855.53<br>(1216.94)  | -0.12 ***<br>(0.04)                 | -76.53<br>(1943.30)      | -0.050<br>(0.030)               | 0.0058<br>(0.0158)   |
| Year 95 to 97 · Managed      | 0.11 *<br>(0.05390)        | -0.045<br>(0.025)    | -0.11 **<br>(0.04)        | 301.50<br>(1508.91)   | -0.11 *<br>(0.053)            | -823.58<br>(1216.94)  | -0.10 **<br>(0.04)                  | -528.30<br>(1943.30)     | -0.036<br>(0.030)               | -0.0051<br>(0.0158)  |

|                                   |                         |                         |                         |                            |                         |                            |                       |                          |                           |                        |
|-----------------------------------|-------------------------|-------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-----------------------|--------------------------|---------------------------|------------------------|
| Care                              | (0.07)                  | (0.035)                 | (0.05)                  | (1906.77)                  | (0.07)                  | (1536.10)                  | (0.05)                | (2459.74)                | (0.038)                   | (0.0197)               |
| Year 97 to 02 · Managed Care      | 0.092<br>(0.073)        | -0.029<br>(0.038)       | -0.27 ***<br>(0.06)     | 592.50<br>(2066.20)        | -0.33 ***<br>(0.07)     | -1508.32<br>(1661.90)      | -0.27 ***<br>(0.05)   | -786.41<br>(2666.17)     | -0.033<br>(0.041)         | -0.016<br>(0.021)      |
| Year 94 to 96 · CA · Managed Care | 0.26 ***<br>(0.09)      | 0.042<br>(0.043)        | -0.11 *<br>(0.06)       | 1316.38<br>(2349.67)       | 0.029<br>(0.082)        | 2114.39<br>(1935.53)       | -0.10 *<br>(0.06)     | 3753.68<br>(3029.53)     | -0.0034<br>(0.0481)       | 0.0046<br>(0.0256)     |
| Year 96 to 02 · CA · Managed Care | 0.10<br>(0.08)          | -0.0044<br>(0.0392)     | -0.039<br>(0.057)       | -871.69<br>(2203.41)       | 0.042<br>(0.075)        | 951.27<br>(1826.28)        | -0.051<br>(0.052)     | 730.59<br>(2835.17)      | 0.021<br>(0.044)          | 0.0029<br>(0.0240)     |
| Year 93 to 95 · TX · Managed Care | -0.22 **<br>(0.10)      | -0.12 **<br>(0.05)      | 0.028<br>(0.071)        | 294.07<br>(2663.71)        | 0.061<br>(0.092)        | 1120.49<br>(2149.37)       | 0.041<br>(0.064)      | 1185.51<br>(3445.62)     | -0.054<br>(0.055)         | -0.020<br>(0.029)      |
| Year 95 to 97 · TX · Managed Care | -0.44 ***<br>(0.09)     | -0.14 ***<br>(0.05)     | -0.015<br>(0.067)       | -1684.71<br>(2579.76)      | 0.044<br>(0.088)        | 554.59<br>(2094.47)        | 0.0033<br>(0.0615)    | -1241.24<br>(3337.70)    | -0.017<br>(0.053)         | -0.0043<br>(0.0286)    |
| Year 97 to 02 · TX · Managed Care | -0.34 ***<br>(0.09)     | -0.11 **<br>(0.04)      | 0.16 **<br>(0.06)       | -1689.47<br>(2414.33)      | 0.24 ***<br>(0.08)      | 2580.40<br>(1971.33)       | 0.17 ***<br>(0.06)    | 778.02<br>(3122.28)      | 0.097 **<br>(0.048)       | 0.0077<br>(0.0266)     |
| Hospital Size/100                 | 0.00061<br>(0.00245)    | 0.0058<br>(0.0043)      | 0.022 ***<br>(0.002)    | -2235.28 ***<br>(263.03)   | 0.020 ***<br>(0.002)    | -547.36 ***<br>(174.73)    | 0.021 ***<br>(0.002)  | -2145.74 ***<br>(284.89) | 0.016 ***<br>(0.001)      | 0.00022<br>(0.00211)   |
| Length of Stay                    | -0.00066 *<br>(0.00037) | -0.0021 ***<br>(0.0006) | -0.00048 *<br>(0.00026) | -30.44<br>(29.24)          | -0.0012 ***<br>(0.0003) | -7.58<br>(25.50)           | 0.00032<br>(0.00024)  | -65.41 **<br>(31.50)     | -0.00058 ***<br>(0.00021) | 0.0038 ***<br>(0.0003) |
| Network Status                    | -0.057 ***<br>(0.011)   | 0.027 ***<br>(0.007)    | -0.018 **<br>(0.008)    | 1045.85 ***<br>(378.64)    | -0.0029<br>(0.0103)     | -821.80 ***<br>(300.06)    | -0.020 ***<br>(0.007) | 331.69<br>(483.09)       | -0.018 ***<br>(0.006)     | -0.016 ***<br>(0.004)  |
| Teaching Status                   | 0.068 ***<br>(0.010)    | 0.0042<br>(0.0115)      | -0.10 ***<br>(0.01)     | -817.78<br>(669.24)        | -0.081 ***<br>(0.010)   | 2943.67 ***<br>(489.96)    | -0.095 ***<br>(0.007) | 2604.01 ***<br>(809.18)  | -0.055 ***<br>(0.006)     | 0.0066<br>(0.0064)     |
| Rural                             | -0.022<br>(0.017)       | 0.012<br>(0.011)        | 0.014<br>(0.013)        | -242.32<br>(633.59)        | 0.010<br>(0.016)        | -845.73 *<br>(481.32)      | 0.015<br>(0.011)      | -1493.80 *<br>(784.00)   | 0.0097<br>(0.0098)        | 0.0074<br>(0.0066)     |
| Market Competition I              | -0.099 ***<br>(0.024)   | 0.068<br>(0.045)        | 0.013<br>(0.017)        | -4741.03 *<br>(2568.83)    | 0.049 **<br>(0.023)     | 1552.85<br>(1664.67)       | 0.020<br>(0.016)      | -3106.13<br>(2717.49)    | -0.0072<br>(0.0133)       | 0.020<br>(0.021)       |
| Market Competition II             | 0.095<br>(0.065)        | -0.088<br>(0.143)       | -0.068<br>(0.048)       | -5707.35<br>(8160.29)      | -0.041<br>(0.062)       | 11668.28 **<br>(5175.98)   | -0.057<br>(0.043)     | 10927.62<br>(8453.94)    | -0.14 ***<br>(0.04)       | -0.057<br>(0.065)      |
| Education Level/100               | -0.14<br>(0.11)         | -0.72 ***<br>(0.19)     | -0.30 ***<br>(0.08)     | 35546.89 ***<br>(11956.18) | -0.097<br>(0.109)       | -37441.81 ***<br>(6944.76) | -0.30 ***<br>(0.08)   | -14633.35<br>(11246.08)  | -0.032<br>(0.063)         | -0.26 ***<br>(0.08)    |
| Percent Elderly/100               | 0.16<br>(0.12)          | 0.019<br>(0.401)        | -0.078<br>(0.088)       | -20718.68<br>(23466.01)    | 0.11<br>(0.12)          | -26614.97 **<br>(12113.96) | -0.059<br>(0.081)     | ***<br>(19586.56)        | 0.0019<br>(0.0662)        | -0.25 *<br>(0.14)      |
| Percent non-Whites/100            | 0.021<br>(0.045)        | -0.048<br>(0.093)       | -0.16 ***<br>(0.03)     | 6130.86<br>(5715.97)       | -0.13 ***<br>(0.04)     | -8253.12 **<br>(3307.20)   | -0.15 ***<br>(0.03)   | -4247.90<br>(5344.21)    | -0.039<br>(0.025)         | 0.0013<br>(0.0390)     |
| Unemployment Rate/100             | 0.14<br>(0.19)          | -0.056<br>(0.218)       | -0.082<br>(0.143)       | -7156.63<br>(12909.44)     | 0.0022<br>(0.1864)      | -4489.57<br>(9588.29)      | -0.26 **<br>(0.13)    | -5368.44<br>(15567.81)   | -0.093<br>(0.109)         | 0.16<br>(0.12)         |
| Per Capital Income/1,000          | 0.0013<br>(0.0007)      | 0.0030 ***<br>(0.0007)  | -0.000030<br>(0.000064) | 306.96 ***<br>(48.35)      | -0.0010<br>(0.0008)     | 213.78 ***<br>(36.90)      | -0.00058<br>(0.00058) | 490.43 ***<br>(58.93)    | -0.00057<br>(0.00044)     | 0.00013<br>(0.00041)   |
| Public Hospitals Presence         | 0.020 *<br>(0.011)      | -0.029 ***<br>(0.011)   | -0.012<br>(0.009)       | -360.17<br>(612.43)        | -0.010<br>(0.011)       | -898.04 *<br>(468.18)      | -0.011<br>(0.008)     | -1360.56 *<br>(764.10)   | -0.0051<br>(0.0065)       | -0.0067<br>(0.0061)    |

|                     |                            |                          |                         |                        |                        |                           |                          |                          |                         |                            |
|---------------------|----------------------------|--------------------------|-------------------------|------------------------|------------------------|---------------------------|--------------------------|--------------------------|-------------------------|----------------------------|
| SCHIP/<br>1,000,000 | 0.000089 ***<br>(0.000023) | 0.000024 *<br>(0.000014) | -0.000017<br>(0.000017) | 7.22 ***<br>(0.83)     | 0.000019<br>(0.000023) | 3.72 ***<br>(0.61)        | -0.000018<br>(0.0000159) | 11.26 ***<br>(1.00)      | -0.000020<br>(0.000013) | 0.000040 ***<br>(0.000001) |
| Constant            | 0.95 ***<br>(0.13)         | 1.04 ***<br>(0.23)       | 1.26 ***<br>(0.10)      | -8624.56<br>(13778.86) | 0.91 ***<br>(0.13)     | 26011.73 ***<br>(8567.09) | 1.26 ***<br>(0.09)       | 26652.40 *<br>(13830.27) | 1.13 ***<br>(0.08)      | 0.40 ***<br>(0.10)         |

Standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level

**Table 6.7. Full contingency effect of managed care status on hospital compliance with state community benefit laws 1991-2002**

|  | Percent Community Benefit Program |                |                          |       | Bad Debt per bed |                |                          |         | Charity Care per bed |                |                          |         |
|--|-----------------------------------|----------------|--------------------------|-------|------------------|----------------|--------------------------|---------|----------------------|----------------|--------------------------|---------|
|  | Mean                              | Standard Error | 95 % Confidence Interval |       | Mean             | Standard Error | 95 % Confidence Interval |         | Mean                 | Standard Error | 95 % Confidence Interval |         |
| <b>CA x Managed Care x (Yr1994-1996)</b> | 0.22 *                            | 0.08           | 0.05                     | 0.37  | 651.24           | 3272.68        | -4956.83                 | 8192.54 | 1789.17              | 1409.81        | -1147.42                 | 4537.85 |
| <b>CA x Managed Care x (Yr1996-2002)</b> | 0.079                             | 0.080          | -0.106                   | 0.216 | -865.98          | 3486.24        | -6411.42                 | 7633.00 | 849.79               | 1642.94        | -3059.76                 | 3693.00 |
| <b>TX x Managed Care x (Yr1993-1995)</b> | -0.24 *                           | 0.09           | -0.45                    | -0.09 | 352.16           | 2309.75        | -3695.38                 | 5252.70 | 1035.73              | 1396.06        | -1681.88                 | 3827.98 |
| <b>TX x Managed Care x (Yr1995-1997)</b> | -0.42 *                           | 0.10           | -0.64                    | -0.25 | -1897.54         | 2447.87        | -6519.52                 | 3042.10 | 804.35               | 1431.65        | -2009.97                 | 3677.97 |
| <b>TX x Managed Care x (Yr1997-2002)</b> | -0.33 *                           | 0.09           | -0.57                    | -0.18 | -25.15           | 2023.40        | -3488.86                 | 4626.09 | 3275.04 *            | 1216.44        | 850.01                   | 5717.75 |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

|  | Uncompensated Care per bed |                |                          |          | Percent Medicaid Inpatient Days |                |                          |        |
|--|----------------------------|----------------|--------------------------|----------|---------------------------------|----------------|--------------------------|--------|
|  | Mean                       | Standard Error | 95 % Confidence Interval |          | Mean                            | Standard Error | 95 % Confidence Interval |        |
| <b>CA x Managed Care x (Yr1994-1996)</b> | 2094.52                    | 4008.64        | -4897.03                 | 11399.89 | 0.0024                          | 0.0268         | -0.0504                  | 0.0587 |
| <b>CA x Managed Care x (Yr1996-2002)</b> | -1022.80                   | 4576.66        | -10662.68                | 7908.25  | 0.0057                          | 0.0245         | -0.0392                  | 0.0571 |
| <b>TX x Managed Care x (Yr1993-1995)</b> | 1687.27                    | 2615.29        | -3737.63                 | 6110.55  | -0.024                          | 0.027          | -0.075                   | 0.029  |
| <b>TX x Managed Care x (Yr1995-1997)</b> | -1049.96                   | 2861.78        | -6987.32                 | 4508.84  | -0.0022                         | 0.0234         | -0.0462                  | 0.0445 |
| <b>TX x Managed Care x (Yr1997-2002)</b> | 3762.38                    | 2225.30        | -782.02                  | 7875.76  | 0.032                           | 0.022          | -0.006                   | 0.083  |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

**Table 6.8. The Contingency Effect of Network Status on Hospitals' Compliance with State Community Benefit Laws from 1991 to 2002**

