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***Ownership Conversion and Closure in the Nursing Home
Industry***

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Abstract: This paper analyzes closure and ownership conversion in the nursing home industry after an exogenous policy shock. Using merged data from Medicare Cost Reports and the Online Survey Certification and Reporting (OSCAR) system, separate multinomial probit models are estimated for not-for-profit (NFP) and for-profit (FP) facilities to determine the probability that facilities convert or close. NFPs that convert to FP benefited from the new market structure and FPs divest facilities that are unprofitable. In the case of closures, the factors that determine closure are similar for NFPs and FPs. FPs and NFPs tend to behave differently when they benefit from changes in market structure, but when facilities are struggling for survival both NFPs and FPs may implement similar strategies.

JEL Codes: I11, I18, L21, L30

Keywords: Not-for-profit, For-profit, Closure, Conversion, Nursing Homes

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1. Introduction

During the 1980s and 1990s there was a significant number of not-for-profit (NFPs) hospitals that converted to for-profit (FP) status or FP to NFP. These conversions in the hospital industry captured considerable attention because they were thought to effect the amount of uncompensated care provided by hospitals, reduce quality, and impact hospital reinvestment in the community (Gurewich, Prottas, and Leutz, 2003; Thorpe, Florence, and Seiber, 2000; Shen, 2002, 2003; Sloan, 2002; Farsi, 2004; Picone, Chou, and Sloan, 2002). There are many theories as to the causes of ownership conversions, but the general consensus is that ownership conversions are a response to dynamics in the legal and market forces that occur in an industry (Mark, 1999; Marsteller et al, 1998). Most work that studies the reasons for conversions focuses on case studies or descriptive statistics and is largely restricted to the hospital and health maintenance organization industries.¹ The few papers that empirically test the causes of conversion found that facilities that converted have lower profit margins and are in more competitive markets (Sloan, Ostermann, and Conover, 2003; Mark, 1999; Castle, 2005), but these papers do not specifically study the choice to convert after a significant change in the market.

This paper extends the literature on the causes of ownership conversion by studying the choice of private nursing home facilities to close or convert from FP to NFP and NFP to FP after a significant change in the structure of the market. The Balanced Budget Act of 1997 (BBA), which changed Medicare reimbursement for skilled nursing, provides an exogenous shock to the market structure of the nursing home industry and caused many nursing homes to reexamine their choice of ownership status. To my knowledge, this is the first study that looks at the causes of ownership conversion and closure after a large structural change in the nursing home industry.² The choice to examine ownership conversion and closure after the BBA is not arbitrary. When the market is in equilibrium, facilities are converting or closing due to some form of path dependency and the choice of an arbitrary year to capture baseline characteristics may lead to different results depending on the year chosen. By measuring initial facility characteristics in the last year of the old regulatory regime, the policy shock of the BBA disrupts the previous ownership paths that facilities had and allows for identification of the determinants of conversion and closure independent of previous ownership path dependence. Therefore, this paper

¹ See Needleman, Chollet, and Lamphere (1997); Gray (1997); Marsteller et al. (1998); Cutler and Horwitz (2000).

² Castle (2005) studied nursing home conversions and closures in the nursing home industry for the period of 1992 to 1998, but this article differs in some important ways. First, a policy shock is used to eliminate any bias that would be caused by arbitrary choice of the baseline year. Second, the choice to convert or close is different for each ownership status and separate models are estimated based on the initial ownership status of facilities before the policy shock. Third, Medicare Cost Reports are used to obtain information on the financial characteristics of each facility. And finally, the models are estimated with multinomial probit because Hausman and McFadden (1984) tests found the independent of irrelevant alternatives assumption is violated.

doesn't study the impact of the BBA, but instead uses the BBA to draw inference on how NFPs and FPs objectives differ by studying the responses to the policy shock.

2. Motivation for Conversion and Closure

The motivation for conversion is rooted in the legal form that was initially chosen by the founder of the organization.³ The market and legal system places constraints on objectives.⁴ Since these constraints differ for NFPs and FPs, a founder will choose the ownership status that is most conducive to the founder's goals. In particular, NFPs have the advantage of access to tax-deductible contributions and tax-exemption from property, state, and federal taxes (Goddeeris and Weisbrod, 1998). Although these lower the cost of production for NFPs, any profits they generate would be legally restricted from being distributed to employees or board members by the nondistribution constraint (Hansmann, 1980). Therefore, founders that put larger weight on objectives that are not related to profitability, such as providing higher quality or better access to care, would establish their organization as NFP. However, NFPs have some disadvantages when compared to FPs. FPs have access to equity and other capital markets. Further, they have organizational structures that allow them to respond faster to the dynamics of the market (Jensen and Ruback, 1983) and any profits they generate can be distributed to owners and management. This flexibility to raise capital gives FPs a competitive advantage to quickly expand facilities and adapt business strategies that are responsive to new market conditions.

Given these legal and market constraints, the choice to convert can be thought of as a rethinking of the objectives in which the firm was originally founded. For example, changes in the legal and market structure can create financial pressure, or provide opportunities that could benefit or disadvantage a certain ownership status. Conversions are a strategy that a firm could use in response to these market and legal dynamics. This is illustrated in the model that Sloan, Ostermann, and Conover (2003) use to predict FP to NFP conversions in the hospital industry. In their model, a profit-maximizing FP hospital would sell a facility if the net present value of the sale price is larger than the net present value of running the hospital. Even if the net present value of running the hospital is negative, a NFP could be willing to purchase the hospital because they would have lower costs due to their tax-advantages and may be able to cover deficits with private and public donations. Therefore, it is expected that if market dynamics cause a FP facility to become unprofitable or have low profit margins, the facility may be sold to a NFP that could reduce costs and operate at near zero profits (Cordes and Weisbord, 1998).

³ Ballou (2008) studied entry of nursing homes in rural markets and found that NFPs and FPs nursing homes typically enter markets that have similar expected profitability.

⁴ Santerre and Vernon (2007) provide a review on ownership differences in the nursing home industry.

In contrast, NFPs may convert to a FP to access new capital or because the firm's objectives have changed and the management wants to extract profits from the organization. In the first case, NFPs would convert to access capital markets that are only available to FPs (Gray, 1997; Hollis, 1997; Cutler and Horwitz, 2000; Sloan et al, 2003). For example, an improvement in medical technology during the 1990s caused hospitals to invest in new technology in order to gain a competitive edge. Hospitals could not increase prices because of managed care. This caused many NFP hospitals to convert to FP in order to access new capital. In the second case, changes in market conditions or the objectives of the organization could cause long established NFPs to generate large profits. The nondistribution constraint of NFPs legally restricts the use of these profits to promotion of the organization's mission. Therefore, conversion to FP status could be used to access these profits and distribute them to stakeholders (Goddeerus and Weisbrod, 1998).

Even though NFP to FP conversions are likely to occur because of the need to access capital or a change in objectives, the conversion process still faces additional hurdles that are not present in a conversion from FP to NFP. Resources are required in order to transform the objectives of the organization. Once the board and senior staff members agree to the change in mission, the organization still needs to obtain regulatory approval.⁵ Since the cost of obtaining regulatory approval could be different for each state and local market, the conversion rate from NFP to FP will vary across states and within states.

In contrast to conversions, closures occur in facilities that are financially weak and cannot easily adapt to changes in the structure of the market. Harrison (2007) studied hospital closures in the 1980s and 1990s after the implementation of reimbursement changes in Medicare and found that weak productivity is a strong determinant of closure. Ciliberto and Lindrooth (2007) also studied the hospital industry and found the lower reimbursement increased the probability of exit. They further found that conditional on reimbursement levels, hospital efficiency was not a significant determinant of closure in the early 1990s, but less efficient hospitals were more likely to close in the middle to late 1990s. In the nursing home industry, California nursing homes are more likely to close if they had fewer beds and have significant losses from operations (Kitchener et al., 2004). Castle (2005) looked at nursing homes between 1992 and 1998 and found that facilities in more competitive markets are more likely to close or convert. Although there is some empirical evidence for which facilities close, there are few studies that have looked at how these decisions vary by ownership status.

⁵ Brody (2006) provides a review of legal issues related to not-for-profit changes in purpose, sale, merger, and conversion.