| Variable                     | Percent Community Programs |                       | Adjusted Bad Debt per bed |                       | Adjusted Charity Care per bed |                           | Adjusted Uncompensated Care per bed |                          | Percent Medicaid Inpatient Days |                      |
|------------------------------|----------------------------|-----------------------|---------------------------|-----------------------|-------------------------------|---------------------------|-------------------------------------|--------------------------|---------------------------------|----------------------|
|                              | OLS                        | Fixed Effects         | OLS                       | Fixed Effects         | OLS                           | Fixed Effects             | OLS                                 | Fixed Effects            | OLS                             | Random Effects       |
|                              | (n=4,148)                  | (n=3,571)             | (n=3,738)                 | (n=3,604)             | (n=3,738)                     | (n=3,516)                 | (n=3,738)                           | (n=3,626)                | (n=4,148)                       | (n=4,062)            |
| CA                           | 0.093 ***<br>(0.028)       |                       | 0.015<br>(0.019)          |                       | 0.017<br>(0.025)              |                           | 0.025<br>(0.017)                    |                          | 0.017<br>(0.015)                | 0.011<br>(0.021)     |
| TX                           | 0.096 ***<br>(0.034)       |                       | 0.042 *<br>(0.023)        |                       | 0.076 **<br>(0.030)           |                           | 0.040 *<br>(0.021)                  |                          | 0.0064<br>(0.0179)              | -0.039 *<br>(0.023)  |
| Freestanding                 | -0.018<br>(0.048)          | -0.022<br>(0.022)     | -0.039<br>(0.034)         | 321.19<br>(1283.38)   | -0.039<br>(0.044)             | 1076.69<br>(1017.40)      | -0.033<br>(0.031)                   | 1206.74<br>(1653.70)     | -0.028<br>(0.025)               | -0.028 **<br>(0.014) |
| Year 94 to 96                | 0.054 *<br>(0.029)         | 0.18 ***<br>(0.01)    | -0.0081<br>(0.0193)       | -122.41<br>(704.81)   | -0.024<br>(0.025)             | 1896.23 ***<br>(553.34)   | -0.011<br>(0.018)                   | 1760.67 *<br>(907.79)    | 0.0026<br>(0.0150)              | 0.0087<br>(0.0077)   |
| Year 96 to 02                | 0.036<br>(0.035)           | 0.22 ***<br>(0.02)    | -0.049 **<br>(0.024)      | -177.84<br>(900.16)   | -0.074 **<br>(0.031)          | 2171.86 ***<br>(706.06)   | -0.052 **<br>(0.022)                | 1998.48 *<br>(1158.60)   | -0.00075<br>(0.01823)           | 0.010<br>(0.009)     |
| Year 93 to 95                | -0.053 **<br>(0.023)       | 0.017 *<br>(0.010)    | 0.042 ***<br>(0.016)      | -831.96<br>(590.91)   | 0.049 **<br>(0.020)           | 115.64<br>(463.20)        | 0.038 ***<br>(0.014)                | -626.60<br>(758.74)      | -0.0033<br>(0.0118)             | 0.020 ***<br>(0.006) |
| Year 95 to 97                | -0.13 ***<br>(0.03)        | 0.037 **<br>(0.015)   | 0.029<br>(0.022)          | -1063.84<br>(837.71)  | 0.056 *<br>(0.029)            | -639.41<br>(659.33)       | 0.025<br>(0.020)                    | -1641.93<br>(1075.86)    | 0.0074<br>(0.0165)              | 0.033 ***<br>(0.009) |
| Year 97 to 02                | -0.15 ***<br>(0.04)        | 0.051 ***<br>(0.018)  | 0.11 ***<br>(0.02)        | -458.06<br>(1002.54)  | 0.15 ***<br>(0.03)            | -604.36<br>(790.67)       | 0.11 ***<br>(0.02)                  | -989.75<br>(1288.53)     | 0.0064<br>(0.0187)              | 0.030 ***<br>(0.010) |
| CA · Network                 | 0.082<br>(0.051)           | 0.043 *<br>(0.024)    | -0.037<br>(0.036)         | 183.79<br>(1400.49)   | 0.018<br>(0.047)              | -719.26<br>(1113.36)      | -0.026<br>(0.033)                   | -496.53<br>(1802.88)     | 0.012<br>(0.027)                | 0.0091<br>(0.0149)   |
| TX · Network                 | -0.020<br>(0.062)          | 0.022<br>(0.029)      | -0.013<br>(0.042)         | 1132.75<br>(1661.24)  | 0.0084<br>(0.0555)            | -3832.84 ***<br>(1313.18) | -0.0088<br>(0.0388)                 | -2435.53<br>(2140.89)    | 0.027<br>(0.032)                | 0.020<br>(0.018)     |
| Year 94 to 96 · CA           | -0.21 ***<br>(0.03)        | -0.056 ***<br>(0.015) | 0.045 **<br>(0.023)       | -330.51<br>(820.99)   | 0.024<br>(0.029)              | -1748.69 ***<br>(646.43)  | 0.041 **<br>(0.021)                 | -1999.01 *<br>(1056.57)  | 0.018<br>(0.017)                | -0.0056<br>(0.0088)  |
| Year 96 to 02 · CA           | -0.15 ***<br>(0.03)        | -0.096 ***<br>(0.015) | 0.028<br>(0.020)          | -786.44<br>(832.40)   | 0.0090<br>(0.0267)            | -1144.22 *<br>(653.73)    | 0.023<br>(0.019)                    | -2004.80 *<br>(1071.92)  | 0.023<br>(0.015)                | -0.021 **<br>(0.008) |
| Year 93 to 95 · TX           | -0.060<br>(0.038)          | -0.012<br>(0.016)     | -0.057 **<br>(0.026)      | -245.45<br>(918.78)   | -0.056 *<br>(0.033)           | 1986.50 ***<br>(719.54)   | -0.057 **<br>(0.023)                | 1621.16<br>(1183.04)     | -0.018<br>(0.020)               | -0.0032<br>(0.0102)  |
| Year 95 to 97 · TX           | 0.023<br>(0.041)           | -0.027<br>(0.018)     | 0.015<br>(0.027)          | -1216.47<br>(1005.56) | 0.014<br>(0.036)              | 3879.20 ***<br>(788.34)   | 0.015<br>(0.025)                    | 2564.68 **<br>(1295.01)  | -0.0023<br>(0.0213)             | -0.023 **<br>(0.011) |
| Year 97 to 02 · TX           | -0.0024<br>(0.0373)        | -0.024<br>(0.016)     | -0.042 *<br>(0.025)       | 108.48<br>(650.72)    | -0.054<br>(0.033)             | 4796.95 ***<br>(745.37)   | -0.043 *<br>(0.023)                 | 4822.22 ***<br>(1224.61) | -0.029<br>(0.019)               | -0.024 **<br>(0.010) |
| Year 94 to 96 · Network      | -0.048<br>(0.064)          | 0.092 ***<br>(0.026)  | 0.0092<br>(0.0439)        | 590.54<br>(1561.92)   | -0.043<br>(0.057)             | 1239.71<br>(1656.81)      | 0.0158<br>(0.0401)                  | 1805.64<br>(2012.87)     | 0.0016<br>(0.0333)              | -0.0055<br>(0.0170)  |
| Year 96 to 02 · Network      | -0.041<br>(0.085)          | 0.062 *<br>(0.035)    | 0.015<br>(0.058)          | -117.77<br>(2101.27)  | -0.036<br>(0.076)             | 1374.52<br>(1656.81)      | 0.034<br>(0.053)                    | 1079.31<br>(2706.63)     | -0.020<br>(0.044)               | 0.0040<br>(0.0237)   |
| Year 93 to 95 · Freestanding | 0.016<br>(0.047)           | -0.012<br>(0.019)     | 0.033<br>(0.032)          | 1237.23<br>(1136.63)  | 0.051<br>(0.042)              | -176.34<br>(909.50)       | 0.027<br>(0.029)                    | 1317.02<br>(1462.63)     | -0.00098<br>(0.02450)           | 0.0091<br>(0.0126)   |
| Year 95 to 97 ·              | -0.070                     | 0.012                 | 0.012                     | 990.99                | 0.097                         | 858.60                    | 0.012                               | 40.98                    | 0.016                           | 0.033 *              |



|                              |                       |                         |                         |                            |                         |                             |                       |                           |                           |                        |
|------------------------------|-----------------------|-------------------------|-------------------------|----------------------------|-------------------------|-----------------------------|-----------------------|---------------------------|---------------------------|------------------------|
| Network                      |                       |                         |                         |                            |                         |                             |                       |                           |                           |                        |
|                              | (0.073)               | (0.030)                 | (0.050)                 | (1782.03)                  | (0.066)                 | (1429.35)                   | (0.046)               | (2294.72)                 | (0.038)                   | (0.019)                |
| Year 97 to 02 · Network      | -0.026<br>(0.085)     | -0.019<br>(0.036)       | 0.17 ***<br>(0.06)      | 665.94<br>(2081.02)        | 0.21 ***<br>(0.07)      | -2151.16<br>(1661.54)       | 0.14 ***<br>(0.05)    | -1002.00<br>(2676.81)     | 0.022<br>(0.044)          | 0.039 *<br>(0.023)     |
| Year 94 to 96 · CA · Network | -0.20 ***<br>(0.07)   | -0.044<br>(0.032)       | 0.019<br>(0.052)        | 1588.68<br>(1872.73)       | 0.0081<br>(0.0681)      | -2223.83<br>(1484.09)       | 0.0041<br>(0.0476)    | -3458.14<br>(2412.17)     | 0.025<br>(0.039)          | -0.021<br>(0.020)      |
| Year 96 to 02 · CA · Network | -0.19 ***<br>(0.07)   | -0.0050<br>(0.0312)     | -0.085 *<br>(0.048)     | -625.27<br>(1890.74)       | -0.14 **<br>(0.06)      | -1195.32<br>(1491.51)       | -0.12 ***<br>(0.05)   | -1331.22<br>(2433.98)     | -0.011<br>(0.036)         | -0.053 ***<br>(0.020)  |
| Year 93 to 95 · TX · Network | 0.076<br>(0.076)      | -0.025<br>(0.031)       | -0.027<br>(0.051)       | -997.70<br>(1800.06)       | -0.028<br>(0.066)       | 1511.67<br>(1426.63)        | -0.031<br>(0.046)     | 252.47<br>(2319.26)       | -0.013<br>(0.039)         | -0.016<br>(0.020)      |
| Year 95 to 97 · TX · Network | 0.15<br>(0.09)        | -0.049<br>(0.039)       | 0.069<br>(0.063)        | -1791.13<br>(2327.19)      | 0.0071<br>(0.0825)      | 1265.64<br>(1835.02)        | 0.051<br>(0.058)      | -225.94<br>(2998.65)      | -0.0015<br>(0.0480)       | -0.038<br>(0.025)      |
| Year 97 to 02 · TX · Network | 0.081<br>(0.083)      | 0.047<br>(0.037)        | -0.11 **<br>(0.06)      | 232.72<br>(2198.59)        | -0.12 *<br>(0.07)       | 1457.14<br>(1726.38)        | -0.10 **<br>(0.05)    | 1429.87<br>(2832.86)      | -0.024<br>(0.043)         | -0.051 **<br>(0.023)   |
| Hospital Size/100            | -0.0020<br>(0.0027)   | 0.0062<br>(0.0044)      | 0.022 ***<br>(0.002)    | -2255.98 ***<br>(263.17)   | 0.020 ***<br>(0.002)    | -934.51 ***<br>(206.74)     | 0.021 ***<br>(0.002)  | -3119.23 ***<br>(338.68)  | 0.017 ***<br>(0.001)      | 0.00028<br>(0.00210)   |
| Length of Stay               | -0.00034<br>(0.00040) | -0.0021 ***<br>(0.0006) | -0.00050 *<br>(0.00027) | -33.22<br>(29.40)          | -0.0012 ***<br>(0.0003) | 11.06<br>(33.14)            | 0.00031<br>(0.00024)  | -43.28<br>(36.10)         | -0.00062 ***<br>(0.00021) | 0.0037 ***<br>(0.0003) |
| Teaching Status              | 0.076 ***<br>(0.011)  | 0.0029<br>(0.0118)      | -0.10 ***<br>(0.01)     | -947.98<br>(669.59)        | -0.083 ***<br>(0.010)   | 2387.46 ***<br>(513.59)     | -0.096 ***<br>(0.007) | 1390.29<br>(850.02)       | -0.057 ***<br>(0.006)     | 0.0073<br>(0.0064)     |
| Rural                        | 0.017<br>(0.019)      | 0.013<br>(0.012)        | 0.013<br>(0.013)        | -267.22<br>(636.04)        | 0.0052<br>(0.0166)      | -823.54<br>(503.55)         | 0.013<br>(0.012)      | -1052.35<br>(819.70)      | 0.0090<br>(0.0100)        | 0.0071<br>(0.0067)     |
| PPO Contract                 | 0.24 ***<br>(0.02)    | -0.015 *<br>(0.008)     | 0.099 ***<br>(0.012)    | 7.36<br>(505.29)           | 0.11 ***<br>(0.02)      | -904.30 **<br>(399.37)      | 0.099 ***<br>(0.011)  | -893.07<br>(650.10)       | 0.0069<br>(0.0085)        | 0.00032<br>(0.00517)   |
| HMO Contract                 | 0.15 ***<br>(0.02)    | 0.019 **<br>(0.008)     | -0.011<br>(0.011)       | -135.95<br>(482.34)        | -0.013<br>(0.015)       | 1158.99 ***<br>(380.00)     | -0.018 *<br>(0.010)   | 1038.89 *<br>(620.86)     | 0.0088<br>(0.0082)        | -0.0017<br>(0.0049)    |
| Market Competition I         | -0.097 ***<br>(0.026) | 0.085 *<br>(0.046)      | 0.018<br>(0.017)        | -4957.90 *<br>(2575.07)    | 0.056 **<br>(0.023)     | -219.52<br>(2018.59)        | 0.024<br>(0.016)      | -5223.19<br>(3118.01)     | -0.0021<br>(0.0013)       | 0.012<br>(0.021)       |
| Market Competition II        | -0.039<br>(0.072)     | -0.17<br>(0.15)         | -0.082 *<br>(0.048)     | -5825.69<br>(8229.09)      | -0.044<br>(0.063)       | 6595.45<br>(6431.70)        | -0.065<br>(0.044)     | 996.88<br>(10605.99)      | -0.14 ***<br>(0.04)       | -0.049<br>(0.064)      |
| Education Level/100          | -0.28 **<br>(0.12)    | -0.83 ***<br>(0.19)     | -0.30 ***<br>(0.08)     | 39327.40 ***<br>(11898.29) | -0.098<br>(0.109)       | -492572.80 ***<br>(9381.39) | -0.31 ***<br>(0.08)   | -9490.58<br>(15318.84)    | 0.00025<br>(0.06378)      | -0.25 ***<br>(0.08)    |
| Percent Elderly/100          | 0.18<br>(0.13)        | -0.091<br>(0.412)       | -0.028<br>(0.089)       | -21465.13<br>(23536.50)    | 0.14<br>(0.12)          | -36701.84 **<br>(18425.02)  | -0.0093<br>(0.0810)   | -55446.04 *<br>(30317.03) | 0.051<br>(0.067)          | -0.25 *<br>(0.13)      |
| Percent non-Whites/100       | -0.034<br>(0.049)     | -0.015<br>(0.095)       | -0.15 ***<br>(0.03)     | 5658.10<br>(5753.58)       | -0.12 ***<br>(0.04)     | -003.83 **<br>(4549.39)     | -0.13 ***<br>(0.03)   | -2841.80<br>(7406.44)     | -0.023<br>(0.025)         | 0.0099<br>(0.0388)     |
| Unemployment Rate/100        | 0.27<br>(0.21)        | -0.015<br>(0.222)       | -0.12<br>(0.14)         | -6858.34<br>(12838.05)     | -0.040<br>(0.188)       | -813.48<br>(10155.40)       | -0.31 **<br>(0.13)    | -7615.56<br>(16526.07)    | -0.089<br>(0.111)         | 0.16<br>(0.12)         |
| Per Capital                  | 0.0019 **             | 0.0035 ***              | 0.000013                | 297.13 ***                 | -0.0010                 | 199.35 ***                  | -0.00058              | 487.98 ***                | -0.00082 *                | 0.000091               |

|                              |                            |                        |                           |                        |                        |                            |                          |                          |                         |                            |
|------------------------------|----------------------------|------------------------|---------------------------|------------------------|------------------------|----------------------------|--------------------------|--------------------------|-------------------------|----------------------------|
| Income/1,000                 | (0.0008)                   | (0.0008)               | (0.00640)                 | (48.47)                | (0.0008)               | (39.37 )                   | (0.00058)                | (62.41)                  | (0.00044)               | (0.000410)                 |
| Public Hospitals<br>Presence | 0.032 **<br>(0.013)        | -0.035 ***<br>(0.011)  | -0.017 *<br>(0.009)       | -289.97<br>(610.10)    | -0.016<br>(0.011)      | -935.09 *<br>(481.65)      | -0.016 **<br>(0.008)     | -1153.03<br>(786.19)     | -0.0090<br>(0.0065)     | -0.0061<br>(0.0061)        |
| SCHIP/<br>1,000,000          | 0.000076 ***<br>(0.000025) | 0.000018<br>(0.000014) | -0.0000065<br>(0.0000176) | 7.18 ***<br>(0.83)     | 0.000026<br>(0.000023) | 4.05 ***<br>(0.66)         | 0.0000052<br>(0.0000161) | 11.14 ***<br>(1.07)      | -0.000018<br>(0.000013) | 0.000038 ***<br>(0.000001) |
| Constant                     | 0.87 ***<br>(0.13)         | 1.08 ***<br>(0.24)     | 1.19 ***<br>(0.09)        | -9582.16<br>(13847.25) | 0.92 ***<br>(0.11)     | 42655.12 ***<br>(10881.28) | 1.19 ***<br>(0.08)       | 31838.42 *<br>(17835.96) | 1.09 ***<br>(0.07)      | 0.36 ***<br>(0.10)         |

Standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level;

**Table 6.9. Full contingency effect of hospital network status on hospital compliance with state community benefit laws 1991-2002**

|                              | Percent Community Benefit Program |                |                          |        | Bad Debt per bed |                |                          |         | Charity Care per bed |                |                          |         |
|------------------------------|-----------------------------------|----------------|--------------------------|--------|------------------|----------------|--------------------------|---------|----------------------|----------------|--------------------------|---------|
|                              | Mean                              | Standard Error | 95 % Confidence Interval |        | Mean             | Standard Error | 95 % Confidence Interval |         | Mean                 | Standard Error | 95 % Confidence Interval |         |
| CA x Network x (Yr1994-1996) | -0.13 *                           | 0.04           | -0.21                    | -0.07  | -1291.69         | 1569.85        | -4928.05                 | 1346.81 | -2017.22             | 1311.82        | -4822.53                 | 378.73  |
| CA x Network x (Yr1996-2002) | -0.091 *                          | 0.035          | -0.172                   | -0.026 | -1552.47         | 2061.53        | -5535.17                 | 2562.43 | -2032.85             | 1435.34        | -5428.85                 | 367.59  |
| TX x Network x (Yr1993-1995) | 0.019                             | 0.033          | -0.047                   | 0.086  | -1198.22         | 1554.96        | -4610.95                 | 1498.65 | 1133.20              | 1677.08        | -2230.26                 | 4186.18 |
| TX x Network x (Yr1995-1997) | 0.040                             | 0.047          | -0.053                   | 0.132  | -848.89          | 2307.85        | -5926.84                 | 3944.09 | 1247.19              | 1921.83        | -2627.10                 | 4984.51 |
| TX x Network x (Yr1997-2002) | 0.081                             | 0.039          | -0.002                   | 0.148  | -1053.54         | 2450.20        | -5495.76                 | 3689.28 | 428.28               | 2158.69        | -3764.90                 | 4589.97 |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

|                              | Uncompensated Care per bed |                |                          |         | Percent Medicaid Inpatient Days |                |                          |        |
|------------------------------|----------------------------|----------------|--------------------------|---------|---------------------------------|----------------|--------------------------|--------|
|                              | Mean                       | Standard Error | 95 % Confidence Interval |         | Mean                            | Standard Error | 95 % Confidence Interval |        |
| CA x Network x (Yr1994-1996) | -3152.96                   | 2013.16        | -7136.99                 | 398.29  | -0.016                          | 0.025          | -0.064                   | 0.034  |
| CA x Network x (Yr1996-2002) | -3315.10                   | 2879.26        | -9543.75                 | 1431.68 | -0.055                          | 0.025          | -0.108                   | -0.008 |
| TX x Network x (Yr1993-1995) | -370.13                    | 2218.72        | -4739.20                 | 4427.40 | -0.018                          | 0.023          | -0.063                   | 0.028  |
| TX x Network x (Yr1995-1997) | 610.27                     | 2950.59        | -5936.05                 | 5572.73 | -0.040                          | 0.030          | -0.099                   | 0.016  |
| TX x Network x (Yr1997-2002) | -645.89                    | 3220.50        | -7388.90                 | 5310.22 | -0.057                          | 0.030          | -0.119                   | 0.002  |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

**Table 6.10. The Contingency Effect of County Level Market Competition on Hospitals' Compliance with State Community Benefit Laws from 1991 to 2002**

| Variable                    | Percent Community Programs |                      | Adjusted Bad Debt per bed |                         | Adjusted Charity Care per bed |                           | Adjusted Uncompensated Care per bed |                          | Percent Medicaid Inpatient Days |                       |
|-----------------------------|----------------------------|----------------------|---------------------------|-------------------------|-------------------------------|---------------------------|-------------------------------------|--------------------------|---------------------------------|-----------------------|
|                             | OLS                        | Fixed Effects        | OLS                       | Fixed Effects           | OLS                           | Random Effects            | OLS                                 | Random Effects           | OLS                             | Fixed Effect          |
|                             | (n=4,148)                  | (n=3,571)            | (n=3,738)                 | (n=3,604)               | (n=3,738)                     | (n=3,516)                 | (n=3,738)                           | (n=3,626)                | (n=4,148)                       | (n=4,062)             |
| CA                          | -0.10<br>(0.07)            |                      | 0.058<br>(0.047)          |                         | 0.19 ***<br>(0.06)            | -3186.06<br>(4295.20)     | 0.063<br>(0.043)                    | -12413.23 *<br>(6893.01) | 0.051<br>(0.037)                |                       |
| TX                          | 0.12<br>(0.07)             |                      | 0.033<br>(0.047)          |                         | 0.11 *<br>(0.06)              | -2836.15<br>(4044.85)     | 0.029<br>(0.043)                    | -4525.13<br>(6487.53)    | 0.014<br>(0.037)                |                       |
| Market Competition I        | -0.21 ***<br>(0.08)        | 0.15<br>(0.22)       | -0.0030<br>(0.0536)       | -2893.78<br>(12388.63)  | 0.13 *<br>(0.07)              | 1795.25<br>(4886.19)      | 0.0074<br>(0.0489)                  | 1669.34<br>(7845.29)     | 0.010<br>(0.042)                | -0.30 **<br>(0.12)    |
| Year 94 to 96               | 0.12 *<br>(0.06)           | 0.12 ***<br>(0.03)   | 0.016<br>(0.041)          | 159.91<br>(1419.29)     | 0.029<br>(0.053)              | 2352.60 **<br>(1141.25)   | 0.011<br>(0.037)                    | 2488.84<br>(1834.95)     | -0.012<br>(0.032)               | 0.012<br>(0.016)      |
| Year 96 to 02               | 0.093<br>(0.083)           | 0.16 ***<br>(0.03)   | 0.012<br>(0.054)          | 811.33<br>(1898.41)     | 0.034<br>(0.071)              | 4266.31 ***<br>(1504.70)  | 0.010<br>(0.050)                    | 5109.15 **<br>(2447.59)  | -0.017<br>(0.043)               | 0.00065<br>(0.02135)  |
| Year 93 to 95               | -0.11<br>(0.07)            | 0.031<br>(0.027)     | -0.0040<br>(0.0442)       | 266.45<br>(1534.65)     | -0.0034<br>(0.0575)           | -567.39<br>(1226.33)      | 0.0073<br>(0.0404)                  | -318.21<br>(1975.31)     | 0.0099<br>(0.0347)              | 0.0096<br>(0.0173)    |
| Year 95 to 97               | -0.20 **<br>(0.09)         | 0.054<br>(0.038)     | -0.0027<br>(0.0299)       | 2321.70<br>(2094.44)    | 0.064<br>(0.078)              | -136.88<br>(1680.12)      | 0.010<br>(0.055)                    | 2141.30<br>(2690.27)     | 0.012<br>(0.047)                | 0.012<br>(0.023)      |
| Year 97 to 02               | -0.22 **<br>(0.10)         | 0.082 *<br>(0.042)   | -0.041<br>(0.064)         | 5404.36 **<br>(2332.57) | -0.0080<br>(0.0840)           | -1313.06<br>(1832.99)     | -0.039<br>(0.059)                   | 4271.17<br>(2964.85)     | 0.018<br>(0.050)                | 0.011<br>(0.026)      |
| CA · Competition            | 0.23 **<br>(0.09)          | -0.086<br>(0.238)    | -0.035<br>(0.059)         | 4200.70<br>(13083.16)   | -0.24 ***<br>(0.08)           | -2011.52<br>(5514.85)     | -0.035<br>(0.054)                   | -762.47<br>(8843.04)     | -0.046<br>(0.046)               | 0.43 ***<br>(0.13)    |
| TX · Competition            | -0.031<br>(0.097)          | -0.12<br>(0.23)      | 0.0084<br>(0.0640)        | -344.53<br>(12904.19)   | -0.069<br>(0.083)             | 1463.02<br>(520.96)       | 0.013<br>(0.058)                    | -1053.98<br>(8547.69)    | -0.023<br>(0.050)               | 0.24 *<br>(0.12)      |
| Year 94 to 96 · CA          | -0.16 *<br>(0.09)          | -0.099 **<br>(0.039) | 0.043<br>(0.061)          | -637.12<br>(2094.25)    | -0.11<br>(0.08)               | -2771.87<br>(1689.68)     | 0.033<br>(0.056)                    | -3150.78<br>(2706.54)    | 0.013<br>(0.047)                | -0.019<br>(0.023)     |
| Year 96 to 02 · CA          | -0.026<br>(0.080)          | -0.20 ***<br>(0.04)  | 0.091 *<br>(0.053)        | -1263.20<br>(1907.97)   | -0.13 *<br>(0.07)             | -4758.33 ***<br>(1525.84) | 0.072<br>(0.049)                    | -5818.34 **<br>(2430.59) | 0.0040<br>(0.0414)              | -0.0033<br>(0.0212)   |
| Year 93 to 95 · TX          | -0.18 **<br>(0.09)         | -0.0045<br>(0.0349)  | -0.059<br>(0.056)         | 286.14<br>(1930.37)     | -0.041<br>(0.073)             | 1528.37<br>(1557.81)      | -0.060<br>(0.051)                   | 1751.20<br>(2498.62)     | -0.035<br>(0.044)               | -0.00054<br>(0.02202) |
| Year 95 to 97 · TX          | -0.096<br>(0.094)          | -0.021<br>(0.039)    | -0.054<br>(0.062)         | -2923.64<br>(2166.90)   | -0.076<br>(0.080)             | 1728.05<br>(1753.04)      | -0.056<br>(0.056)                   | -1092.56<br>(2786.74)    | -0.018<br>(0.048)               | -0.017<br>(0.024)     |
| Year 97 to 02 · TX          | -0.081<br>(0.083)          | -0.028<br>(0.036)    | 0.0043<br>(0.0548)        | -3646.97 *<br>(1997.45) | -0.0080<br>(0.0713)           | 3486.77 **<br>(1598.96)   | 0.0093<br>(0.0500)                  | -200.75<br>(2531.72)     | -0.023<br>(0.042)               | -0.0069<br>(0.0224)   |
| Year 94 to 96 · Competition | -0.060<br>(0.085)          | 0.068 *<br>(0.035)   | -0.041<br>(0.056)         | -513.82<br>(1926.70)    | -0.070<br>(0.072)             | -1231.03<br>(1545.54)     | -0.037<br>(0.051)                   | -1763.92<br>(2494.68)    | 0.019<br>(0.044)                | -0.0045<br>(0.0218)   |
| Year 96 to 02 · Competition | -0.057<br>(0.108)          | 0.053<br>(0.045)     | -0.092<br>(0.072)         | -1549.58<br>(2500.63)   | -0.14<br>(0.09)               | -4118.38 **<br>(1986.88)  | -0.088<br>(0.066)                   | -5666.56 *<br>(3234.18)  | 0.026<br>(0.056)                | 0.013<br>(0.028)      |
| Year 93 to 95 · Competition | 0.075<br>(0.082)           | -0.021<br>(0.034)    | 0.049<br>(0.054)          | -1574.27<br>(1919.06)   | 0.050<br>(0.070)              | 1026.04<br>(1518.52)      | 0.032<br>(0.049)                    | -322.29<br>(2442.64)     | -0.017<br>(0.042)               | 0.014<br>(0.022)      |
| Year 95 to 97 ·             | 0.11                       | -0.031               | 0.038                     | -4481.46 *              | -0.032                        | -490.76                   | 0.018                               | -4544.54                 | -0.0098                         | 0.021                 |

|                                  |                       |                         |                         |                           |                         |                            |                        |                             |                           |                        |
|----------------------------------|-----------------------|-------------------------|-------------------------|---------------------------|-------------------------|----------------------------|------------------------|-----------------------------|---------------------------|------------------------|
| Competition                      | (0.11)                | (0.048)                 | (0.074)                 | (2604.91)                 | (0.097)                 | (2086.78)                  | (0.068)                | (3340.59)                   | (0.0575)                  | (0.029)                |
| Year 97 to 02 · Competition      | 0.10<br>(0.12)        | -0.039<br>(0.052)       | 0.16 **<br>(0.08)       | -7634.08 ***<br>(2862.24) | 0.16<br>(0.11)          | 1030.74<br>(2267.46)       | 0.16 **<br>(0.07)      | -6283.03 *<br>(3664.28)     | -0.021<br>(0.063)         | 0.017<br>(0.032)       |
| Year 94 to 96 · CA · Competition | -0.0079<br>(0.1151)   | 0.055<br>(0.049)        | -0.0024<br>(0.0769)     | 844.94<br>(2662.01)       | 0.18 *<br>(0.10)        | 2133.24<br>(2146.66)       | 0.0098<br>(0.0702)     | 2690.53<br>(3441.84)        | 0.000015<br>(0.059404)    | 0.021<br>(0.030)       |
| Year 96 to 02 · CA · Competition | -0.11<br>(0.10)       | 0.14 ***<br>(0.05)      | -0.081<br>(0.069)       | 1223.44<br>(2475.93)      | 0.20 **<br>(0.09)       | 5882.33 ***<br>(1988.34)   | -0.054<br>(0.063)      | 6744.15 **<br>(3169.72)     | 0.022<br>(0.053)          | -0.014<br>(0.027)      |
| Year 93 to 95 · TX · Competition | 0.16<br>(0.11)        | -0.00089<br>(0.04629)   | 0.023<br>(0.074)        | -889.60<br>(2581.84)      | -0.00066<br>(0.09647)   | -61.86<br>(2070.26)        | 0.021<br>(0.068)       | -959.44<br>(3334.40)        | 0.032<br>(0.058)          | 0.0012<br>(0.0293)     |
| Year 95 to 97 · TX · Competition | 0.16<br>(0.13)        | 0.0078<br>(0.0529)      | 0.085<br>(0.083)        | 2334.75<br>(2928.17)      | 0.12<br>(0.11)          | 2348.60<br>(2357.96)       | 0.088<br>(0.078)       | 4665.77<br>(3767.99)        | 0.031<br>(0.065)          | 0.0085<br>(0.0328)     |
| Year 97 to 02 · TX · Competition | 0.11<br>(0.11)        | -0.0029<br>(0.0495)     | -0.035<br>(0.075)       | 5309.33 *<br>(2755.29)    | -0.039<br>(0.098)       | 1301.54<br>(2195.35)       | -0.047<br>(0.069)      | 6721.79 *<br>(3493.50)      | -0.00062<br>(0.058)       | -0.0074<br>(0.0306)    |
| Hospital Size/100                | -0.0017<br>(0.0027)   | 0.0055<br>(0.0045)      | 0.022 ***<br>(0.002)    | -2267.69 ***<br>(262.39)  | 0.20 ****<br>(0.02)     | -570.70 ***<br>(174.47)    | 0.021 ***<br>(0.002)   | -2170.50 ***<br>(284.57)    | 0.017 ***<br>(0.001)      | 0.0012<br>(0.0027)     |
| Length of Stay                   | -0.00039<br>(0.00041) | -0.0022 ***<br>(0.0006) | -0.00050 *<br>(0.00027) | -37.17<br>(29.16)         | -0.0012 ***<br>(0.0003) | -6.60<br>(25.43)           | 0.00031<br>(0.00024)   | -68.41 **<br>(31.45)        | -0.00061 ***<br>(0.00021) | 0.0043 ***<br>(0.0027) |
| Network Status                   | -0.070 ***<br>(0.012) | 0.037 ***<br>(0.007)    | -0.014 *<br>(0.008)     | 942.49 **<br>(375.40)     | 0.0040<br>(0.0103)      | -704.06 **<br>(298.02)     | -0.016<br>(0.007)      | 354.80<br>(478.86)          | -0.015 **<br>(0.006)      | -0.014 ***<br>(0.004)  |
| Teaching Status                  | 0.077 ***<br>(0.011)  | 0.0040<br>(0.0118)      | -0.11 ***<br>(0.01)     | -948.04<br>(666.39)       | -0.083 ***<br>(0.01)    | 2923.86 ***<br>(487.39)    | -0.099 ***<br>(0.007 ) | 2505.81 ***<br>(804.70)     | -0.058 ***<br>(0.006)     | 0.0018<br>(0.0071)     |
| Rural                            | 0.018<br>(0.021)      | 0.0048<br>(0.0124)      | 0.0023<br>(0.0136)      | 713.61<br>(668.39)        | -0.0064<br>(0.0177)     | -700.72<br>(516.16)        | 0.0023<br>(0.0124)     | -299.86<br>(844.47)         | 0.0080<br>(0.0107)        | 0.0064<br>(0.0075)     |
| PPO Contract                     | 0.24 ***<br>(0.02)    | -0.016 *<br>(0.009)     | 0.098 ***<br>(0.012)    | 101.70<br>(506.95)        | 0.11 ***<br>(0.02)      | -908.89 **<br>(400.20)     | 0.099 ***<br>(0.011)   | -697.80<br>(652.65)         | 0.0079<br>(0.0085)        | 0.0015<br>(0.0052)     |
| HMO Contract                     | 0.15 ***<br>(0.02)    | 0.022 ***<br>(0.008)    | -0.012<br>(0.011)       | -291.35<br>(484.62)       | -0.013<br>(0.015)       | 1162.50<br>(381.35)        | -0.018 *<br>(0.010)    | 804.72<br>(623.97)          | 0.0082<br>(0.0082)        | -0.0021<br>(0.0049)    |
| Market Competition II            | -0.054<br>(0.073)     | -0.090<br>(0.150)       | -0.081<br>(0.049)       | -6364.00<br>(8336.99)     | -0.027<br>(0.064)       | 11448.78 **<br>(5267.04)   | -0.064<br>(0.045)      | 11468.28<br>(8605.84)       | -0.14 ***<br>(0.04)       | -0.047<br>(0.093)      |
| Education Level/100              | -0.22 *<br>(0.13)     | -0.69 ***<br>(0.21)     | -0.37 ***<br>(0.09)     | 13648.88<br>(13255.26)    | -0.11<br>(0.11)         | -41460.74 ***<br>(7388.67) | -0.36 ***<br>(0.08)    | -30061.83 **<br>(11968.88)  | -0.012<br>(0.067)         | -0.28 **<br>(0.12)     |
| Percent Elderly/100              | 0.11<br>(0.13)        | 0.078<br>(0.423)        | 0.034<br>(0.091)        | -41705.94 *<br>(24206.56) | 0.16<br>(0.12)          | -29067.48 **<br>(12317.78) | 0.040<br>(0.083)       | -66274.18 ***<br>(19925.49) | 0.061<br>(0.068)          | -0.28<br>(0.25)        |
| Percent non-Whites/100           | -0.074<br>(0.051)     | 0.051<br>(0.100)        | -0.12 ***<br>(0.03)     | 4169.35<br>(6040.63)      | -0.10 **<br>(0.04)      | -8539.78 **<br>(3407.84)   | -0.12 ***<br>(0.03)    | -7735.91<br>(5511.21)       | -0.014<br>(0.026)         | -0.084<br>(0.062)      |
| Unemployment Rate/100            | 0.61 **<br>(0.25)     | 0.024<br>(0.225)        | -0.41 **<br>(0.17)      | -8210.20<br>(12826.92)    | -0.20<br>(0.22)         | -7482.50<br>(9636.05)      | -0.55 ***<br>(0.02)    | -10481.53<br>(15682.04)     | -0.15<br>(0.13)           | 0.086<br>(0.136)       |
| Per Capital                      | 0.0022 **             | 0.0028 ***              | -0.00040                | 330.71 ***                | -0.0013                 | 230.54 ***                 | -0.00092               | 539.09 ***                  | -0.00088 *                | 0.00036                |