3. The Policy Shock of the Balanced Budget Act

This section discusses the BBA and how it impacted nursing home facilities. The BBA was a response to the problems in how Medicare reimbursed for skilled nursing. Prior to 1998, Medicare reimbursed nursing facilities on a fee-for-service (FFS) basis for skilled nursing care. Under the FFS reimbursement mechanism, Medicare reimbursed separately for capital costs, routine services, and ancillary services. Facilities were paid under a cost-plus mechanism with different rates for routine services and ancillary services. The routine services of general nursing, room and board, and administrative expenses were subject to reimbursement limits. Further, most skilled nursing home patients require the use of ancillary services, such as physical, occupational, and speech therapy. Since ancillary services were not subject to reimbursement limits, facilities could increase their revenue from Medicare through the provision of ancillary services (Dummit, 2000).

The generous reimbursement of FFS resulted in an increase in the total number of facilities certified for Medicare skilled nursing care. From 1985 to 1997, the number of certified facilities grew 136 percent, from about 6,300 to over 14,900 (Dalton and Howard, 2002). By 1999, the number of beds certified for Medicare increased to 90% of all nursing home beds (Harrington et al., 2006). The increase in the supply of beds certified for Medicare and the incentives of the FFS system caused skilled nursing to become the fastest growing expenditure by Medicare in the 1990s (US GAO, 1999).

The rise in Medicare spending on skilled nursing prompted Congress to include a provision within the BBA that changed the reimbursement system for skilled nursing home care from FFS to the Prospective Payment System (PPS). The PPS provided a fixed per diem rate designed to cover routine services, ancillary services, and capital costs. The fixed payment was adjusted for severity by classifying each patient into resource utilization groups. Regional adjustments were made to account for differences in nursing wages by geographic region. The system first affected facilities at the beginning of their next fiscal year on or after July 1, 1998.⁶

The PPS system reduced the average reimbursement for skilled nursing care to 1995 levels and transferred financial risk to the nursing home. The legislation decreased Medicare's average per-diem reimbursement by 9% (Dummit, 2000) and reduced the revenue that skilled nursing facilities received from Medicare by two billion dollars in fiscal year 1999 (Medicare Payment Advisory Commission, 2003). The financial burden on facilities became evident when the five largest FP nursing home chains, accounting for 12% of all nursing facilities, filed for bankruptcy protection by the middle of 2000 (Dummit, 2000). Although the reimbursement change only affected payment for Medicare patients, a

⁶ In the first year, facilities were reimbursed 25% of the PPS payment and 75% of the payment they would have received under FFS. Each subsequent year, the proportion of the PPS payment increased by 25% until 100% was reached in 2002 (Konetzka et al., 2004). A later amendment to the legislation allowed facilities to receive 100% of their payments under PPS if they were advantaged by the system (US GOA, 2002a).

number of studies have shown that the BBA affected all nursing home residents (Konetzka et al., 2004; Konetzka et al., 2006; and Unruh et al., 2006). This effect arises because facilities provide care to two types of residents. Some residents require skilled nursing after hospitalization. This is primarily paid for by Medicare or private health insurance. The remaining residents require long term care which is primarily paid for by Medicaid or out-of-pocket. Since Medicaid reimburses at rates that only cover variable cost, facilities rely on Medicare reimbursement to cover fixed costs and earn a profit (US GAO, 2003; Troyer, 2002). The difference between the Medicaid reimbursement rate and average cost per patient day has been estimated at \$-12.58 (BDO Seidman, 2005). This causes Medicare to be an important source of revenue for nursing homes.

The BBA impacted the trend in the number of closures and conversions after its passage. Between 1990 and 1997 there were over 600 net entrants into the skilled nursing home market each year. However, after the passage of the BBA, the closure rate increased to a 15 year high, resulting in a net reduction in the number of facilities between 1998 and 2000 (Dalton and Howard, 2002). Similarly, the number of ownership conversions was impacted by the BBA. On average, from 1994 to 1998 there are 62.6 facilities that converted from FP to NFP each year, while for the same period, there are 55.6 NFP to FP conversions each year. For the period of 1999 to 2004, the number for FP to NFP conversions increased to 139 per year and the number of NFP to FP conversion increased to 122 per year (Grabowski and Stevenson, 2008).

4. Empirical Model of Conversion and Closure

Under FFS, facilities were reimbursed a fixed price for boarding (b) and reimbursed for ancillary services (a) under a cost-plus regime. If ω represents the efficiency level of the nursing home, the profit of a facility under FFS of ownership type i can be written as

$$\pi_i^{FFS} = P_b Q_b + P_a (AC_a(Q_b, Q_a, \omega)) Q_a - C_i(Q_b, Q_a, \omega)$$

where P represents price, Q represents quantity, $AC_a(Q_b, Q_a, \omega)$ is the average cost of producing ancillary service, and $C_i(Q_b, Q_a, \omega)$ is the cost of producing boarding and ancillary services which can be different for FP and NFP facilities. Boarding patients may be unprofitable to the facility, and since facilities must board patients to provide ancillary services, facilities can use the profits from providing ancillary services to subsidize the losses from boarding patients. Further, because reimbursement for ancillary services are a function of the average cost of providing ancillary services, a facility with high average costs could be profitable under a FFS reimbursement regime.

Unlike FFS, PPS bundled the price of ancillary services and boarding into one per diem price, P_{PPS} . The bundled price was higher than the price of boarding, but low enough to cause a decrease in total revenue for the average facility based on equilibrium output of ancillary services and boarding under

FFS. Further, the bundled price was adjusted for the severity of the resident, but for simplicity it is assumed all residents have the same level of severity. The change in reimbursement regime made the expected profit of a facility become

$$E[\pi_i^{PPS}] = P_{PPS}Q_b - C_i(Q_b, Q_a, \omega)$$

where Q_a is nonnegative and set high enough as to not be decertified by Medicare or face a lawsuit for not providing proper care.

The impact of the regulatory regime change depended on the efficiency level of a facility, if the facility cross-subsidized boarding with ancillary services, and the ability of the facility to reduce costs. Regardless of ownership status, the BBA placed a disproportionate amount of burden on nursing facilities with lower efficiency and greater reliance on Medicare skilled nursing for their profitability. Facilities could reduce the cost by lowering the amount of ancillary services provided to each patient.⁷ In some cases, facilities that cross-subsidized other areas of care with ancillary services would become unprofitable regardless of these cost cutting measures. In contrast, there were some facilities that could have benefited. The amount of reimbursement received under PPS was based on the cost of treatment for all facilities in the United States, with some adjustment for regional wage differences. Under the FFS system, facilities were reimbursed based on the cost of providing care to patients in their facility. Therefore, facilities that efficiently provided care under FFS could have had a significant increase in their reimbursement rates under PPS. For all facilities in this situation, it would have increased their expected profit.

FPs that are profitable after the implementation of PPS would try to increase market share and would have no incentive to convert to NFP status. In contrast, FP facilities that had negative expected profits under PPS would attempt to exit the market. For any given input mix, NFPs may have lower cost structures because of the use of volunteers and the ability to cover deficits with private and public donations (Sloan et al., 2003). This could make marginally distressed FP facilities convert to NFP either through a change in ownership status or sale to a NFP organization. However, if the expected profitability is significantly low, the facility would close. These observations suggest the choice of a FP to remain open as a FP, convert to a NFP, or close would depend on expected profit under PPS in the following way:

Remain Open	$E[\pi_{FP}^{PPS}] \geq 0$
Convert to NFP	$E[\pi_{FP}^{PPS}] < 0 \text{ \& } E[\pi_{NFP}^{PPS}] \geq 0.$
Close	$E[\pi_{FP}^{PPS}] < 0$

⁷ A US GAO (2002b) report found that nursing homes had reduced the number of therapy minutes for medium to high need patients by 22% from 1999 to 2001.