|                              |                            |                        |                         |                       |                        |                           |                            |                            |                         |                            |
|------------------------------|----------------------------|------------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------------|----------------------------|-------------------------|----------------------------|
| Income/1,000                 | (0.0009)                   | (0.0008)               | (0.00065)               | (68.98)               | (0.0009)               | (37.77)                   | (0.00060)                  | (60.20)                    | (0.00045)               | (0.00044)                  |
| Public Hospitals<br>Presence | 0.030 **<br>(0.013)        | -0.032 ***<br>(0.011)  | -0.017 **<br>(0.009)    | -456.48<br>(611.56)   | -0.015<br>(0.011)      | -986.81 **<br>(466.10)    | -0.016 **<br>(0.008)       | -1477.00 *<br>(760.84)     | -0.0085<br>(0.0066)     | -0.0068<br>(0.0064)        |
| SCHIP/1000000                | 0.000092 ***<br>(0.000026) | 0.000017<br>(0.000014) | -0.000015<br>(0.000017) | 7.31 ***<br>(0.83)    | 0.000021<br>(0.000023) | 3.72 ***<br>(0.61)        | 0.00000025<br>(0.00001600) | 11.28 ***<br>(1.00)        | -0.000016<br>(0.000013) | 0.000043 ***<br>(0.000001) |
| Constant                     | 0.89 ***<br>(0.15)         | 0.87 ***<br>(0.24)     | 1.28 ***<br>(0.10)      | 9539.82<br>(14404.48) | 0.90 ***<br>(0.13)     | 31506.36 ***<br>(9172.76) | 1.27 ***<br>(0.09)         | 40742.29 ***<br>(14831.75) | 1.10 ***<br>(0.08)      | 0.41 ***<br>(0.15)         |

Robust standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level;

**Table 6.11. Full contingency effect of market competition on hospital compliance with state community benefit laws 1991-2002**

|  | Percent Community Benefit Program |                |                          |       | Bad Debt per bed |                |                          |          | Charity Care per bed |                |                          |         |
|--|-----------------------------------|----------------|--------------------------|-------|------------------|----------------|--------------------------|----------|----------------------|----------------|--------------------------|---------|
|  | Mean                              | Standard Error | 95 % Confidence Interval |       | Mean             | Standard Error | 95 % Confidence Interval |          | Mean                 | Standard Error | 95 % Confidence Interval |         |
| CA x Market Competition<br>x (Yr1994-1996) | 0.049                             | 0.099          | -0.13                    | 0.26  | 693.13           | 2226.15        | -3580.61                 | 5222.19  | 2160.81              | 1479.76        | -1223.74                 | 4907.76 |
| CA x Market Competition<br>x (Yr1996-2002) | 0.12                              | 0.08           | -0.05                    | 0.27  | -90.47           | 3666.31        | -7842.75                 | 6852.89  | 4727.22 *            | 1753.04        | 1073.27                  | 8195.15 |
| TX x Market Competition<br>x (Yr1993-1995) | 0.069                             | 0.069          | -0.061                   | 0.207 | -466.19          | 2366.07        | -4733.13                 | 4156.10  | 66.25                | 2091.44        | -4247.31                 | 4407.42 |
| TX x Market Competition<br>x (Yr1995-1997) | 0.10                              | 0.09           | -0.10                    | 0.25  | 3259.52          | 2795.72        | -1804.56                 | 8820.30  | 3283.43              | 2113.48        | -467.04                  | 7478.97 |
| TX x Market Competition<br>x (Yr1997-2002) | 0.070                             | 0.091          | -0.177                   | 0.216 | 4486.44          | 3738.26        | -2207.74                 | 12401.71 | 1093.95              | 2695.28        | -5072.58                 | 6047.28 |

standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

\* significant at 5% level.

|  | Uncompensated Care per bed |                |                          |          | Percent Medicaid Inpatient Days |                |                          |        |
|--|----------------------------|----------------|--------------------------|----------|---------------------------------|----------------|--------------------------|--------|
|  | Mean                       | Standard Error | 95 % Confidence Interval |          | Mean                            | Standard Error | 95 % Confidence Interval |        |
| CA x Market Competition<br>x (Yr1994-1996) | 3059.41                    | 2784.01        | -2060.96                 | 8721.92  | 0.011                           | 0.035          | -0.058                   | 0.081  |
| CA x Market Competition<br>x (Yr1996-2002) | 6132.48                    | 3639.83        | -303.58                  | 13824.94 | -0.018                          | 0.032          | -0.080                   | 0.046  |
| TX x Market Competition<br>x (Yr1993-1995) | -788.43                    | 2891.08        | -6434.69                 | 5245.91  | 0.019                           | 0.028          | -0.038                   | 0.077  |
| TX x Market Competition<br>x (Yr1995-1997) | 5831.55                    | 3574.13        | -1624.33                 | 12199.99 | 0.021                           | 0.031          | -0.047                   | 0.074  |
| TX x Market Competition<br>x (Yr1997-2002) | 4790.79                    | 4682.27        | -4330.27                 | 13447.33 | 0.0035                          | 0.0290         | -0.0527                  | 0.0588 |

\* standard errors and 95% confidence intervals obtained by bootstrapping 500 times.

## **CHAPTER 7**

### **THE SPILL-OVER EFFECT**

This chapter investigates the spill-over effect of state community benefit laws on for-profit hospitals' willingness and ability to provide community benefit. In response to the excessive health care needs imposed by the growing population of uninsured and underinsured, not-for-profit hospitals in California and Texas are now mandated to provide community benefit. Private for-profit hospitals in these two states face virtually identical market forces and competitive pressures. It is likely that they also experience community demands for the same types of community benefit services.

Empirical research on hospital ownership differences, especially in relations to charity and uncompensated care provision, are ample. Yet, studies on whether not-for-profit hospitals influence for-profit hospital behaviors are rare. In 2002, Clement et al. posited that for-profit hospitals, in pursue of a good neighbor's image, would provide more charity care as not-for-profit hospitals increase the same services to meet community demand. This analysis furthers this line of research to explore whether for-profit hospitals would increase their provision of community benefit as not-for-profit hospitals do as a result of state community benefit laws. Specifically, the regression models aim to test the hypothesis that for-profit hospitals' provision of community benefits activities (in term of programs,



financial expenditures and Medicaid and Medicare inpatient days) will be positively correlated with not-for-profit hospital provision of community activities.

### **7.1. Study Sample**

A total of 2,951 hospital-year observations are used in the spill-over analysis of the programmatic aspect of hospital community benefit activities. These are for-profit hospitals that responded to the AHA Annual Hospital Survey as well as state sponsored hospital surveys between 1991 and 2002. Texas has the largest number of for-profit hospitals, followed by California and Florida (Table 7.1). In contrast to the full sample of private hospitals (n=7,099) used in the previous chapter, for-profit hospitals tend to provide a lower percentage of community oriented programs (Table 7.2). They are also smaller in size with only 143 staffed beds (vs. 192 staff beds in the overall private hospital sample). Further, for-profit hospitals are less likely to have managed contracts or have affiliation with a hospital alliance, network or system. Even though most of these for-profit hospitals reside in urban counties, they share similar socio-demographic characteristics as those seen in the overall private hospital sample. Contrary to prior research results (Norton and Staiger 1994; Chakravarty et al., 2006), this particular sample of for-profit hospitals does not reside in counties with a higher average per capita income or a noticeably more saturated hospital market.

Of the for-profit hospital study sample, 20% (n=596) of observations report zero values for community-oriented programs. This leaves 2,355 for-profit hospital-year observations with positive programmatic dependent variable entries. These for-profit hospitals that do offer some community-oriented program average between 6 and 9 programs

(45% of the service inventories) throughout the study period (Table 7.3). They are more likely to associate with having HMO and PPO contracts. Preliminarily, the summary statistics indicate that these for-profit hospitals also reside in counties where the average not-for-profit contributions to these programs are lower (37% vs. 41%) than that of the full for-profit hospital population.

In the financial dependent variables analyses, the study sample was reduced to 2,684 hospital-year observations due to missing variables (Table 7.4). Not all for-profit hospitals reported their bad debt and charity care figures in all years. Of this sample population, 2% (n=49) and 29% (n=786) of hospital observations report zero values for bad debt and charity care, respectively. Combined, approximately 1.5% (n=40) of the study sample yield zero values for uncompensated care. The demographic characteristics of those for-profit hospitals that do report positive bad debt remain very similar to the full sample. In contrast, for-profit hospitals that report positive charity care are larger (163 staff beds vs. 147 staff beds). They also reside in states with larger SCHIP allocations.

A total of 2,951 hospital-year observations is used for the special populations spill-over analysis (Table 7.5). Approximately 7.5% (n=222) of observations record zero Medicaid inpatient days. For-profit hospitals demographic characteristics do not appear to differ with the availability of Medicaid inpatient care.

## **7.2. Model Specification**

The spill-over effect of state community benefit laws on for-profit hospital behavior is estimated using regression analysis according to the following specifications:

$$FP\ Community\ Benefit_{sth} = f[NFP\ Community\ Benefit\ Index_h, Time_t, State_s, \\ NFP\ CB\ Index \cdot Time_{st}, State \cdot NFP\ CB\ Index_{sh}, Time \cdot State_{st}]$$

$$\begin{aligned} & \text{Economic Factors}_{sth}, \text{Socio-demographic Factors}_{sth}, \\ & \text{Organizational Factors}_{sth}, \mu_{st}, v_{sth} \end{aligned} \quad (7.1)$$

Similar to the previous analysis, community benefit behaviors, such as percent of community oriented programs, three measures of financial variables, and percent special population, are abbreviated as dependent variable  $Y_{hst}$ . The  $h$  subscript indicates individual hospital; the  $s$  subscript indicates treatment or control state group; and the  $t$  subscript indicates policy change time periods. Contrary to the previous analysis, each of these three continuous dependent variables is modeled as a function of a not-for-profit community benefit index, time, state, the interactions between the treatment states, time dummies and the not-for-profit community benefit contribution, and time-varying organizational, demographic and environmental factors. The coefficients for the not-for-profit community benefit index and its 3-way interaction terms will indicate the influence of not-for-profit hospital behavior on that of for-profit hospitals.

More specifically, the primary independent variable of interest, not-for-profit community benefit index, is defined as not-for-profit hospitals' relative contributions to community benefit in the same county as the for-profit hospital of interest. This variable is operationalized by dividing the sum of community-oriented programs offered by all not-for-profit hospitals in a county by the total number of community benefit programs provided by all hospitals in the same county (equation (7.2)). The resulting measure is a scaler, ranging from 0 to 1, reflecting the proportion of community benefit provided by not-for-profit hospitals in a county.

$$\text{NFP Share of Community Benefit Programs} = \left( \frac{\sum \text{cmt y bft programs nfp}_i}{\sum \text{cmt y bft pgs all hosp}_j} \right) \quad (7.2)$$

Similarly, to examine the spill-over effects in terms of hospital provision of bad debt, charity care and uncompensated care, the independent variables of interest are altered to match the financial nature of the dependent variable. For example, in the case of bad debt, not-for-profit hospitals' contribution to the indigent is represented by the sum of bad debts reported by all not-for-profit hospitals by the sum of bad debts reported by all hospitals in the county (equation (7.3)). This financial ratio is reconstructed to yield not-for-profit share of charity care and uncompensated care in the subsequent spill-over effect analyses of the other two additional financial dimensions.

$$NFP \text{ Share of Bad Debt} = \frac{\sum(Bad \text{ Debt } nfp \text{ hosp } i)}{\sum(Bad \text{ Debt } all \text{ hosp } j)} \quad (7.3)$$

In the analysis of Medicaid inpatient load, the overall not-for-profit contribution is measured as the sum of all Medicaid inpatient days divided by the sum of all Medicaid inpatient days in all hospitals in the same county, respectively (equation (7.4)).

$$NFP \text{ Share of Medicaid Inpatient Days} = \frac{\sum(Medicaid \text{ Inpatient Days } nfp \text{ hosp } i)}{\sum(Medicaid \text{ Inpatient Days } hosp } j)} \quad (7.4)$$

The estimation model includes time fixed effects, in terms of individual state law evolutions, to capture time trend. Various economic, socio-demographic factors and organizational attributes are added as control variables. For example, the potential confounding effect of size on hospitals' abilities to offer the various community benefit activities is included as a control factor. Unspecified time invariant and time-varying state heterogeneities are represented in the model as  $\mu_{st}$  and  $v_{hst}$ , respectively. State specific regulations that extend beyond the beginning and the end of the study period, at the same time affect the implementation of community benefit laws may be one example of the time-

invariant heterogeneity. Time varying heterogeneity may come from changes in the Medicaid or Medicaid-related policy, state macro-economy or the demographic distributions of the population during the study period.