The implications of the regulatory regime change for NFPs are slightly different than for FPs. NFP facilities with significantly high costs and more reliance on ancillary services would to close because FPs would not purchase a NFP facility that has a negative expected profit. In the case of marginally distressed NFPs, they could finance deficits with donation and endowment income until there was an increase in reimbursement or costs could be significantly reduced. If these costs could not be reduced, some marginally distressed NFPs could turn to a FP for survival. In the case of low cost NFPs, the switch to PPS would have generated larger profits. These profits would have to be reinvest in the mission of the organization because of the non-distribution constraint. If the potential profits were large enough, the facility could have the incentive to convert to a FP either through an asset sale or a change in legal status. Regardless of the level of profitability, not all NFPs would convert because some facilities would not want to change their mission. Therefore, the specific strategy used by NFPs would depend on the efficiency of the facility and the willingness of management to change the mission of the organization. In the contexts of expected profits, NFPs would behave in the following manner:

$$\begin{array}{ll} \text{Convert to FP} & E[\pi_{FP}^{PPS}] \geq 0 \\ \text{Remain Open} & E[\pi_{NFP}^{PPS}] \geq 0 \\ \text{Close} & E[\pi_{NFP}^{PPS}] < 0 \end{array}$$

Since expected profit is not directly observed, one can infer expected profits by observing which facilities closed or converted. The empirical technique, which is motivated by Doms et al. (1995), is to estimate a discrete choice model that has the dependent variable that identifies if the facility remained open with the same ownership status, converted to a new ownership status, or closed over the period of 1998 to 2004. The probability of each of these events is a function of observable characteristics measured in 1998. These characteristics include measures of efficiency, reliance on ancillary services, ability to reduce costs, financial strength of the facility, and other characteristics that can impact the expected profit under PPS. If U_{ij} represents the utility of facility i associated with strategy choice j , Z_i is a set of facility, county, and state characteristics that are similar across all strategy choices, and ε_{ij} is the idiosyncratic error term then the empirical model becomes a probabilistic choice model

$$U_{ij} = Z_i \beta_j + \varepsilon_{ij}$$

that is estimated as a multinomial probit. The multinomial probit is used because it does not suffer from the property of independence of irrelevant alternatives that is associated with a multinomial logit specification (McFadden, 1974).⁸ Further, the model is estimated three different ways: using an indicator variable for ownership status in 1998 and separately for facilities that are initially a FP and for those that

⁸ Hausman and McFadden (1984) tests found that the logit specification violates the independence of irrelevant alternatives (IIA) in some regressions. The model is estimated as multinomial probit because the probit specification does not have IIA property. Robustness checks show that the probit and logit specifications have marginal effects with similar size and statistical significance.

were initially a NFP. The regressions are run separately for NFPs and FPs because the effect of the explanatory variables on the probability of conversion is expected to be different by initial ownership.⁹ This allows for comparison of coefficient estimates between models to determine if patterns of conversion and closure are different by ownership status.

5. Data and Analytical Variables

The data sources are the Medicare Cost Reports for skilled nursing facilities merged with the Online Survey Certification and Reporting (OSCAR) System. The cost reports included all free-standing nursing homes that are certified for Medicare with a cost reporting period of at least 300 days that began in the year before implementation of PPS (July 1, 1997 to July 1, 1998). The cost reports are merged with OSCAR data and additional sources to obtain baseline facility characteristics on all free-standing facilities in the contiguous United States. Baseline characteristics are measured for facilities that were certified for Medicare in 1998, the year before the implementation of PPS. By following the ownership path of each facility through 2004, facilities are classified into three possible strategies: stay open with ownership status unchanged, convert to a new ownership status, or close. Ownership status is constructed from OSCAR, which validation studies have found to be a reliable source for information on nursing homes (Intrator et al., 2005; Harrington et al., 2005; Feng et al., 2005).

5.1 Dependent Variable

The dependent variable is the choice of a facility by the end of 2004 to implement a strategy of closure, conversion, or stay open with the same ownership status. To identify which strategy is used, facilities that closed or converted by 2004 are identified by examining the OSCAR survey history of each facility from 1998 to 2007. A facility is determined to have closed if there were no additional OSCAR surveys for at least three full calendar years. Although the average facility is surveyed on twelve month intervals, some facilities can have gaps between surveys of sixteen months. Therefore, the use of three years provides a conservative time frame to verify the facility closed. In the case of conversions, an ownership conversion is identified as a change in the facility ownership between surveys. Using the OSCAR survey history, each facility is classified into one of three strategies: remain open with ownership status unchanged, convert, or close.¹⁰

There are a total of 7,841 facilities in the dataset, excluding facilities that are a government facility any time between 1998 and 2004. Table 1 reports the sample size by facilities that are FP and

⁹ Chow tests indicate that NFPs and FPs have coefficient estimates that are different.

¹⁰ There are thirty-four cases in which a facility converted and subsequently closed by 2004. These cases are treated as closures. Further, thirteen facilities are excluded because they converted twice between 1998 and 2004.

NFP in 1998 and reports the number of conversions and closures by year. There are a total of 5,970 FP facilities in 1998, of which 3.1% convert to NFP and 4.4% close by 2004. Most of the conversions occur in 2002 and there is a steady increase in the number of closures until 2001. In contrast, there are 1,871 NFP facilities in 1998, but the conversion rate is significantly higher than FPs. Nearly six and half percent of all NFP nursing homes convert to a FP facility while only 3.3% of them close. Similar to FPs, NFPs experience an increase in the number of closures and conversions around 2002. This is consistent with impact of the BBA because firms would need time to assess their financial status. Once this assessment is complete, a facility would need to find an acquirer or obtain regulatory approval to close. This could result in the actual conversion of ownership status or closure to occur a few years after the implementation of the BBA. In fact, because the PPS was phased-in with full implementation in 2002, there is a spike in the number of conversions that occur in 2002. This pattern is was also found by Grabowski and Stevenson (2008).

5.2 Explanatory Variables

The probability of conversion and closure is determined by the expected profit under the new reimbursement regime. This expected profit is a function of the efficiency of the facility, reliance on Medicare and ancillary services, the ability of the facility to reduce costs, financial strength of the facility, and other mitigating factors.

In most studies that model exit, efficiency is not directly observable. As a consequence, differences in firm size and age are used as proxies for unobservable cost (Jovanovic, 1982; Ericson and Pakes, 1992). The size of facility is measured in terms of the number of beds and the age of the facility is the number of years the facility is certified for Medicare. In addition to these proxies, the Medicare cost reports contain information on the costs of providing care for Medicare residents. Facility costs are measured by adjusted per diem cost¹¹ and per diem ancillary service cost. In addition to these variables, facilities that are part of a multi-facility organization may have lower operational costs because of standardization of practices. Therefore, an indicator variable for chain membership is included in the efficiency variables.

The amount of revenue the facility generates from Medicare and ancillary services can impact expected profits. Facilities with greater reliance on Medicare will be impacted from the change in reimbursement regimes, with the impact moderated by the proportion of Medicare revenues that were obtained from Medicare managed care organizations. Since Medicare managed care negotiates prices separately from traditional Medicare, facilities that are in markets where Medicare managed care

¹¹ Adjusted per diem cost is total general inpatient routine service costs net of private room cost differentials per inpatient day.

penetration rates are high could be more or less impacted from the change in reimbursement regimes.¹² If providing care for Medicare residents becomes unprofitable, the ability of the facility to become profitable will be determined by its ability to switch to residents using alternative payment sources or have lower costs to provide care. One of these payment sources is Medicaid. However, Medicaid reimburses at relatively low rates and the success of switching to Medicaid is dependent on the level of Medicaid reimbursement in the state. To capture the impact of exposure to Medicare, the proportion of residents on Medicare and Medicaid are obtained from OSCAR, while the Area Resource File provides the penetration rate of Medicare managed care in the county for 1998. The state average Medicaid reimbursement rate for 1998 is used to capture the relative profitability of switching to providing care to Medicaid residents and information for this variable is obtained from Grabowski, Feng, et al. (2004).

Another important aspect of the facility that will determine expected profit is the ability of the facility to reduce costs. The primary input and cost of providing nursing home care is nursing staff. Nursing staff is broken into three categories based on their nursing certification: registered nurses (RNs), licensed practical nurses (LPNs), and certified nurse aids (CNAs). Facilities are required to maintain a minimum level of nursing staff by law and most facilities keep these levels close to the minimum requirement. Even if a facility is near minimum staff requirements, facilities can have different cost structures because they have some discretion over the composition of nursing staff. For example, registered nurses are the most expensive type of nursing staff while certified nurse aides are paid near minimum wage. Facilities that could adjust their staffing levels and composition could be less likely to close because they may be able to reduce the cost of care. All staffing levels were measured in terms of hours per resident day (HPRD) to standardize across facilities of various sizes. Further, two additional staffing variables are included: a binary indicator if the nursing home used any contracted staff and the minimum direct staff required in the state (Harrington, 2001).

Facilities with greater financial strength may have a greater ability reduce costs or find a potential buyer because of the increased time a strong financial position affords them. The current ratio is included as a measure of liquidity, while profitability is measured by the profit margin from providing services to patients. The patient profit margin variable is dichotomized into three groups: negative patient profit margin, patient profit margins of zero to five percent, and above five percent. In addition to these financial measures, the occupancy rate is also included as a measure of financial strength.

¹² Medicare recipients have the option of enrolling in a Medicare managed care. Medicare managed care organizations negotiate reimbursement with nursing facilities separately from traditional Medicare and tend to have reimbursement levels that are lower than traditional Medicare. Further, Medicare managed care organizations were not required to change payments because of the BBA.

The ability of a facility to reduce costs is mitigated by the case-mix of the residents in the nursing home. Two nursing homes with similar levels of efficiency could have significantly different cost levels because one facility treats residents that have more serious medical conditions. Case-mix variables are included in the regression to measure the physical and mental need of the residents. These variables include a measure of the physical acuity level of the residents, the proportion of residents diagnosed with dementia, the proportion of residents diagnosed with psychiatric illnesses other than dementia, and a binary indicator for presence of an Alzheimer's special care unit (SCU). The physical acuity level of the residents in each nursing home is measured by the Acuinindex, which is a measure that incorporates the activities of daily living index and the proportion of residents that require special treatments (Cowles, 2002).

Although efficiency, reliance on ancillary services, and the ability to reduce costs are the largest drivers of expected profit, facilities may be willing to take short term losses if the facility is located in a fast growing market that will be profitable in the long run. Long term profitability can be determined by long run demographic trends that will cause an increase in demand for nursing home services. However, growth in supply of skilled nursing home beds and higher levels of competition could reduce the demand to any specific facility. Demand and supply for nursing home care is measured at the market level with the market defined as the county.¹³ The variables of growth in the per capita income, population growth rate of persons aged 85 or higher, the growth in the number of skilled nursing facility beds are measures of demand and supply. These variables are obtained from the Area Resource File.¹⁴ The level of competition is measured by the Herfindahl-Hirschmann index for 1998. OSCAR is used to construct the Herfindahl-Hirschmann index.

Two additional set of controls are included. The first set of controls is a variable related to the willingness of regulators to allow NFPs to convert to FP and a variable to measure the potential tax advantage of such a conversion. Regulators have the ability to restrict entry and exit from the local health care market which can influence the conversion and closure rate of nursing homes. This rate is correlated with the preference of regulators for FPs in the production of health care. The change in the proportion of hospitals that are FP in the state from 1993 to 1998 is used as a proxy for regulatory willingness to allow NFPs to convert to FP. Data for this variable is obtained from the American Hospital Association (2002). In addition to regulatory willingness, NFP facilities may be more willing to convert to FP if marginal corporate tax rates are lower. Included in the regression is the highest marginal

¹³ The use of the county as the relevant geographic market in nursing home research is common because of a lack of national patient flow data (Grabowski and Hirth, 2003; Castle 2005; Zinn, 1994).

¹⁴ The county level variable of growth in per capita incomes is based on the percentage change from 1993 to 1998, the ten year growth in population age 85 and above is based on the growth from 1990 to 2000, and the growth in the number of skilled nursing home beds is the five year growth from 1994 to 1999.

corporate tax rate for each state in 1998 (Tax Foundation, 2007). The second is a set of binary indicators for region and a binary indicator for rural facilities based on Rural-Urban Commuting Area Codes (WWAMI Rural Health Research Center, 2007). These variables are included to capture regional variation in closures and conversion.

6. Results

6.1 Sample characteristics

Table 2 reports summary statistics for FPs and NFPs by the strategies of staying open with the same ownership status, conversion to a new ownership status, and closure. Among the efficiency measures, the pattern of average characteristics is similar across ownership types. Facilities that close have fewer beds, are part of a chain, are certified for Medicare for fewer years, and have higher adjusted per diem costs. The efficiency characteristics of facilities that convert have averages that are between facilities that close and stay open with the same ownership status. As may be an indication of NFPs that benefited from PPS converting to FP, NFPs that convert have the lowest average ancillary service cost per diem (\$8.08) among all facilities. This compares to \$8.24 for NFPs that stay open with the same ownership status and \$9.83 for NFPs that close. In addition to ancillary service costs, NFPs that close or convert have a greater proportion of facilities that are part of chains than NFPs that stay open.

Seventy-five percent of residents in FP facilities that close have a primary payment source of Medicaid compared to about 68% of residents in FPs that stay open or convert. In NFPs, the average proportion of residents on Medicaid is 55.4% for those that do not change ownership status, 69.5% for those that convert to FP, and 65.7% for those that close. There is some variation in the proportion of residents with Medicare by ownership status and strategy but the size of the variation is small. There is no significant variation by strategy in the variables that measure the ability of a facility to reduce costs, although FP facilities have lower staffing levels than NFP facilities. Financial strength differs by strategy. In both FPs and NFPs, facilities that close have lower current ratios and have a greater proportion of facilities with negative patient profit margins than the other strategies. The proportion of FP facilities that reported negative patient profit margins is 42.1% for facilities that stay open as a FP, 54.0% for facilities that convert to NFP, and 69.0% for facilities that close. This compares to 65.2%, 74.2%, and 80.3%, respectively, for NFP facilities. In addition, both FPs and NFPs that close have lower average occupancy rates than their ownership counterparts that stay open or convert.

Regardless of ownership status, facilities that close have a greater proportion of residents with psychiatric illness, but NFPs have fewer residents with psychiatric illness than FPs. The case-mix variable with the largest variations is the presence of an Alzheimer's special care unit. Only sixteen percent of NFPs that convert or close have an Alzheimer's special care unit compared to 28.3% for NFP

facilities that do not change ownership. The highest proportion of facilities that had a special care unit among the FPs are those that convert to a NFP (23.5%) while FPs that stay open and close have significantly lower proportion of facilities with an Alzheimer's special care unit (16.8% and 14.2% respectively).

Supply and demand factors are different by strategy. FP and NFP facilities that close are in markets that have lower levels of concentration and had slower growth in the number of persons aged over 85. The average NFP that converts to a FP is in market that is more concentrated and had a faster rate of growth of elderly than NFPs that closed or stayed open. NFPs that convert are also in states with lower marginal corporate tax rates.

6.2 Multivariate Results and Marginal Effects

The coefficient estimates of the multinomial probit regressions are reported in Table 3, and for ease of interpretation the marginal effects are reported in Table 4. In all regressions, the strategy of remaining open is used as the base category for parameterization. The first two columns report the results for the entire sample and use an indicator variable for initial ownership status to differentiate between FPs and NFPs. The regression model for the entire sample finds that NFPs have a higher probability of conversion than FPs (4.93 percentage points) but there is no statistically significant difference in the expected probability of closure by ownership status.

As discussed earlier, FPs and NFPs have different legal constraints which make the factors that impact the choice to close or convert to be different by ownership status. This is confirmed by chow tests that found the parameter estimates are different for FPs and NFPs in both the probability of conversion ($p\text{-value} < 0.001$) and closure ($p\text{-value} = 0.001$). This confirms that at least some of the coefficient estimates are different by initial ownership status and separate regression models are appropriate. The parameter estimates and marginal effects for the regression ran for the sample restricted by the ownership status in 1998 are reported in the last four columns of Tables 3 and 4. Since chow tests confirm that strategy choice should be modeled differently by initial ownership status the remaining sections only discuss these models.

6.2.1 Conversions by For-profits

It is expected that FPs that have positive expected profits will remain open and those with negative profits will convert to NFP if the expected profits of the NFP is nonnegative or close. The coefficient estimates for the efficiency measures have positive sign for the FP model. This is consistent with higher cost FP facilities being more likely to convert to NFP, but only one coefficient is statistically significant. FPs facilities that were certified for Medicare for five to ten years were more likely to convert

to NFP than FP facilities that were certified for over ten years. The Medicare managed care penetration rate was also statistically significant in the FP sample. For every ten percentage point increase in the Medicare managed care penetration rate, the probability of a FP converting to a NFP increased by 0.6 percentage points.