### **7.3. Estimation Methods**

This analysis uses the panel data regression estimators to examine changes in for-profit hospital behavior over time. The DDD modeling strategy is the primary estimation method, comparing changes of hospital community benefits provision behaviors in intervention states to changes of hospital community benefit provision behaviors in the control state. The first difference compares the post-law and pre-law hospital community benefit activities in an intervention state. The second difference compares the community benefit activities differentials between one of the study states (i.e. Texas or California) and the control state of Florida. The last difference compares for-profit hospitals community benefit activities with changes in not-for-profit behaviors.

Diagnostic plots show the pattern of a large percentage of zeros alongside a distinct distribution of non-zero values in all dependent variables, except percent Medicare inpatient days. To avoid assuming a censored normal distribution in these dependent variables with many zero entries, the two-part model (2PM) is employed as the primary analytical method. The first part of 2PM estimates the effect of not-for-profit hospital community benefit contribution on for-profit hospitals' decision to provide any community benefits using a linear probability model (LPM). The binary outcome of whether community benefit activity is performed is predicted using ordinary least squares (OLS).

In the second part of the 2PM, OLS, random effects, fixed effects estimators are compared with the support of specification test statistics in order to get the most efficient and consistent estimates of the effects of community benefit laws that are not induced by unobserved individual hospital heterogeneity. In the case of percent Medicare inpatient days, there are no zero values reported. The full sample is used in the time-series regression analysis only. Before implementing the time-series analysis of the 2PM, the Wooldridge test (Wooldridge 2000) is also used to compare goodness of fit with logged and unlogged models of bad debt, charity care and uncompensated care. Results of the test indicate that unlogged forms of all three variables are preferred to the logged forms.

Upon application of the same battery of specification tests, all dependent variables yield the same results. Random effects estimates are preferred to OLS in the Breusch-Pagan test of random effects. Subsequent Hausman test rejects random effects estimates in favor of the consistent fixed effects estimates. Finally, a White (1980) test indicates that the errors of the fixed effects estimates are heteroskedastic. One source of such heteroskedasticity could be potential omitted time-varying unobservables caused by state level hospital policy changes regarding certificate of needs, or free care legislations. Therefore, robust standard errors are applied to correct for the downward biased standard errors in the final results.

## **7.4. Results**

### **7.4.1 The Spill-Over Effect on Community Oriented Programs**

For-profit hospitals' decision to provide community-oriented programs is not directly influenced by not-for-profit hospitals' commitment to these activities. However, the Texas state community benefit law does induce for-profit hospital to increase their provision of

community-oriented programs after 1995 (Table 7.6). In both the OLS and fixed effects models, the coefficient estimates of not-for-profit community benefit index yields negative values, suggesting an inverse relationship between for-profit and not-for-profit community benefit activities. However, these direct effects are not statistically significant.

Based on the coefficient estimates from the subsequent three-way interaction terms between legislative time frames, treatment states and not-for-profit hospital community benefit index, the California state community benefit law does not compel for-profit hospitals to imitate not-for-profit hospitals' reinforced commitment to providing community-oriented programs. Both the OLS and fixed effects models yield negative coefficients but could not establish statistical significance for the interaction estimates.

In Texas, however, evidence of spill-over effects on for-profit hospitals' provision of community-oriented programs is seen after the first amendment of the law in 1995. Fixed effects regression results show that between 1995 and 1997, for-profit hospitals increase their provision of community-oriented programs by 23 percentage points ( $p=0.003$ ) as not-for-profit hospitals elevate their proportional contribution to these programs county-wide. After 1997, this positive trend continues. Texas for-profit hospitals demonstrate a positive 19-percentage-point differential ( $p=0.007$ ) in their provision of community-oriented programs with increases in not-for-profit hospital contribution to these same programs.

#### 7.4.2 The Spill-Over Effects on Bad Debt, Charity Care and Uncompensated Care

On the financial front, for-profit hospitals' decisions to contribute to bad debt, charity and uncompensated care are in fact influenced by the overall amount of not-for-profit contribution to these assistance options in the same county (Table 7.7). However, evidence of spill-over effect as a result of state community benefit laws appears limited.

In the case of bad debt, a coefficient estimate of -0.068 ( $p=0.041$ ) from the OLS regression indicates that an increase in the proportion of not-for-profit contribution to bad debt is negatively associated with for-profit hospitals' likelihood to incur any bad debt in general. However, the amount of bad debt incurred by for-profit hospitals is not shown to be affected by not-for-profit behaviors. In terms of the effect of state community benefit laws, a statistically significant OLS coefficient estimate of -0.12 ( $p=0.088$ ) shows that after the implementation of California legislation, augmentation in the overall not-for-profit share of bad debt impedes for-profit hospitals' decision to incur any bad debt at all. In Texas, there is no significant relationship between for-profit hospitals' willingness and abilities to incur and not-for-profit hospitals' contributions to bad debt.

The direct effects of not-for-profit contribution to charity care on for-profit hospital behavior are statistically significant and negative. The OLS regression coefficient estimate of -0.23 ( $p=0.005$ ) indicates that for-profit hospitals are less willing to provide any charity care with increases in not-for-profit contribution to this financial service to the poor. Moreover, the fixed effects coefficient estimate of -2154.60 ( $p=0.049$ ) shows that for-profit hospitals significantly reduce the amount of charity care they provide to the indigent as not-for-profit hospitals' ramp up their financial contributions. State community benefit laws do not appear to change this behavioral relationship by ownership. After the implementation of the California community benefit law in 1996, the OLS coefficient -0.29 ( $p=0.038$ ) shows that increase in not-for-profit hospitals' provision of charity care hindered for-profit hospitals decision to incur the same expenses. Further, fixed effects estimates -2779.12 ( $p=0.034$ ) indicated that, among for-profit hospitals that already offer charity care, increases in not-for-profit hospitals' contributions to charity care negatively affect the level of financial allocation



for-profit hospitals devote in the area. Finally, Texas law does not appear to have any effect on hospital provision of charity care by ownership.

In terms of for-profit hospitals' provision of uncompensated care, there appears no hint of the spill-over effect in either California or Texas. However, regression outcomes do indicate a direct inverse relationship between not-for-profit contribution to and for-profits' decision to offer any uncompensated care at all. The OLS regression coefficient of -0.073 ( $p=0.011$ ) for the not-for-profit community benefit index suggests that increase in not-for-profit hospitals' provision of uncompensated care discourages for-profit hospitals from providing any uncompensated care at all.

#### 7.4.3. The Spill-Over Effects on Medicaid Inpatient Days

There is direct positive relationship between not-for-profit hospitals' Medicaid inpatient service load and for-profit hospitals' decision to take on any Medicaid inpatients (0.13,  $p=0.004$ ). That is, in a county where not-for-profit hospitals shoulder an increased share of Medicaid inpatient days, for-profit hospitals are more willing to take on Medicaid inpatient days as well. However, a coefficient estimate of -0.049 ( $p=0.003$ ) from the fixed effects model indicates that, among for-profit hospitals that already carry Medicaid inpatient days, increased not-for-profit share of these services are associated with a lowered percentage of the same services provided by for-profit hospitals.

Additionally, the influence of not-for-profit hospitals' service to the Medicaid inpatients on for-profit hospitals' commitment to the same services as a result of state community benefit laws are shown in the coefficient estimates of the three-way interaction terms between law timeline, treatment state and not-for-profit hospitals' inpatient service

load (Table 7.8). Results from the analysis show a limited amount of the spill-over effect on California and Texas for-profit hospitals. In fact, increases in not-for-profit hospitals' Medicaid inpatient days are associated with a decrease in for-profit hospitals' Medicaid inpatient days after the enactment and before the implementation of the California community benefit law (-0.16,  $p=0.021$ ). No other statistically significant relationships are seen in California and Texas Medicaid inpatient service between not-for-profit and for-profit hospitals.

### **7.5. Discussion**

The role of ownership in hospital behavior has long been a subject of debate in health services research. While past empirical studies have focused on determining ownership differences in hospital service provision (Herzlinger and Krasker, 1987; Gray, 1991; Lewin, Eckels and Miller, 1988; Norton and Staiger, 1994), few consider how for-profit and not-for-profit hospitals influence each other's behavior within the same market areas. This analysis aims to examine the interactive relationship between not-for-profit and for-profit hospitals in their provision of community benefit as a result of state community benefit laws. The results show that both California and Texas state community benefit laws have some but different spill-over effects on for-profit hospitals' provision of community benefit.

In California, for-profit hospitals respond to not-for-profit hospitals' policy-induced increase in community benefit activities in a negative fashion. Even though the law prescribes to hospital's programmatic options, the most prominent changes seen in California for-profit hospitals' community benefit behavior is their reduction of charity care after the enactment and implementation of the law. Without a significant increase in their provision

of community-oriented programs, it is difficult to explain where California for-profit hospitals are diverting their fiscal resources. It is possible that they simply choose to maximize profit and rely on not-for-profit hospitals to meet most of the health care needs of the poor in the state.

In contrast, the state community benefit law does have a positive spill-over effect on Texas for-profit hospitals. However, the effect is seen in hospitals' provision of community-oriented programs, rather than in bad debt and charity care as prescribed by the law. Because the Texas legislation has resulted from a widely publicized litigation, its rules are specific, stringent and complemented with non-compliance penalties. Under these circumstances, for-profit hospitals may choose to offer the more cost-efficient and visible community benefit activities in order to meet the heightened community expectations and maintain their good neighbor's image.

Additionally, several themes emerge from the outcome of this analysis. First, the spill-over effects of state community benefit laws are not consistent across different types of community benefit activities. In California, for-profit hospitals' decisions about whether or how many community-oriented programs they would provide are unrelated to not-for-profit hospital behavior after both the enactment and the implementation of the law. However, their decisions on whether to carry bad debt or offer charity care are negatively associated with not-for-profit hospitals' contributions to these services after the implementation of the law. Further, California for-profit hospitals' Medicaid inpatient days are reduced by increases in not-for-profit service load after the enactment and before the implementation of state community benefit law. Without defining community benefit multiple ways, it would have been difficult to distinguish the effect of the law on different aspects of hospital

behavior. Moreover, it appears that the financial and special population aspects of community benefit offer stronger measurements for this spill-over analysis. With only a compilation index reflecting the total number of community-oriented programs hospitals offer, it is not possible to delineate how for-profit and not-for-profit hospitals compete or compliment each other's service options.

Two, not-for-profit hospitals may influence for-profit hospital behavior through multiple mechanisms. According to the results, California not-for-profit hospitals have influenced, directly and via regulation, for-profit counterparts' community benefit behaviors through for-profit hospitals' service provision decisions as well as the level of resources they commit to these activities. That is, as not-for-profit hospitals increase their pooled contribution to meet community health needs, fewer for-profit hospitals would opt to participate in the same activities. In the case of charity care and Medicaid inpatient days, California for-profit hospitals have dropped their commitment to these activities when not-for-profit hospitals elevate their contributions.

Finally, outcome of this study partially confirm previous research results that for-profit hospitals generally do not compete with neighboring not-for-profit hospitals for a good public image by providing more charity care (Clement et al., 2002). In the case of California, increased not-for-profit financial subsidies to the poor not only are associated with reduced for-profit hospitals' provision of charity care, they also discourage for-profit hospitals from incurring any bad debt as well as charity care at all. Given that these for-profit hospitals are also sensitive to within-county market competition, it is likely that for-profit hospitals tend to select markets where there is less need for uncompensated care. Instead of keeping pace with not-for-profit hospitals' financial contribution to the poor, it is likely that for-profit hospitals

take the opportunities to offer less uncompensated care. However, in the case of Texas, there is some evidence of non-price competition or isomorphic pressure where for-profit hospitals choose to augment their community benefit activities in ways other than those delineated by the legislative language.

In sum, whether and how not-for-profit and for-profit hospitals choose to respond and react to each other's service provision and performance behaviors can not be interpreted in isolation of historical and current political socio-demographic factors and market forces. Hospitals' financial health and management choices may also come into play. Future research on policy spill-over effect and non-price competition needs to account for these factors as well as multiple definitions of community benefit.

**Table 7.1. Study Sample used in the Spill-Over Analysis from 1991 to 2002 (n=2,951)**

|    | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|----|------|------|------|------|------|------|------|------|------|------|------|------|
| CA | 88   | 83   | 81   | 81   | 82   | 79   | 79   | 71   | 67   | 66   | 63   | 63   |
| TX | 110  | 107  | 111  | 115  | 117  | 110  | 115  | 106  | 105  | 104  | 103  | 104  |
| FL | 66   | 65   | 67   | 65   | 64   | 63   | 61   | 59   | 58   | 58   | 58   | 57   |

**Table 7.2. Comparative Summary Statistics on For-Profit Hospitals vs. All Private Hospitals**

| Variable   | For-Profit Hospitals Only<br>(n=2,951) |                | All Private Hospitals<br>(n=7,099) |                |
|--|--|----------------|------------------------------------|----------------|
|  | Mean                                   | Standard Error | Mean                               | Standard Error |
| <b>Dependent Variables</b>                       |  |                |                                    |                |
| Percent of Community Oriented Services Available | 0.36                                   | 0.26           | 0.42                               | 0.27           |
| <b>Independent Variables</b>                     |  |                |                                    |                |
| Not-for-Profit Community Benefit Mean            | 0.41                                   | 0.27           | n/a                                | n/a            |
| <b>Control Variables</b>                         |  |                |                                    |                |
| Hospital Size                                    | 143.88                                 | 96.87          | 192.46                             | 162.09         |
| Length of Stay                                   | 7.06                                   | 5.54           | 6.82                               | 8.64           |
| Freestanding Hospitals                           | 0.10                                   | 0.30           | 0.14                               | 0.35           |
| HMO Contract                                     | 0.52                                   | 0.50           | 0.59                               | 0.49           |
| PPO Contract                                     | 0.57                                   | 0.50           | 0.63                               | 0.48           |
| Market Competition I                             | 0.78                                   | 0.25           | 0.75                               | 0.27           |
| Market Competition II                            | 0.93                                   | 0.07           | 0.93                               | 0.08           |
| Teaching Status                                  | 0.038                                  | 0.191          | 0.16                               | 0.37           |
| Rural  | 0.068                                  | 0.252          | 0.08                               | 0.26           |
| Education Level                                  | 75.73                                  | 6.86           | 75.95                              | 6.87           |
| Percent Elderly                                  | 12.68                                  | 5.95           | 12.71                              | 5.46           |
| Percent non-White                                | 41.19                                  | 19.48          | 40.72                              | 18.78          |
| Unemployment Rate                                | 6.22                                   | 2.60           | 6.39                               | 2.87           |
| Per Capita Income                                | 24720.10                               | 7076.76        | 24845.83                           | 7606.45        |
| Public Hospitals                                 | 0.70                                   | 0.46           | 0.70                               | 0.46           |
| SCHIP *  | 94.60                                  | 194.00         |                                    |                |