As expected, a higher number of RN and LPN nursing staff reduced the probability of conversion, while higher CNA staffing increased the probability of conversion. Although the coefficient estimates were not statistically significant, the direction of these effects is consistent with facilities being able to reduce costs by replacing high cost licensed nursing staff with less costly CNAs. However, if CNA staffing rates are already high, the facility has less ability to change staffing mix and may need to convert to a NFP to reduce costs. Higher state staffing requirements are found to impact the probability a FP converts to a NFP. FPs in states with higher staff requirements are less likely to convert by 0.44 percentage points for each HRPD increase in direct care staff requirements. This could be because states that were early adopters of minimum staffing requirements set requirements lower than states that implemented them in the 2000s.

FP facilities with more financial resources are less likely to convert to NFP and all case-mix variables were found to have statistically insignificant coefficient estimates for Alzheimer's special care units. FP facilities with an Alzheimer's special care unit have a 1.56 percentage point higher probability of converting to a NFP than FP facilities without such a unit. This effect is rather large considering the unadjusted rate of conversion among FP facilities is 3.1 percent. Supply and demand factors of the local market were found to have no statistically significant impact on the probability of conversion, but FPs in less concentrated markets were more likely to convert to NFP. Compared to a market of four firms of equal size, a FP in a market that has two firms of equal size would be more likely to convert to a NFP by 0.64 percentage points.

6.2.2 Conversions by Not-for-profits

In contrast to FPs, NFPs that convert to FP are more likely to have positive expected profits, but the probability of conversion will be lessened by the willingness of stakeholders to change the mission of the organization. A closer look at the efficiency variables suggests that more efficient NFPs are more likely to convert a FP. NFP facilities with lower ancillary services costs are more likely to convert to FP. For each additional \$10 in ancillary service costs per day, the probability of conversion decreases by 1.6 percentage points. Interestingly, higher adjusted per diem costs increases the probability of conversion, but the effect is smaller than for ancillary service costs. A \$10 increase in adjusted per diem costs results in the probability of conversion increasing by 0.3 percentage points. One explanation for result is the case-mix variables are not capturing differences in the severity of the residents that would result in higher

reimbursement. Under PPS, residents are classified into resource utilization groups and resource utilization groups with higher costs are reimbursed at higher rates. What may be occurring is higher adjusted per diem costs are picking up facilities that have more residents in higher reimbursed resource utilization groups, and the increase in cost of providing care to these residents is not as large as the increase in revenue. In addition to these cost measures, NFPs that are members of chains are converting to FP more often than non-chains by 1.56 percentage points. This pattern among NFPs chains could be related more to mission than efficiency. A NFP chain could divest a single profitable facility to a FP and use the funds that were raised to reinvest in the other facilities it owns without significantly impacting the mission of the organization.

NFP facilities that are more reliant on public payment sources have an increased probability of converting to FP. A ten percentage point increase in the proportion of residents on Medicaid increases the chance of converting to FP by 1.6 percentage points while a similar increase for Medicare residents increases the chance of converting by 1.1 percentage points. Although Medicare the switch to PPS lowered the average reimbursement rate, a low cost provider would still find providing services to Medicare residents profitable. In contrast, Medicaid has always paid a relatively low level of reimbursement when compared to private pay nursing home residents. However, there is significantly more competition for private pay residents, particularly in the form of investing in amenities and building aesthetics that would attract private pay residents and the price premiums they are charged. Facilities that are unwilling to invest in these amenities could create a niche market by providing ‘no-thrill’ services to Medicare and Medicaid residents at relatively low costs. Since any profits this strategy generates would need to be reinvested in amenities if the facility was a NFP, NFPs that are willing to implement this ‘no-thrills’ strategy are more likely to convert to FP to distribute profits to shareholders.

Higher staffing levels provide facility with the ability to cut costs by reducing staffing levels to the state minimum requirements. Further, facilities that have a mix of staffing toward higher costs licensed nursing staff can switch to direct care staff to lower cost CNAs. Since high nursing staff could result in the facility cutting or switching the mix of staff to remain open as NFP or if staffing is reduced enough to convert to a FP, the expectation of the signs for conversion is unknown. Facilities with higher RN and CNA staffing reduce the probability of conversion while those with higher LPN increase the probability of conversion. Only the result for CNA is statistically significant. Facilities with some contracted licensed nursing staff are less likely to convert by 1.72 percentage points. This could be caused by FPs unwilling to take control of NFPs that have contracted staff since it is a strategy they could use to reduce the cost of providing care.

NFP facilities with current ratios greater than two are had a 2.33 percentage point lower probability of converting than facilities that had moderate liquidity. The case-mix variable of

Alzheimer's special care unit is statistically significant. NFP facilities with Alzheimer's special care unit have a 1.72 percentage point lower probability of converting to FP than NFPs that do not have the unit. Taken together with fact that FPs with Alzheimer's special care units have a 1.56 percentage points higher probability of converting to a NFP, it suggests that NFPs are acquiring facilities that have an Alzheimer's special care unit while FPs are divesting those facilities. This is a different strategy employed by each ownership type in response to the policy shock. Alzheimer's special care units often require higher levels of staffing and specialized staff. These additional costs could result in the facility being able to attract more private pay residents, increase quality of care for residents with dementia, and improve the reputation of the facility. Since there is a trust factor associated with NFPs (Steinberg, 2006) and residents with dementia may not be able to communicate their concerns regarding care, NFPs may find the benefits of an Alzheimer's special care unit to be greater than a FP. By having the special care unit, NFPs could be carving out a niche in which they attempt to attract private pay residents that may be attracted to special care for residents with dementia.

6.2.2 Closures

Closures are expected to occur in both FP and NFP facilities that are inefficient, have greater reliance on Medicare, have lower ability to reduce costs, and have weaker financial strength. The marginal effects that increase the probability of closing for FPs are the same for those as NFPs, although there is some variation in which factors are statistically significant. Larger facilities are less likely to close due to economies of scale. Facilities that are certified longer for Medicare are also less likely to close, but the result is only statistically significant for FPs. The Omnibus Budget Reconciliation Act (OBRA) of 1987 promoted entry into the skilled nursing market. Since facilities that entered after the passage to OBRA are disproportionately more likely to close, these later entrants may have entered the market to use shortcomings in the cost-plus reimbursement system to maximize profits in a manner that was not welfare enhancing to Medicare.

Per diem costs were found to not impact the probability of closure, but chain membership increased the probability of closure and the result was statistically significant in the NFP sample. NFP facilities that were part of a chain were more likely to close by 1.16 percentage points than NFPs that were not part of chains. A NFP nursing home chain may decide to close one unprofitable facility to allow other facilities in the chain to remain economically viable. But, there is a larger burden on non-chain NFPs when they close because they may have to make the decision to significantly change their mission.

Facilities with higher levels of nursing staff compared to minimum staffing requirements should be able to reduce staff and change staffing mix to reduce costs. This pattern is true among FP facilities because higher levels of LPNs and CNAs reduce the probability of closure. RNs increase the chance of

closure, but the effect is small and not statistically significant. In the case of NFPs, higher RN and LPN staffing increases the probability of closure, but the probability is reduced for CNAs. Since LPNs are a cheaper input among licensed nursing staff, facilities with higher levels of LPNs are more restricted in their ability to change staffing mix and are more likely to close.

Weaker financial position is a predictor of facility closure. Both FP and NFP facilities with lower occupancy rates are more likely to close. FP facilities with a negative patient profit margin are 1.97 percentage points more likely to close than FP facilities with patient profit margins between zero and five percent. Negative profit margin is also a statistically significant predictor of NFP closure, but the size of the effect is smaller. NFP facility closure rates are also predicted by liquidity. NFP facilities with a current ratio below one are 1.40 percentage points more likely to convert than NFPs with a current ratio between 1 and 2. In addition to financial strength, facilities that are in faster growing market, as defined by growth in the number of persons over the age of 85, are less likely to close.

7. Conclusion

Medical facilities are dependent on the government for a large share of their revenues, and facilities responses to reimbursement changes vary with ownership status (Duggan, 2002). This article uses a policy shock which changed government reimbursement for skilled nursing by Medicare to determine how ownership status impacts the decision to convert to a new ownership status or close. The number of ownership conversions significantly increased after the implementation of PPS. The determinants of conversion were different for each ownership status, and the empirical results are consistent with low cost NFPs converting to FP in order to extract financial benefits provided by the reimbursement change while high cost FPs divested facilities to NFPs to limit their losses. In the case of closures, both FPs and NFPs behaved in similar fashions, by closing those facilities that are the most economically disadvantaged by the change in the reimbursement. This is consistent with Nelson (1997) who has argued that changes in policy and market situations could force NFPs and FPs to face similar incentives, further diminishing the distinction between them. Although not addressed in this paper, this could be one reason the difference in the quality of care provided by the two ownership types has narrowed in the past few decades (Frank and Salkever, 2000; Sloan, 1998).