\* value reported in 1,000,000

**Table 7.3. Summary Statistics for Spill-Over Analysis on Hospital Provision of Community Oriented Programs**

| Variable   | All For-Profit Hospitals<br>(n=2,951) |                | For-Profit Hospital with CB<br>Provisions Only<br>(n=2,355) |                |
|--|---------------------------------------|----------------|---|----------------|
|  | Mean                                  | Standard Error | Mean  | Standard Error |
| <b>Dependent Variables</b>   |                                       |                |   |                |
| Percent of Community Oriented Services Provided                    | 0.36                                  | 0.26           | 0.45  | 0.21           |
| <b>Independent Variables</b>                                       |                                       |                |   |                |
| Average Not-for-Profit contribution of Community Oriented Programs | 0.41                                  | 0.27           | 0.37  | 0.25           |
| <b>Control Variables</b>   |                                       |                |   |                |
| Hospital Size  | 143.88                                | 96.87          | 148.50  | 98.02          |
| Length of Stay   | 7.06                                  | 5.54           | 7.29  | 5.86           |
| Freestanding Hospitals   | 0.10                                  | 0.30           | 0.12  | 0.33           |
| HMO Contract   | 0.52                                  | 0.50           | 0.64  | 0.48           |
| PPO Contract   | 0.57                                  | 0.50           | 0.70  | 0.46           |
| Market Competition I   | 0.78                                  | 0.25           | 0.77  | 0.26           |
| Market Competition II  | 0.93                                  | 0.07           | 0.92  | 0.07           |
| Teaching Status  | 0.038                                 | 0.191          | 0.041   | 0.198          |
| Rural  | 0.068                                 | 0.252          | 0.075   | 0.263          |
| Education Level  | 75.73                                 | 6.86           | 75.45   | 6.95           |
| Percent Elderly  | 12.68                                 | 5.95           | 12.33   | 5.65           |
| Percent non-White  | 41.19                                 | 19.48          | 40.95   | 19.32          |
| Unemployment Rate  | 6.22                                  | 2.60           | 6.34  | 2.61           |
| Per Capita Income  | 24720.10                              | 7076.76        | 24041.25  | 6894.78        |
| Public Hospitals   | 0.70                                  | 0.46           | 0.70  | 0.46           |
| SCHIP *  | 94.60                                 | 194.00         | 85.60   | 191.00         |

\* values in millions

**Table 7.4. Descriptive statistics for Spill-Over Analysis on Bad Debt, Charity Care and Uncompensated Care**

| Variable  | Total<br>(n=2,684) |        | Positive Bad Debt<br>only<br>(n=2,638) |        | Positive Charity<br>Care only<br>(n=1,898) |        | Positive<br>Uncompensated<br>Care only<br>(n=2,644) |        |
|---|--------------------|--------|--|--------|--|--------|---|--------|
|   | Mean               | S.E.   | Mean                                   | S.E.   | Mean                                       | S.E.   | Mean  | S.E.   |
| <b>Dependent Variables</b>                              |                    |        |  |        |  |        |   |        |
| Bad Debt per bed *                                      | 9.01               | 8.13   | 9.17                                   | 8.12   |  |        |   |        |
| Charity Care per bed *                                  | 1.95               | 3.46   |  |        | 2.86                                       | 3.83   |   |        |
| Uncompensated Care<br>per bed *                         | 10.96              | 9.14   |  |        |  |        | 11.13   | 9.10   |
| <b>Independent Variables</b>                            |                    |        |  |        |  |        |   |        |
| Not-For-Profit<br>Contribution of Bad<br>Debt           | 0.41               | 0.29   | 0.40                                   | 0.28   |  |        |   |        |
| Not-For-Profit<br>Contribution of<br>Charity Care       | 0.46               | 0.38   |  |        | 0.42                                       | 0.38   |   |        |
| Not-For-Profit<br>Contribution of<br>Uncompensated Care | 0.41               | 0.31   |  |        |  |        | 0.41  | 0.30   |
| <b>Control Variables</b>                                |                    |        |  |        |  |        |   |        |
| Hospital Size   | 147.55             | 9.79   | 149.16                                 | 98.08  | 163.83                                     | 101.74 | 148.87  | 97.98  |
| Length of Stay  | 6.83               | 5.36   | 6.79                                   | 6.29   | 6.20                                       | 4.30   | 6.80  | 5.31   |
| Freestanding Hospitals                                  | 0.11               | 0.31   | 0.10                                   | 0.31   | 0.074                                      | 0.262  | 0.11  | 0.31   |
| HMO Contract  | 0.54               | 0.50   | 0.55                                   | 0.50   | 0.56                                       | 0.50   | 0.55  | 0.50   |
| PPO Contract  | 0.60               | 0.49   | 0.60                                   | 0.49   | 0.62                                       | 0.49   | 0.60  | 0.49   |
| Market Competition I                                    | 0.78               | 0.25   | 0.78                                   | 0.25   | 0.75                                       | 0.26   | 0.78  | 0.25   |
| Market Competition II                                   | 0.93               | 0.07   | 0.93                                   | 0.07   | 0.92                                       | 0.07   | 0.93  | 0.07   |
| Teaching Status   | 0.036              | 0.187  | 0.037                                  | 0.188  | 0.038                                      | 0.192  | 0.037   | 0.188  |
| Rural   | 0.071              | 0.258  | 0.069                                  | 0.254  | 0.075                                      | 0.263  | 0.070   | 0.255  |
| Education Level   | 75.50              | 6.85   | 75.53                                  | 6.87   | 75.75                                      | 7.23   | 75.52   | 6.87   |
| Percent Elderly   | 12.46              | 5.77   | 12.48                                  | 5.79   | 12.97                                      | 6.16   | 12.47   | 5.78   |
| Percent Non-White                                       | 41.42              | 19.30  | 41.40                                  | 19.33  | 40.15                                      | 19.86  | 41.44   | 19.35  |
| Unemployment Rate                                       | 6.26               | 2.62   | 6.25                                   | 2.63   | 6.01                                       | 2.66   | 6.26  | 2.62   |
| Per Capita Income *                                     | 24.50              | 7.13   | 24.50                                  | 7.09   | 24.58                                      | 6.88   | 24.50   | 7.09   |
| Public Hospitals  | 0.70               | 0.46   | 0.70                                   | 0.46   | 0.66                                       | 0.47   | 0.70  | 0.46   |
| SCHIP **  | 92.56              | 192.26 | 92.59                                  | 192.30 | 105.05                                     | 199.43 | 92.64   | 192.48 |

\* value reported in \$1,000.



**Table 7.5. Variable names and descriptive statistics for the Spill-Over Effect on Medicaid and Medicare Inpatient Days**

| Variable  | Total<br>(n=2,951) |                | Positive Medicaid Load<br>(n=2,729) |                |
|---|--------------------|----------------|-------------------------------------|----------------|
|   | Mean               | Standard Error | Mean                                | Standard Error |
| Dependent Variables                                     |                    |                |                                     |                |
| % Medicaid Inpatient Days                               | 0.12               | 0.11           | 0.13                                | 0.11           |
| Independent Variables                                   |                    |                |                                     |                |
| Weighted Mean of Not-for-Profit Medicaid Inpatient Days | 0.46               | 0.28           | 0.42                                | 0.28           |
| Control Variables                                       |                    |                |                                     |                |
| Hospital Size   | 143.88             | 96.87          | 150.60                              | 96.94          |
| Length of Stay  | 7.06               | 5.54           | 6.11                                | 3.95           |
| Freestanding Hospitals                                  | 0.10               | 0.30           | 0.098                               | 0.297          |
| HMO Contract  | 0.52               | 0.50           | 0.51                                | 0.50           |
| PPO Contract  | 0.57               | 0.50           | 0.55                                | 0.50           |
| Market Competition I                                    | 0.78               | 0.25           | 0.77                                | 0.25           |
| Market Competition II                                   | 0.93               | 0.07           | 0.93                                | 0.07           |
| Teaching Status   | 0.038              | 0.191          | 0.040                               | 0.195          |
| Rural   | 0.068              | 0.252          | 0.073                               | 0.259          |
| Education Level   | 75.73              | 6.86           | 75.63                               | 6.99           |
| Percent Elderly   | 12.68              | 5.95           | 12.93                               | 6.07           |
| Percent non-White                                       | 41.19              | 19.48          | 40.96                               | 19.85          |
| Unemployment Rate                                       | 6.22               | 2.60           | 6.26                                | 2.63           |
| Per Capita Income *                                     | 24720.10           | 7076.76        | 24531.83                            | 7012.51        |
| Public Hospitals  | 0.70               | 0.46           | 0.68                                | 0.46           |
| SCHIP **  | 94.60              | 194.00         | 91.80                               | 188.74         |

\* value reported in \$1,000

**Table 7.6. Spill-over effect of state community benefit laws on hospital provision of community oriented programs from 1991 to 2002**

| Variable   | OLS<br>(n=2,951)    | Fixed Effects<br>(n=2,355) |
|--|---------------------|----------------------------|
| CA   | 0.14<br>(0.09)      |                            |
| TX   | 0.0011<br>(0.0560)  |                            |
| Not-For-Profit Community Benefit Index           | -0.12<br>(0.10)     | -0.12<br>(0.07)            |
| Year 94 to 96 · CA · NFP Community Benefit Index | -0.33<br>(0.25)     | -0.11<br>(0.11)            |
| Year 96 to 02 · CA · NFP Community Benefit Index | -0.20<br>(0.20)     | -0.097<br>(0.103)          |
| Year 93 to 95 · TX · NFP Community Benefit Index | -0.014<br>(0.173)   | 0.020<br>(0.082)           |
| Year 95 to 97 · TX · NFP Community Benefit Index | -0.058<br>(0.175)   | 0.23 ***<br>(0.08)         |
| Year 97 to 02 · TX · NFP Community Benefit Index | 0.13<br>(0.15)      | 0.19 ***<br>(0.08)         |
| Year 94 to 96                                    | 0.12 **<br>(0.05)   | 0.11 ***<br>(0.02)         |
| Year 96 to 02                                    | 0.11<br>(0.07)      | 0.12 ***<br>(0.03)         |
| Year 93 to 95                                    | -0.17 ***<br>(0.06) | 0.0094<br>(0.0259)         |
| Year 95 to 97                                    | -0.37 ***<br>(0.08) | 0.094 **<br>(0.040)        |
| Year 97 to 02                                    | -0.31 ***<br>(0.08) | 0.092 **<br>(0.040)        |
| Year 94 to 96 · CA                               | 0.025<br>(0.136)    | -0.00097<br>(0.05870)      |
| Year 96 to 02 · CA                               | 0.042<br>(0.101)    | -0.029<br>(0.050)          |
| Year 93 to 95 · TX                               | 0.046<br>(0.074)    | -0.011<br>(0.030)          |
| Year 95 to 97 · TX                               | 0.24 ***<br>(0.07)  | -0.085 **<br>(0.035)       |
| Year 97 to 02 · TX                               | 0.10<br>(0.06)      | -0.058 *<br>(0.030)        |
| NFP Community Benefit Index · CA                 | 0.070<br>(0.181)    | -0.18<br>(0.13)            |
| NFP Community Benefit Index · TX                 | 0.094<br>(0.138)    | -0.50 ***<br>(0.12)        |
| Year 94 to 96 · NFP Community Benefit Index      | -0.025<br>(0.041)   | 0.056<br>(0.051)           |
| Year 96 to 02 · NFP Community Benefit Index      | 0.0077<br>(0.0549)  | 0.12 *<br>(0.07)           |
| Year 93 to 95 · NFP Community Benefit Index      | 0.070 *<br>(0.039)  | 0.0033<br>(0.0584)         |
| Year 95 to 97 · NFP Community Benefit Index      | 0.096 *<br>(0.055)  | -0.17 **<br>(0.08)         |
| Year 97 to 02 · NFP Community Benefit Index      | 0.070<br>(0.061)    | -0.12<br>(0.08)            |
| Hospital Size/100                                | 0.011 ***           | 0.029 **                   |

|                           |             |              |
|---------------------------|-------------|--------------|
|                           | (0.003)     | (0.012)      |
| Length of Stay            | -0.0010 **  | -0.0028      |
|                           | (0.0005)    | (0.0026)     |
| Freestanding Hospitals    | -0.015 *    | -0.070 ***   |
|                           | (0.008)     | (0.013)      |
| Teaching Status           | 0.00050     | 0.032 *      |
|                           | (0.01221)   | (0.019)      |
| Rural                     | -0.027 **   | -0.034 **    |
|                           | (0.011)     | (0.016)      |
| PPO Contract              | 0.027 ***   | 0.0023       |
|                           | (0.009)     | (0.0110)     |
| HMO Contract              | -0.011      | 0.015        |
|                           | (0.009)     | (0.011)      |
| Market Competition I      | -0.055 ***  | 0.036        |
|                           | (0.018)     | (0.051)      |
| Market Competition II     | 0.14 ***    | 0.19         |
|                           | (0.05)      | (0.19)       |
| Education Level/100       | 0.17 **     | -0.31        |
|                           | (0.08)      | (0.32)       |
| Percent Elderly/100       | 0.11        | 0.18         |
|                           | (0.07)      | (0.53)       |
| Percent non-Whites/100    | 0.055 **    | -0.19        |
|                           | (0.028)     | (0.17)       |
| Unemployment Rate/100     | 0.11        | 0.14         |
|                           | (0.14)      | (0.32)       |
| Per Capital Income/1,000  | -0.00068    | -0.00028     |
|                           | (0.00056)   | (0.00181)    |
| Public Hospitals Presence | 0.0053      | -0.017       |
|                           | (0.0064)    | (0.018)      |
| SCHIP/1,000,000           | 0.0000075   | -0.00000071  |
|                           | (0.0000146) | (0.00002400) |
| Constant                  | 0.74 ***    | 0.54         |
|                           | (0.09)      | (0.38)       |

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level;