NFPs and FPs are also attracted to facilities that have certain characteristics. FPs are converting to NFP and NFP facilities were staying open with the same ownership status if they had an Alzheimer's special care unit. In contrast, FPs tended to stay open or a NFP would convert to a FP if the facility was a low cost facility that had a larger proportion of residents on Medicaid. This may imply that each ownership status is carving out different niches in the market. Alzheimer's special care units are associated with higher costs in terms of the number and type of staff required. In order for this to be a

successful strategy, facilities would need to attract private pay residents, because Medicare and Medicaid might not fully reimburse for these higher costs. Therefore, NFPs are using these units to attract private pay residents who are willing to pay higher prices for the added services that these special care units provide to residents with dementia. In contrast, NFPs that convert to FP are more likely to have a higher proportion of residents that are paid for by Medicaid. Although these residents are associated with the lowest reimbursement rates for any type of nursing home resident, FPs may be able to use their advantage in providing efficient care to make a profit by providing low cost care to residents paid by public sources that might not place great value on amenities.

What do these results mean for public policy? When FPs and NFPs are faced with similar economic incentives, they respond in similar manners depending on the implications of those incentives. When facilities are struggling for survival both NFPs and FPs may implement similar strategies, but when both firms benefit from policy change, facilities behave differently. Therefore it is important for regulators to be aware that NFPs and FPs can behave similarly (closure) and act differently (conversion) after a policy shock. Any significant changes to reimbursement rules that are meant to increase efficiency, such as those instituted by the BBA, can change incentives for firms and influence the relative mix of FPs and NFPs. This could have long run consequences for access to care, government reimbursement costs, prices, and the quality of care.

References

- American Hospital Association. 2002. *American Hospital Association Hospital Statistics, 2002 Edition*. Health Forum LLC, Chicago, IL.
- Ballou, J.P. 2008. Do nonprofit and government nursing homes enter unprofitable markets? *Economic Inquiry* 46(2): 241-260.
- BDO Seidman, LLP. 2005. *A report on shortfalls in Medicaid funding for nursing home care*. Available at <http://www.ahca.org/brief/seidmanstudy0312.pdf>.
- Brody, E. 2006. The legal framework for nonprofit organizations. In W.W. Powell and R. Steinberg, Eds., *The Non-profit Sector: A Research Handbook, Second Edition*. New Haven, Yale University Press.
- Castle, N.G. 2005. Nursing home closures, changes in ownership, and competition. *Inquiry* 42:281-292.
- Ciliberto, F. and Lindrooth R.C. 2007. Exit from the hospital industry. *Economic Inquiry* 45(1): 71-81.
- Cowles, CM. 2002. *Nursing Home Statistical Yearbook*. Montgomery Village, MD, Cowles Research Group.
- Culter DM and Horwitz JR. 2000. Converting hospitals from not-for-profit to for-profit status: why and what effects? Pp. 45-79 in Cutler DM, ed. *The Changing Hospital Industry: Comparing Not-for-profit and For-profit Institutions*. Chicago, Ill.: University of Chicago Press.
- Dalton K and Howard HA. 2002. Market Entry and Exit in Long-Term Care: 1985-2000. *Health Care Financing Review* 24(2): 17-32.
- Doms, M., Dunne, T., Roberts, M.J. 1995. The role of technology use in the survival and growth of manufacturing plants. *International Journal of Industrial Organization* 13:523-542.

- Duggan, M. 2002. Hospital market structure and the behavior of not-for-profit hospitals. *RAND Journal of Economics*, Vol. 33, pp. 433-446.
- Dummit, L.A. 2000. *Nursing homes: Aggregate Medicare payments are adequate despite bankruptcies*. Washington, DC, GAO.
- Ericson, R. and Pakes, A. 1992. Markov-perfect industry dynamics: a framework of empirical work. *Review of Economic Studies* 62(1): 53-82.
- Farsi, M. 2004. Changes in hospital quality after conversion in ownership status. *International Journal of Health Care Finance and Economics*, Vol. 4, pp. 211-230.
- Feng, Z., Katz, P.R., Intrator, O., Karuza, J. and Mor, V. 2005. Physician and nursing staffing in nursing homes: the role and limitations of the Online Survey Certification and Reporting (OSCAR) System. *Journal of the American Medical Directors Association* 6: 27-33.
- Frank, R.G. and Salkever, D.S. 2000. Market forces, diversification of activity, and the mission of not-for-profit hospitals. In D.M. Cutler, ed., *The Changing Hospital Industry: Comparing Not-for-profit and For-profit Institutions*. Chicago, Ill., University of Chicago Press.
- Grabowski, D.C., Feng, Z., Intrator, O. and Mor, V. 2004. Recent trends in state nursing home payment policies. *Health Affairs*, Vol. W4, pp. 363-73.
- Grabowski, D.C. and Hirth, R.A. 2003. Competitive spillovers across non-profit and for-profit nursing homes. *Journal of Health Economics*, Vol. 22, pp. 1-22.
- Grabowski, D.C. and Stevenson, D.G. 2008. Ownership conversions and nursing home performance. *Health Services Research* 43(4): 1184-1203.
- Gray BH. 1997. Conversion of HMOs and hospitals: what's at stake? *Health Affairs* 16(2): 29-47.
- Hansmann, H.B. 1980. The role of the nonprofit enterprise. *The Yale Law Journal*, Vol. 89, pp. 832-901.
- Harrington, C. 2001. Nursing Home Staffing Standards in State Statutes and Regulations. Available at http://www.nursinghomeaction.com/public/245_1267_7833.cfm.
- Harrington, C., Carrillo, H. and LaCava, C. 2006. *Nursing Facilities, Staffing, Residents, and Facility Deficiencies, 1999 Through 2005*. San Francisco, CA, Department of Social and Behavioral Sciences, University of California.
- Harrison, TD. 2007. Consolidation and Closures: An Empirical Analysis of Exits from the Hospital Industry. *Health Economics* 16(5): 457-74.
- Hausman, J. and McFadden, D.L. 1984. A specification test for the multinomial logit model. *Econometrica* 52:1219-40.
- Hirth, R.A. 1999. Consumer information and competition between nonprofit and for-profit nursing homes. *Journal of Health Economics*, Vol. 18, pp. 219-240.
- Hollis SR. 1997. Strategic and economic factors in the hospital conversion process. *Health Affairs* 16(2): 131-143.
- Intrator, O., Feng, Z., Mor, V., Gifford, D., Bourbonniere, M. and Zinn, J. 2005. The employment of nurse practitioners and physician assistants in US nursing homes. *Gerontologist* 45: 486-495.
- Jensen, M.C. and Ruback, R.S. 1983. The market for corporate control. *Journal of Financial Economics*, Vol. 11, pp. 5-50.
- Jovanovic, B. 1982. Selection and evolution of industry. *Econometrica* 50(7): 649-670.
- Kitchener M, Bostrom, A, and Harrington C. 2004. Smoke without fire: nursing facility closures in California, 1997-2001. *Inquiry*. 41(2): 189-202.
- Konetzka, R.T., Yi, D., Norton, E.C., and Kilpatrick, K.E. 2004. Effects of Medicare payment changes on nursing home staffing and deficiencies. *Health Services Research*, Vol. 39, pp. 463-488.
- Konetzka, R.T., Norton, E.C., Sloan, P.D., and Kilpatrick, K.E. 2006. Medicare prospective payment and quality of care for long-stay nursing facility residents. *Medical Care* Vol. 44, pp. 270-276.
- McFadden, DL. 1974. Conditional Logit Analysis of Qualitative Choice Analysis. In P. Zarembka, ed., *Frontiers in Econometrics*. New York: Academic Press, 105-142.
- Medicare Payment Advisory Commission (Medpac). *A data book: Healthcare spending and the Medicare program*. Washington, DC, Medpac, 2003.

- Nelson, H. 1997. *Not-for-profit and for-profit HMOs: converging practices but different goals?* New York, Milbank Memorial Fund.
- Picone, G., Chou, S., and Sloan, F. 2002. Are for-profit hospital conversions harmful to patients and to Medicare? *RAND Journal of Economics*, Vol. 33, pp. 507-523.
- Santerre RE and Vernon JA. 2007. Ownership form and consumer welfare: evidence from the nursing home industry. *Inquiry* 44: pp. 381-399.
- Shen, Y. 2002. The effect of hospital ownership choice on patient outcomes after treatment for acute myocardial infarction. *Journal of Health Economics*, Vol. 21, pp. 901-922.
- Sloan, F.A. 1998. Commercialism in nonprofit hospitals. *Journal of Policy Analysis and Management*, Vol. 17, pp. 234-252.
- Sloan F.A., Ostermann J., and Conover C.J. 2003. Antecedents of hospital ownership conversions, mergers, and closures. *Inquiry* 40: 39-56.
- Steinberg, R. 2006. Economic theories of nonprofit organizations. In W.W. Powell and R. Steinberg, Eds., *The Non-profit Sector: A Research Handbook, Second Edition*. New Haven, Yale University Press.
- The Tax Foundation. 2007. "State Corporate Income Tax Rates, 1999-2006." Available at <http://www.taxfoundation.org/files/statecorpincometaxrates-20070125.xls>.
- Troyer, J.L. 2002. Cross-subsidization in nursing homes: Explaining rate differentials among payer types. *Southern Economic Journal*, Vol. 68, pp. 750-773.
- Unruh, L., Zhang, N.J. and Wan, T.T.H. 2006. The impact of Medicare reimbursement changes on staffing and the quality of care in nursing homes. *International Journal of Public Policy*, Vol. 1, pp. 421-434.
- United States General Accounting Office (GAO). 1999. *Skilled Nursing Facilities: Medicare Payment Changes Require Provider Adjustment But Maintain Access*. Washington, DC, GAO.
- United States General Accounting Office (GAO). 2002a. *Skilled Nursing Facilities: Medicare Payments Exceed Costs for Most but Not All Facilities*. Washington, DC, GAO.
- United States General Accounting Office (GAO). 2002b. *Skilled Nursing Facilities: Providers Have Responded to Medicare Payment System by Changing Practices*. Washington, DC, GAO.
- United States General Accounting Office (GAO). 2003. *Medicaid Nursing Home Payments: States' Payment Rates Largely Unaffected by Recent Fiscal Pressure*. Washington, DC, GAO.
- WWAMI Rural Health Research Center (RHRC), 2007. *Rural-Urban Commuting Area Codes*. Available at <http://depts.washington.edu/uwruca/index.html>.
- Zinn, J. 1994. Market competition and the quality of nursing home care. *Journal of Health Politics Policy and Law*, Vol. 19 pp. 555-82.

Table 1: Number of Ownership Conversions and Closures by Year

For-Profit Facilities Sample		
	Sample Size ¹	%
For-Profit in 1998	5,970	100.0%
Converted to Not-For-Profit	187	3.1%
1999	9	0.2%
2000	28	0.5%
2001	33	0.6%
2002	64	1.1%
2003	28	0.5%
2004	25	0.4%
Closed²	261	4.4%
1999	27	0.5%
2000	34	0.6%
2001	57	1.0%
2002	50	0.8%
2003	45	0.8%
2004	48	0.8%
Not-For-Profit Facilities Sample		
Not-For-Profit in 1998	1,871	100.0%
Converted to For-Profit	124	6.6%
1999	7	0.4%
2000	16	0.9%
2001	22	1.2%
2002	36	1.9%
2003	14	0.7%
2004	29	1.5%
Closed²	61	3.3%
1999	5	0.3%
2000	9	0.5%
2001	8	0.4%
2002	14	0.7%
2003	12	0.6%
2004	13	0.7%

Notes:

1: The sample is all free-standing facilities that are certified for Medicare between July 1, 1997 and July 1, 1998 that have merged OSCAR and Medicare Cost Reports.

2: The closure year is first year in which the facility has not filled an OSCAR

Table 2: Summary Characteristics by Facility Type

	For-profits			Not-For-Profits		
	Open	Converted	Closed	Open	Converted	Closed
Sample Size ¹	5,522	187	261	1,686	124	61
<i>Efficiency Measures</i>						
Number of Beds	123.440	118.711	112.709	134.485	130.113	116.016
	<i>57.498</i>	<i>61.199</i>	<i>63.381</i>	<i>81.356</i>	<i>57.280</i>	<i>61.133</i>
Indicator of Chain Membership	0.698	0.727	0.732	0.431	0.597	0.639
	<i>0.459</i>	<i>0.447</i>	<i>0.444</i>	<i>0.495</i>	<i>0.493</i>	<i>0.484</i>
Less than 5 Years Certified for Medicare ²	0.301	0.348	0.387	0.270	0.258	0.410
	<i>0.459</i>	<i>0.477</i>	<i>0.488</i>	<i>0.444</i>	<i>0.439</i>	<i>0.496</i>
5 to 10 Years Certified for Medicare ²	0.282	0.348	0.337	0.263	0.282	0.197
	<i>0.450</i>	<i>0.477</i>	<i>0.474</i>	<i>0.441</i>	<i>0.452</i>	<i>0.401</i>
Adjusted Per Diem Cost	136.138	137.566	139.960	135.667	141.948	144.876
	<i>44.103</i>	<i>99.629</i>	<i>48.817</i>	<i>44.827</i>	<i>39.599</i>	<i>55.326</i>
Ancillary Services Per Diem Cost	11.377	11.842	10.655	8.236	8.079	9.829
	<i>9.689</i>	<i>8.123</i>	<i>9.878</i>	<i>7.685</i>	<i>5.766</i>	<i>9.967</i>
<i>Reliance of Medicare</i>						
% Residents on Medicaid	67.619	69.126	74.699	55.377	69.477	65.661
	<i>18.847</i>	<i>18.489</i>	<i>18.345</i>	<i>23.320</i>	<i>18.615</i>	<i>24.105</i>
% Residents on Medicare	10.323	10.044	9.559	8.487	9.061	10.324
	<i>9.734</i>	<i>11.961</i>	<i>11.161</i>	<i>7.915</i>	<i>9.057</i>	<i>12.371</i>
Medicare Managed Care Penetration	15.839	13.867	17.634	14.500	16.730	18.922
	<i>15.077</i>	<i>14.014</i>	<i>14.486</i>	<i>13.527</i>	<i>15.403</i>	<i>14.556</i>
State Medicaid Reimbursement Rate	97.642	95.794	105.037	107.101	98.218	107.766
	<i>25.359</i>	<i>26.272</i>	<i>33.017</i>	<i>27.987</i>	<i>24.670</i>	<i>27.672</i>
<i>Ability to Reduce Costs</i>						
RN HRPD	0.359	0.317	0.376	0.426	0.326	0.451
	<i>0.277</i>	<i>0.291</i>	<i>0.297</i>	<i>0.271</i>	<i>0.246</i>	<i>0.376</i>
LPN HRPD	0.640	0.654	0.649	0.629	0.677	0.773
	<i>0.299</i>	<i>0.252</i>	<i>0.333</i>	<i>0.307</i>	<i>0.319</i>	<i>0.336</i>
CNA HRPD	1.914	1.867	1.882	2.147	2.021	2.115
	<i>0.591</i>	<i>0.537</i>	<i>0.533</i>	<i>0.588</i>	<i>0.696</i>	<i>0.764</i>
Any Contracted Staff	0.471	0.487	0.483	0.464	0.411	0.410
	<i>0.499</i>	<i>0.501</i>	<i>0.501</i>	<i>0.499</i>	<i>0.494</i>	<i>0.496</i>
State Minimum Direct Care Staff (HPRD)	1.659	1.403	1.470	1.633	1.726	1.569
	<i>1.108</i>	<i>1.123</i>	<i>1.153</i>	<i>1.070</i>	<i>1.050</i>	<i>1.085</i>
<i>Facility Financial Strength</i>						
Current Ratio Less than 1 ³	0.283	0.380	0.418	0.286	0.411	0.459
	<i>0.451</i>	<i>0.487</i>	<i>0.494</i>	<i>0.452</i>	<i>0.494</i>	<i>0.502</i>
Current Ratio Greater than 2 ³	0.398	0.283	0.318	0.379	0.242	0.295
	<i>0.490</i>	<i>0.452</i>	<i>0.467</i>	<i>0.485</i>	<i>0.430</i>	<i>0.460</i>
Negative Patient Profit Margin ⁴	0.421	0.540	0.690	0.652	0.742	0.803
	<i>0.494</i>	<i>0.500</i>	<i>0.464</i>	<i>0.477</i>	<i>0.439</i>	<i>0.401</i>
Patient Profit Margin Greater than 5% ⁴	0.285	0.155	0.126	0.104	0.073	0.082
	<i>0.451</i>	<i>0.363</i>	<i>0.333</i>	<i>0.306</i>	<i>0.260</i>	<i>0.277</i>
Occupancy Rate	85.531	85.984	78.102	88.951	87.268	80.324
	<i>13.933</i>	<i>12.693</i>	<i>17.163</i>	<i>13.576</i>	<i>12.498</i>	<i>18.448</i>
<i>Facility Case-Mix</i>						
Physical Acuity Level (Acuindex)	10.298	10.190	9.987	10.029	10.442	10.067
	<i>1.377</i>	<i>1.232</i>	<i>1.387</i>	<i>1.351</i>	<i>1.404</i>	<i>1.342</i>
% Residents with Dementia	44.188	44.766	44.142	47.465	45.455	43.779
	<i>16.722</i>	<i>16.547</i>	<i>17.057</i>	<i>15.296</i>	<i>18.181</i>	<i>15.727</i>
% Residents with Psychiatric Illness	13.833	14.439	19.556	10.617	11.556	15.960
	<i>12.922</i>	<i>11.755</i>	<i>15.258</i>	<i>10.758</i>	<i>9.709</i>	<i>14.429</i>
Alzheimer's Special Care Unit	0.168	0.235	0.142	0.283	0.161	0.164
	<i>0.374</i>	<i>0.425</i>	<i>0.349</i>	<i>0.451</i>	<i>0.369</i>	<i>0.373</i>
<i>Supply and Demand Factors</i>						
Growth in Per Capita Income (5 year)	29.792	30.107	30.028	30.855	30.298	31.305
	<i>6.869</i>	<i>7.414</i>	<i>7.135</i>	<i>6.837</i>	<i>6.039</i>	<i>6.548</i>
Growth in Population 85+ (10 year)	39.226	37.466	33.616	35.083	40.591	28.645
	<i>22.437</i>	<i>20.489</i>	<i>18.804</i>	<i>20.796</i>	<i>25.092</i>	<i>14.999</i>
Growth in SNF Beds	29.015	26.100	17.089	34.059	28.127	38.496
	<i>131.761</i>	<i>60.507</i>	<i>47.963</i>	<i>219.607</i>	<i>80.825</i>	<i>133.367</i>
Herfindahl-Hirschmann Index	0.218	0.296	0.179	0.194	0.201	0.148
	<i>0.255</i>	<i>0.315</i>	<i>0.238</i>	<i>0.232</i>	<i>0.248</i>	<i>0.210</i>
<i>Other Factors</i>						
Corporate Tax Rate	6.553	5.837	6.046	7.524	6.590	7.670
	<i>2.976</i>	<i>3.116</i>	<i>3.405</i>	<i>2.876</i>	<i>2.935</i>	<i>2.933</i>
% Change in FP Hospitals	0.908	1.751	1.347	0.674	0.795	2.062
	<i>4.451</i>	<i>4.517</i>	<i>3.572</i>	<i>3.344</i>	<i>4.242</i>	<i>3.162</i>