**Table 7.7. Results of spill-over effect of state community benefit laws on financial community benefit activities between 1991 and 2002**

| Variable                                  | Adjusted<br>Bad Debt<br>per bed |                            | Adjusted<br>Charity Care<br>per bed |                            | Adjusted<br>Uncompensated Care<br>per bed |                            |
|---|---------------------------------|----------------------------|-------------------------------------|----------------------------|---|----------------------------|
|   | OLS<br>(n=2,685)                | Fixed Effects<br>(n=2,638) | OLS<br>(n=2,684)                    | Fixed Effects<br>(n=1,898) | OLS<br>(n=2,684)                          | Fixed Effects<br>(n=2,644) |
| CA  | 0.011<br>(0.035)                |                            | -0.18 **<br>(0.07)                  |                            | -0.0069<br>(0.0264)                       |                            |
| TX  | -0.034<br>(0.023)               |                            | -0.30 ***<br>(0.07)                 |                            | -0.043 **<br>(0.021)                      |                            |
| Not-For-Profit Community<br>Benefit Index | -0.068 **<br>(0.033)            | -2807.74<br>(2314.01)      | -0.23 ***<br>(0.08)                 | -2154.60 **<br>(1093.31)   | -0.073 **<br>(0.029)                      | -2826.61<br>(2847.47)      |
| Year 94 to 96 · CA · NFP CB<br>Index      | -0.017<br>(0.093)               | -4321.62<br>(3462.21)      | 0.23<br>(0.19)                      | -2434.77 **<br>(1238.46)   | -0.047<br>(0.074)                         | 1009.28<br>(2916.24)       |
| Year 96 to 02 · CA · NFP CB<br>Index      | -0.12 *<br>(0.07)               | -4116.01<br>(3228.30)      | -0.29 **<br>(0.14)                  | -2779.12 **<br>(1311.32)   | -0.092<br>(0.058)                         | 2739.58<br>(2738.61)       |
| Year 93 to 95 · TX · NFP CB<br>Index      | -0.0049<br>(0.064)              | 1139.61<br>(1934.05)       | -0.018<br>(0.153)                   | -147.40<br>(1092.69)       | -0.0070<br>(0.0560)                       | 474.63<br>(191.12)         |
| Year 95 to 97 · TX · NFP CB<br>Index      | -0.061<br>(0.065)               | 510.19<br>(1923.30)        | -0.21<br>(0.16)                     | 279.96<br>(1159.05)        | -0.051<br>(0.057)                         | 403.78<br>(2013.17)        |
| Year 97 to 02 · TX · NFP CB<br>Index      | -0.074<br>(0.056)               | 3077.09<br>(1916.92)       | -0.11<br>(0.14)                     | 1463.79<br>(1066.95)       | -0.074<br>(0.048)                         | 2429.77<br>(2030.14)       |
| Year 94 to 96                             | 0.033<br>(0.021)                | -499.98<br>(715.91)        | 0.028<br>(0.063)                    | 692.08 *<br>(367.48)       | 0.0066<br>(0.0195)                        | 273.12<br>(745.74)         |
| Year 96 to 02                             | 0.032<br>(0.029)                | 81.91<br>(962.05)          | 0.028<br>(0.089)                    | 387.12<br>(580.26)         | 0.013<br>(0.027)                          | 783.31<br>(1008.57)        |
| Year 93 to 95                             | -0.027<br>(0.026)               | -406.90<br>(763.72)        | 0.074<br>(0.076)                    | 412.00<br>(411.74)         | -0.020<br>(0.023)                         | -658.35<br>(799.80)        |
| Year 95 to 97                             | -0.040<br>(0.033)               | -805.86<br>(1072.53)       | 0.022<br>(0.099)                    | 459.88<br>(620.16)         | -0.026<br>(0.030)                         | -815.65<br>(1118.39)       |
| Year 97 to 02                             | -0.054<br>(0.035)               | 976.54<br>(1220.64)        | 0.037<br>(0.106)                    | 1368.49 *<br>(729.73)      | -0.044<br>(0.032)                         | 1442.75<br>(1288.44)       |
| Year 94 to 96 · CA                        | -0.0093<br>(0.0515)             | 1738.33<br>(1944.39)       | -0.15<br>(0.15)                     | 1065.11<br>(863.15)        | 0.019<br>(0.043)                          | -1331.88<br>(1739.97)      |
| Year 96 to 02 · CA                        | 0.030<br>(0.041)                | 728.26<br>(2045.35)        | -0.087<br>(0.092)                   | 2037.71 **<br>(968.34)     | 0.030<br>(0.032)                          | -2605.12<br>(1832.85)      |
| Year 93 to 95 · TX                        | 0.00086<br>(0.03076)            | 95.29<br>(912.52)          | 0.15<br>(0.09)                      | 492.67<br>(595.30)         | 0.0097<br>(0.0276)                        | 619.22<br>(967.42)         |
| Year 95 to 97 · TX                        | 0.11<br>(0.06)                  | 86.81<br>(934.28)          | 0.32 ***<br>(0.09)                  | 788.63<br>(661.55)         | 0.041<br>(0.028)                          | 766.07<br>(1001.24)        |
| Year 97 to 02 · TX                        | 0.089<br>(0.069)                | -1888.94 **<br>(894.05)    | 0.24 ***<br>(0.08)                  | 137.99<br>(608.25)         | 0.061 **<br>(0.024)                       | -1309.04<br>(1010.43)      |
| CA · NFP CB Index                         | 0.021<br>(0.061)                | 7348.10 **<br>(3571.75)    | 0.10<br>(0.11)                      | 1132.88<br>(1242.59)       | 0.024<br>(0.049)                          | -2580.01<br>(3659.21)      |
| TX · NFP CB Index                         | 0.075<br>(0.048)                | 2151.82<br>(3521.84)       | 0.029<br>(0.115)                    | -533.38<br>(2519.05)       | 0.068 *<br>(0.041)                        | 1706.10<br>(5932.22)       |
| Year 94 to 96 · NFP CB Index              | -0.031<br>(0.045)               | 2353.18 *<br>(1397.71)     | 0.042<br>(0.110)                    | -118.01<br>(592.95)        | 0.013<br>(0.040)                          | 872.03<br>(1319.13)        |
| Year 96 to 02 · NFP CB Index              | -0.0034<br>(0.0617)             | 2379.52 *<br>(1864.16)     | 0.23<br>(0.15)                      | 41.47<br>(884.01)          | 0.030<br>(0.053)                          | 755.88<br>(1849.71)        |
| Year 93 to 95 · NFP CB Index              | 0.076<br>(0.047)                | -2429.19 *<br>(1323.30)    | -0.019<br>(0.110)                   | -17.62<br>(607.52)         | 0.061<br>(0.041)                          | 173.75<br>(1310.83)        |
| Year 95 to 97 · NFP CB Index              | 0.11<br>(0.06)                  | -3485.14 *<br>(1958.09)    | -0.044<br>(0.147)                   | -329.27<br>(880.61)        | 0.067<br>(0.055)                          | -1578.59<br>(1911.08)      |
| Year 97 to 02 · NFP CB Index              | 0.089<br>(0.069)                | -6227.85 ***<br>(2159.87)  | 0.089<br>(0.161)                    | -1237.31<br>(1010.89)      | 0.061<br>(0.060)                          | -4242.12 *<br>(2187.36)    |
| Hospital Size/100                         | 0.012 ***<br>(0.003)            | -4699.11 ***<br>(601.71)   | 0.087 ***<br>(0.009)                | -567.38<br>(364.93)        | 0.011 ***<br>(0.003)                      | -5057.94 ***<br>(718.67)   |
| Length of Stay                            | -0.0013 **<br>(0.0005)          | 100.25<br>(107.87)         | -0.010 ***<br>(0.002)               | 23.65<br>(61.47)           | -0.00098 **<br>(0.00050)                  | 126.48<br>(119.47)         |
| Freestanding Hospitals                    | -0.015 *<br>(0.008)             | 1827.41 ***<br>(549.79)    | -0.11 ***<br>(0.03)                 | -149.66<br>(413.29)        | -0.011<br>(0.008)                         | 1386.52 **<br>(590.08)     |

|                           |                          |                            |                         |                            |                          |                             |
|---------------------------|--------------------------|----------------------------|-------------------------|----------------------------|--------------------------|-----------------------------|
| Teaching Status           | 0.0030<br>(0.0137)       | 23.23<br>(746.13)          | -0.064<br>(0.043)       | -2057.10 ***<br>(444.03)   | 0.0015<br>(0.0127)       | -1686.17 *<br>(867.44)      |
| Rural                     | -0.029 **<br>(0.012)     | -1940.16 **<br>(906.73)    | 0.0091<br>(0.0286)      | 735.71 *<br>(416.44)       | -0.027 **<br>(0.011)     | -1209.60<br>(913.50)        |
| PPO Contract              | 0.029 ***<br>(0.010)     | -178.12<br>(639.09)        | 0.081 **<br>(0.032)     | -130.55<br>(314.90)        | 0.026 ***<br>(0.009)     | -154.44<br>(645.77)         |
| HMO Contract              | -0.011<br>(0.010)        | -18.12<br>(613.89)         | -0.035<br>(0.031)       | 444.53<br>(322.04)         | -0.010<br>(0.009)        | 199.87<br>(626.23)          |
| Market Competition I      | -0.069 ***<br>(0.020)    | -2748.51<br>(2736.98)      | -0.17 ***<br>(0.06)     | -3033.00 *<br>(1568.19)    | -0.073 ***<br>(0.019)    | -5176.06 *<br>(2858.60)     |
| Market Competition II     | 0.18 ***<br>(0.05)       | 7285.98<br>(7067.42)       | 0.34 **<br>(0.17)       | 8413.94<br>(7421.86)       | 0.21 ***<br>(0.05)       | 8343.56<br>(8609.75)        |
| Education Level/100       | 0.19 **<br>(0.09)        | 22165.17 **<br>(11011.93)  | 0.29<br>(0.27)          | -30495.29 ***<br>(7584.75) | 0.19 **<br>(0.08)        | 353.14<br>(12948.68)        |
| Percent Elderly/100       | 0.094<br>(0.077)         | 35068.56 ***<br>(15379.96) | 0.16<br>(0.24)          | -13503.81<br>(10092.64)    | 0.11<br>(0.08)           | 30940.45<br>(18840.32)      |
| Percent non-Whites/100    | 0.056 *<br>(0.030)       | 17611.49 ***<br>(5492.64)  | 0.14<br>(0.10)          | 165.45<br>(3431.83)        | 0.074 ***<br>(0.028)     | 20188.61 ***<br>(6588.73)   |
| Unemployment Rate/100     | 0.11<br>(0.16)           | -15923.40<br>(12715.04)    | -1.38 ***<br>(0.49)     | -32274.27 ***<br>(8190.08) | 0.052<br>(0.146)         | -50241.90 ***<br>(14654.82) |
| Per Capital Income/1,000  | -0.00095<br>(0.00063)    | 160.39 ***<br>(61.49)      | -0.0087 ***<br>(0.0019) | -41.35<br>(42.52)          | -0.0011 *<br>(0.0006)    | 101.75<br>(73.25)           |
| Public Hospitals Presence | 0.0073<br>(0.0071)       | -638.50<br>(433.16)        | -0.011<br>(0.023)       | -92.75<br>(339.71)         | 0.0077<br>(0.0067)       | -787.93<br>(527.09)         |
| SCHIP/1,000,000           | 0.0000085<br>(0.0000162) | 3.09 ***<br>(1.04)         | 0.00013 **<br>(0.00005) | 4.77 ***<br>(0.76)         | 0.0000042<br>(0.0000149) | 7.40 ***<br>(1.23)          |
| Constant                  | 0.70 ***<br>(0.10)       | -19597.53<br>(12501.68)    | 0.53 *<br>(0.30)        | 24851.97 **<br>(10168.20)  | 0.69 ***<br>(0.09)       | 3386.56<br>(15326.87)       |

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level

**Table 7.8. Spill-over effect of for-profit hospitals' services to Medicaid and Medicare inpatient populations between 1991 and 2002**

| Variable                               | Percent Medicaid<br>Inpatient Days |                            |
|--|------------------------------------|----------------------------|
|  | OLS<br>(n=2,951)                   | Fixed Effects<br>(n=2,729) |
| CA                                     | 0.077<br>(0.053)                   |                            |
| TX                                     | -0.041<br>(0.035)                  |                            |
| Not-For-Profit Special Population Load | 0.13 ***<br>(0.04)                 | -0.049 ***<br>(0.017)      |
| Year 94 to 96 · CA · NFP Service Load  | 0.12<br>(0.15)                     | -0.16 **<br>(0.07)         |
| Year 96 to 02 · CA · NFP Service Load  | 0.031<br>(0.120)                   | -0.012<br>(0.041)          |
| Year 93 to 95 · TX · NFP Service Load  | 0.0031<br>(0.0873)                 | 0.0024<br>(0.0231)         |
| Year 95 to 97 · TX · NFP Service Load  | -0.051<br>(0.090)                  | 0.019<br>(0.025)           |
| Year 97 to 02 · TX · NFP Service Load  | 0.0030<br>(0.0761)                 | 0.031<br>(0.022)           |
| Year 94 to 96                          | -0.0025<br>(0.0341)                | 0.030 ***<br>(0.009)       |
| Year 96 to 02                          | 0.0068<br>(0.0467)                 | 0.039 ***<br>(0.013)       |
| Year 93 to 95                          | -0.015<br>(0.037)                  | 0.018 *<br>(0.010)         |
| Year 95 to 97                          | -0.038<br>(0.049)                  | 0.024<br>(0.015)           |
| Year 97 to 02                          | -0.063<br>(0.054)                  | 0.029<br>(0.017)           |
| Year 94 to 96 · CA                     | -0.039<br>(0.077)                  | 0.077 **<br>(0.035)        |
| Year 96 to 02 · CA                     | 0.028<br>(0.062)                   | -0.011<br>(0.021)          |
| Year 93 to 95 · TX                     | 0.011<br>(0.046)                   | -0.00087<br>(0.01189)      |
| Year 95 to 97 · TX                     | 0.066<br>(0.047)                   | -0.021 *<br>(0.012)        |
| Year 97 to 02 · TX                     | 0.030<br>(0.040)                   | -0.033 ***<br>(0.011)      |
| Year 94 to 96 · NFP Service Load       | -0.017<br>(0.062)                  | -0.0048<br>(0.0159)        |
| Year 96 to 02 · NFP Service Load       | -0.087<br>(0.089)                  | -0.0072<br>(0.0238)        |
| Year 93 to 95 · NFP Service Load       | 0.0059<br>(0.0693)                 | 0.012<br>(0.016)           |
| Year 95 to 97 · NFP Service Load       | 0.014<br>(0.092)                   | 0.022<br>(0.024)           |
| Year 97 to 02 · NFP Service Load       | 0.069<br>(0.102)                   | 0.020<br>(0.027)           |
| CA · NFP Service Load                  | -0.27 ***<br>(0.10)                | 0.032<br>(0.048)           |
| TX · NFP Service Load                  | -0.18 ***                          | -0.041                     |

|                           |              |              |
|---------------------------|--------------|--------------|
|                           | (0.06)       | (0.030)      |
| Hospital Size/100         | 0.036 ***    | -0.0047      |
|                           | (0.004)      | (0.0065)     |
| Length of Stay            | -0.025 ***   | -0.0015      |
|                           | (0.001)      | (0.0012)     |
| Freestanding Hospitals    | -0.011       | 0.046 ***    |
|                           | (0.013)      | (0.009)      |
| Teaching Status           | 0.015        | -0.0043      |
|                           | (0.020)      | (0.0076)     |
| Rural                     | -0.0018      | 0.022 ***    |
|                           | (0.0186)     | (0.006)      |
| PPO Contract              | -0.020       | 0.011 *      |
|                           | (0.015)      | (0.007)      |
| HMO Contract              | -0.019       | -0.00051     |
|                           | (0.015)      | (0.00639)    |
| Market Competition I      | -0.11 ***    | -0.065 ***   |
|                           | (0.03)       | (0.024)      |
| Market Competition II     | 0.15 *       | 0.12 *       |
|                           | (0.08)       | (0.06)       |
| Education Level/100       | 0.15         | -0.45 ***    |
|                           | (0.13)       | (0.16)       |
| Percent Elderly/100       | 0.20 *       | -0.32        |
|                           | (0.11)       | (0.20)       |
| Percent non-Whites/100    | 0.15 ***     | 0.0041       |
|                           | (0.04)       | (0.0614)     |
| Unemployment Rate/100     | -0.41 *      | 0.049        |
|                           | (0.23)       | (0.164)      |
| Per Capital Income/1,000  | -0.0012      | -0.0011      |
|                           | (0.0009)     | (0.0008)     |
| Public Hospitals Presence | -0.0050      | 0.011        |
|                           | (0.0104)     | (0.009)      |
| SCHIP/1,000,000           | -0.000054 ** | 0.000064 *** |
|                           | (0.000024)   | (0.000016)   |
| Constant                  | 0.92 ***     | 0.44 ***     |
|                           | (0.14)       | (0.16)       |

Robust standard errors in parenthesis

\* Significant at 10% level; \*\* Significant at 5% level; \*\*\* Significant at 1% level

## **CHAPTER 8**

### **CONCLUSION**

#### **8.1. Summary of findings and study limitations**

The debate on the necessity and appropriateness of charitable tax exemption policy of not-for-profit hospitals is timely and will never be politically obsolete (California Healthline 2005, GAO 2005). As the number of uninsured reached a new height in recent years (California Healthline 2003), the demand for community accountability and needs for community benefits will only increase. This dissertation study offers an in-depth investigation on whether and how community benefit laws improve hospital provision of community-oriented health services, uncompensated care as well as Medicaid inpatient services. It takes a comparative approach to examine policy variations seen in the states of Texas and California before and after the enactment and implementation of the laws, compared to that of the hospitals in the control state of Florida. It also explores market and organizational factors that influence hospital compliance with the state laws. Results of the study show preferential evidence of impact from the Texas state community benefit law on not-for-profit hospitals' community benefit activities. They also reveal that factors influencing private hospitals' willingness and abilities to provide community benefit are many and complex.



The central outcome of this study reveals that Texas not-for-profit hospitals increase their provision of charity care, but California not-for-profit hospitals decrease their community benefit activities in response to the enactment and implementation of respective state community benefit laws. Sutton and Stensland (2003) found similar patterns of organizational behavior where private hospitals in Texas and Washington states provide substantially more charity care than California private hospitals do. Combined, these two studies confirm and strengthen the argument that the prescriptive version of the state community benefit laws is more effective in influencing not-for-profit hospital behavior than the process approach.

In addition, California not-for-profit hospitals' negative reactions to the state community benefit law clearly contradict with the study hypothesis derived from the institutional theory. Two possible scenarios may explain California not-for-profit hospitals' reduction in community benefit activities. One, the traditional regulatory view of institutions where organizations comply with rules out of expediency and based on coercion may be overly simplistic. Rather, as Oliver's organizational strategic response topology (1991) suggests, California not-for-profit hospitals have chosen to defy the requirements of the law due to perceived limited legitimacy and external enforcement. It appears that hospitals assess and weigh their internal assets against external demands and perceived legitimacy before making decisions on whether and how they would respond to the state community benefit law. Two, due to the broad nature of the California statute, not-for-profit hospitals may have responded to the law by focusing their resources on providing one or two community-oriented programs, rather than by increasing the variety of activities available to the

community. In this case, a different analytic approach may be needed to assess the impact of the law on California not-for-profit hospitals.

Texas not-for-profit hospitals, in contrast, increase the amount of charity care contributions consistently upon the implementation of the law and throughout the study period, compared to that of Florida not-for-profit hospitals. This outcome concurs with the predictions of institutional theory. Yet, Oliver's (1991) organizational strategic response topology offers a better interpretation of Texas' hospitals' acceding behavior. Specifically, the stringency of the Texas legislation which articulates a heavy daily fine for delayed reporting and revocation of state property tax exemption for non-compliance poses a real threat to hospitals' financial bottom-line. Due to the public attention given to the law-suit which prompted the development and establishment of state community benefit law, not-for-profit hospitals may also interpret compliance behavior as a means to elevate their social legitimacy and avoid public criticism. Comparatively, results from the main effects' analysis does support the hypothesis that not-for-profit hospitals' willingness and abilities to respond to state community benefit laws are dependent on the stringency of the laws.

In terms of contingency factors attenuating not-for-profit hospitals' abilities to comply with the state community benefit laws, hospital size is one organizational attribute that facilitates these healthcare organizations' compliance with state community benefit laws. Large size often reflects hospitals' financial health and subsequent resource flexibility. This study finds consistently that large hospitals are more likely to offer any community benefit activities at all and are associated with increased contribution to these programs.

Contrary to the study hypothesis, not-for-profit hospitals' network status does not compel them to augment the quantity of their community benefit contributions. In fact, it has

no significant effect on the amount of community benefit activities a not-for-profit hospital provides. Further, it is negatively associated with these hospitals' willingness to participate in community benefit activities after the enactment of the California law and after the second amendment of the Texas legislation. Even though both institutional and resource dependence theories suggest that organizations' interconnectedness with the environment and other organizations facilitate diffusion of values and shared information (Oliver, 1991; DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Pfeffer and Salancik, 1978), the theories do not predict organizations' behavioral patterns given these new knowledge. It is possible that information about network partner's service inventory prevents not-for-profit hospitals from offering the same kinds of services. For those hospitals that have not previously provided community benefit, they may simply rely on their network or systems partners to fulfill the requirements of the obligatory mandate.

As predicted by the study hypothesis, market competition is an environmental contingency factor that positively affects not-for-profit hospitals' willingness to provide community benefit. In California, the within-county hospital market competition helps stimulate the variety of community-oriented programs and the amount of charity and uncompensated care they provide. In Texas, the same kind of competition is associated with an increased level of bad debt and uncompensated care. This outcome appears to agree with the theoretical assumption that competition invokes perception of market uncertainty, hence conformity. Empirically, it again confirms Shortell and colleagues (1986) findings where systems hospitals offer more services when competition is high than when it is low. Policy-wise, it has profound implications on how hospital merger cases may affect the overall state of community benefit and charity care within a geographic area.

Possession of managed care contracts has a positive effect on California not-for-profit hospitals' provision of community-oriented program after the initial enactment of the law. In the case of Texas, managed care decreases the number of community-oriented programs hospitals offer. But, it encourages hospitals' provision of charity care after the second amendment of the law. Unlike previous research outcomes (Gresenz et al., 2007), managed care is not found to unilaterally constrain health care price paid to hospital mainstream services and limit their ability to cross-subsidize free or discounted care for the uninsured. The mixed results, instead, reflect the complexity associated with the notion of managed care. Depending on the types of contracts, saturation of the market as well as the operational philosophy of the companies, the impact of managed care may be very different for not-for-profit hospitals in different states.

The last set of the analytical results show evidence of spill-over effect of state community benefit law onto for-profit hospitals. However, the effects can not be characterized uniformly across states. In California, for-profit hospitals seem to withdraw from offering community benefit services with increases in not-for-profit social investment. Without considering the impact of regulatory interventions, Clement and colleagues (2002) found that California for-profit hospitals provide significantly less charity care as not-for-profit hospitals in the market provide more. Given that the California state community benefit law fails to elevate not-for-profit hospitals' community benefit activities, it is not surprising that for-profit hospitals continue the patterns of service withdrawal and have not experienced any spill-over effect during the study period.

In contrast, Texas for-profit hospitals respond positively to not-for-profit hospitals increase in bad debt and charity care contributions as a result of state community benefit law.

However, these hospitals choose to respond to not-for-profit change of behavior by offering more community-oriented programs, rather than making financial contributions to bad debt and charity care as prescribed by the Texas law. By doing so, Texas for-profit hospitals are able to maintain a good neighbor's image by strategically balancing external demand for community accountability and internal objective of resource efficiency.

One of the major strength of this study lies in the availability of the various pre-post and treatment-control group data. They allows for a rare opportunity to address directly the policy question of whether community benefit laws have had an impact on hospital behavior. However, several scenarios may threaten the validity of this study. For example, there may be other concurrent policy changes. If these other changes affected the treatment and control groups differently and the corresponding variables were excluded from the estimation model, the results of the analysis may be biased. From an up-to-date literature review, most relevant charitable tax policy changes have occurred before the proposed study period. A recent change in Medicaid programs, i.e., the establishment of the State Children's Health Insurance Program (SCHIP), may affect the number of uninsured people in local community and therefore the demand for charity or uncompensated care. Even though the program was implemented in California, Texas, and Florida in the same year, the impact of the program may vary across the studied states due to funding allocation differences. Therefore, a variable indicating the year and amount of state SCHIP installments has been incorporated in the analytical models. It serves to control for the non-random shocks that may have occurred before or after the implementation of state community benefit laws to attenuate hospital provision of community benefit laws differentially in these three study states. The use of a

treatment group and the inclusion of multiple periods before and after the implementation of community benefit laws also reduce the bias caused by non-random shocks.

Another limitation to the current estimation method is that it does not account for an adjustment time that hospitals may need to gear up for the new regulation, resulting in slightly biased downward results after the initial implementation of the laws. An alternative means to assess the impact of the laws and correct the bias would be to create an additional transitional time dummy in the estimation models. Sensitivity tests would be conducted to determine the length of the transitional period.

The effect of the community benefit laws may also be confounded by incidences of hospital conversions. In the event that hospitals change their ownership status due to their inabilities to offer or desire to avoid provision of community benefit services or activities, parameter estimates for the impact of the laws may be biased towards zero. In the study period between 1991 and 2002, there was a reported elevated rate of hospitals ownership conversion. However, prior research showed that at the height of hospital conversion movement, an average of less than 1 percent of hospitals in the country changed their ownership status. Therefore, it is unlikely that the number of hospitals involved in conversion may not be sufficient to cause bias or introduce endogeneity in the analysis.

Measurement errors are another concern in the proposed study. As state governments tighten requirements for charitable tax exemption, it is speculated that hospitals may become more deliberate in documenting community benefit activities and related accounting efforts. While the purposed study will not be able to distinguish community benefit gain caused by the new laws and that caused by accounting changes, it is anticipated that accounting changes alone are not likely to result in a statistically significant gain in community benefit activities

from a longitudinal perspective. To alleviate the effect of false community benefit gain caused by accounting changes alone, hospital community benefit activity trends, gaps and potential jumps, in according to legislative progressions, will be carefully observed and documented. Although it is not the original intent of state community benefit laws, an improved accuracy and consistency in charity accounting mechanism may be a welcomed unintended consequence to the new laws (Sutton and Stensland, 2004).

## **8.2. Policy Implications**

The policy relevance and timeliness of assessing community benefit laws is clear. While the House Ways and Means Committee conducts research on hospital uncompensated care and community benefits in general, this study takes on a specific perspective to examine one of the root causes to hospital behavior in the same vain. Results of this study complements the recent GAO study on not-for-profit uncompensated care (2005) and inform policy makers that different regulatory designs of state community benefit laws (procedural vs. prescriptive) have differential impact on hospitals. More specifically, not-for-profit hospitals respond positively to the prescriptive approach to the community benefit law. Two features of the Texas legislation may be the primary contributors to its effectiveness. One, the Texas legislation defines community benefit clearly in measurable financial terms. Two, the law delineates concise, enforceable non-compliance penalties. As a result, Texas not-for-profit hospitals' bolstered the provision of charity care consistently after the implementation of the law. Their for-profit counterparts also respond positively by offering more community-oriented programs during the same time period. Thus, a clear stipulation of what constitutes community benefit in accordance to the intent of the law is critically important. It

is also important that the law defines community benefit in measurable terms. Finally, specification of a non-compliance penalty provides additional incentive for conformity. Since community health needs are often vast and nebulous, no regulatory measure could possibly resolve all the health needs of communities and the rising number of uninsured and underinsured at once. As not-for-profit hospitals heed regulatory control according to its legislative language and definition of community benefit, policymakers must first consider thoroughly and carefully the legislative intent and priorities, desired outcome and target audience before drafting the law.

Past research has found that hospital provision of uncompensated care is influenced by policy and market changes and these patterns vary by ownership groups (Davidoff et al., 2000). Results of this study confirm that hospital size positively attenuates their provision of various community benefit activities. In this case, should the government subsidize small hospitals for their community benefit activities? Both network and managed care statuses yield opposite effects on California and Texas not-for-profit hospitals compliance behaviors. Policy makers cannot unilaterally characterize the effects of these factors on hospital behavior. Finally, market competition compels not-for-profit hospitals to boost their provision of charity care in both states. Promoting a healthy level of market competition in fact helps to elevate services for the poor. Insights about how organizational and market conditions affect hospitals' compliance with regulatory demands allow policy makers and health services researchers to understand and predict hospital behaviors. They also provide information about how states may capitalize on their environmental as well as organizational assets in the design and modification of community benefit laws and other hospital-related policies. In particular, the positive association between market competition and charity care



also offers valuable insights to the U.S. Federal Trade Commission, the Antitrust Division of the U.S. Department of Justice and federal courts that decide hospital merger cases.

State community benefit laws' indirect influence on for-profit hospital supply of community benefit is evident, however unpredictable. Depending on historical and current local politics, contemporary market conditions, and the state legislative languages, for-profit hospitals are seen to reduce their provision of community benefit in California or complement their not-for-profit counterparts by offering alternative forms of community benefit activities in Texas. Outcomes of this study indicate that it is critical to acknowledge and understand the interactive relationship between for-profit and not-for-profit hospitals. This knowledge provides a more complete and well-rounded framework for policy and decision makers from which to understand the hospital industry and its inner workings. It also facilitates the policy formulation process where laws and regulations can be crafted to optimize the potentially complementary relationship between for-profit and not-for-profit hospitals.

Finally, state community benefit laws are an important health policy whose impact can be extended beyond its current form. Concerning the recent billing and collection practice controversy surrounding not-for-profit hospitals around the country (Unland, 2004; Moroney et al., 2004; Geyer, 2004), state community benefit laws may be one avenue where policymakers could standardize these hospital financial practices with regard to indigent care. As states strive to regulate and potentially raise the level of community benefit provided by hospitals, they also need to help hospitals balance and manage the demand as well as the cost of these services. Setting a definition and measurable guideline for hospital provision of community benefit as well as a standard for hospital financial and billing practices will not

only help these institutions better manage their community benefit resources, but also facilitate future research in this area of health services.

### **8.3. Directions for Future Research**

This study on the effect of state community benefit laws on hospital provision of community benefit offers one unique and important perspective to the perpetual hospital charity care debate. More importantly, its interesting outcomes bring forth additional inquiries and opportunities for future empirical and theoretical research. For example, the states of California and Texas are selected to represent generally the procedural and prescriptive approaches to state community benefit laws in this study. There may be unique characteristics about these two particular versions of the law within the general approaches that are not shared by other state policies. Therefore, the effect of state community benefit laws may be explored in many other ways in greater detail. As more states begin to enact and implement their community benefit laws, there will be more nuances and variations added to these regulatory policies. This study can be replicated to examine the effect of these laws in different localities and settings.

Under the current study design, community-oriented programs are aggregated into a composite index. However, each program may have its unique community and hospital appeal as well as profit margin. It may be interesting to examine the relationship between each program's profit margin and hospitals' willingness to offer such service in response to community benefit laws.

Several unexpected outcomes from this study also raise future empirical research opportunities. First, California not-for-profit hospitals are found to decrease their provision

of community-oriented programs in reaction to the law. It is possible that they have devoted resources to fewer high-impact community health programs. A qualitative study on the annual community benefit reports submitted to the OSHPD office may be able to provide further insight on how California not-for-profit hospitals allocate their community benefit resources. Second, hospitals' network status is found to impede their participation in community benefit activities. It may be interesting to test how organizations utilize shared values and information obtained from their networked partners.

The notion of relative trustworthiness may add an interesting dimension to the spill-over analysis. In 2005 Schlesinger et al. studied the relative trustworthiness of not-for-profit and for-profit health plans. They found that not-for-profit hospital presence must reach a minimum threshold in order to influence for-profit hospital behavior and performance in the same locale. Applying the same theory, there may be an optimal not-for-profit hospital presence required in order that for-profit hospitals would respond to state community benefit laws in a positive fashion. Future research on the subject can also incorporate the threshold effects theory to explore the differential impact of varying market share conditions on hospital behavior.

Theoretically, outcomes of this study highlight the inadequacies of institutional theory alone in describing hospitals' response to community benefit laws. Rather, they intimate organizations' proactive interactions with external environmental pressures, partially validating Oliver's typology of strategic response to institutional processes (1991). Capitalizing on variations in social political environments and community benefit laws, states' experimental efforts with these new regulations afford an ideal scenario to further test Oliver's (1991) theory empirically.

Finally, studies on hospital tax exemption status cannot avoid evoking several fundamental policy questions. One, how is community benefit defined? Two, what is the right or optimal amount of community benefit necessary to merit tax exemption? Three, is it fair to ask only not-for-profit hospitals to share the burden of the under- and uninsured? While it is difficult to answer these questions directly, this study results show that hospitals strategically offer various aspects of community benefit to meet local health needs as well as fulfill regulatory requirements. A singular dimensional examination of community benefit often lacks depth and does not provide full insight into hospitals' service intentions and contribution. In terms of hospitals' financial expenditure on community benefit, some states have used tax savings to benchmark and evaluate their social commitment. More studies are needed to examine its advantage and disadvantages, as well as to explore alternative formula for community benefit accounting. The role of not-for-profit hospitals in sharing and alleviating the burden of the under- and uninsured is not merely academic, but largely philosophical. Some have advocated for not-for-profit entities based simply on virtue. Others insist on a more functional existence. As the debate continues, future health services researchers must think more creatively and contextually about the problems of the uninsured, their lack of access to health services, as well as hospital's roles in filling such service gaps.

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