Standard errors are in italics.

Notes:

1: The sample is all free-standing facilities that are certified for Medicare between July 1, 1997 and July 1, 1998 that have merged OSCAR and Medicare Cost Reports.

2: The reference group is facilities that are certified for Medicare for over ten years.

3: The reference group is facilities that have current ratios between 1 and 2.

4: The reference group is facilities with patient profit margins between 0 and 5 percent.

Table 3: Multinomial Probit Regression Results

	Entire Sample (N = 7841) ¹		For-Profit (N = 5970) ¹		Not-For-Profit (N = 1871) ¹	
	Converted	Closed	Converted	Closed	Converted	Closed
<i>Nonprofit Ownership Status in 1998</i>	0.7400 *** (0.1005)	0.1437 (0.1058)				
<i>Efficiency Measures</i>						
Number of Beds	-0.0013 * (0.0008)	-0.0042 *** (0.0009)	-0.0008 (0.0011)	-0.0040 *** (0.0011)	-0.0017 (0.0012)	-0.0047 *** (0.0017)
Indicator of Chain Membership	0.1408 (0.0866)	0.2558 *** (0.0900)	0.0463 (0.1080)	0.1603 (0.1026)	0.2805 * (0.1471)	0.5173 *** (0.1853)
Less than 5 Years Certified for Medicare ²	0.0375 (0.0957)	0.2123 ** (0.0969)	0.1461 (0.1168)	0.2173 ** (0.1093)	-0.1719 (0.1797)	0.3385 * (0.2055)
5 to 10 Years Certified for Medicare ²	0.1099 (0.0908)	0.1727 * (0.0975)	0.2106 * (0.1109)	0.2545 ** (0.1091)	-0.1184 (0.1732)	-0.1433 (0.2330)
Adjusted Per Diem Cost	0.0019 (0.0009)	-0.0009 (0.0009)	0.0010 (0.0011)	-0.0010 (0.0011)	0.0049 *** (0.0016)	0.0005 (0.0023)
Ancillary Services Per Diem Cost	-0.0015 (0.0044)	-0.0011 (0.0056)	0.0036 (0.0050)	-0.0030 (0.0066)	-0.0254 ** (0.0116)	0.0123 (0.0100)
<i>Reliance of Medicare</i>						
% Residents on Medicaid	0.0123 *** (0.0027)	0.0174 *** (0.0030)	0.0026 (0.0032)	0.0157 *** (0.0039)	0.0273 *** (0.0048)	0.0237 *** (0.0049)
% Residents on Medicare	0.0135 ** (0.0056)	0.0126 ** (0.0053)	0.0046 (0.0076)	0.0110 * (0.0062)	0.0188 * (0.0099)	0.0174 (0.0116)
Medicare Managed Care Penetration	0.0122 *** (0.0039)	0.0107 *** (0.0039)	0.0151 *** (0.0049)	0.0086 ** (0.0043)	0.0030 (0.0069)	0.0178 ** (0.0089)
State Medicaid Reimbursement Rate	-0.0012 (0.0026)	0.0053 ** (0.0026)	0.0034 (0.0031)	0.0072 ** (0.0029)	-0.0085 * (0.0051)	-0.0023 (0.0058)
<i>Ability to Reduce Costs</i>						
RN HRPD	-0.2868 (0.2059)	0.1833 (0.1626)	-0.2256 (0.2580)	0.1613 (0.1880)	-0.4298 (0.3293)	0.3125 (0.3574)
LPN HRPD	-0.0383 (0.1439)	0.1229 (0.1499)	-0.1870 (0.1778)	-0.0485 (0.1808)	0.2616 (0.2767)	0.6908 ** (0.2823)
CNA HRPD	-0.0943 (0.0775)	-0.1830 ** (0.0737)	0.0387 (0.0924)	-0.1542 * (0.0841)	-0.3362 ** (0.1419)	-0.3229 ** (0.1577)
Any Contracted Staff	-0.1164 (0.0754)	-0.0117 (0.0799)	-0.0442 (0.0909)	0.0141 (0.0898)	-0.3225 ** (0.1450)	-0.0294 (0.1797)
State Minimum Direct Care Staff (HRPD)	-0.0224 (0.0405)	-0.0145 (0.0443)	-0.1003 ** (0.0448)	0.0139 (0.0515)	0.1531 * (0.0854)	-0.0986 (0.0884)
<i>Facility Financial Strength</i>						
Current Ratio Less than 1 ³	0.1360 (0.0903)	0.1988** (0.0953)	0.1238 (0.1087)	0.1071 (0.1074)	0.1386 (0.1655)	0.5301 ** (0.2097)
Current Ratio Greater than 2 ³	-0.2691 *** (0.0946)	0.0628 (0.0997)	-0.1808 (0.1170)	0.0562 (0.1124)	-0.4034 ** (0.1769)	0.1515 (0.2280)
Negative Patient Profit Margin ⁴	0.1178 (0.0896)	0.4055 *** (0.0998)	0.1163 (0.1060)	0.4109 *** (0.1110)	0.1743 (0.1772)	0.5098 ** (0.2477)
Patient Profit Margin Greater than 5% ⁴	-0.2423 ** (0.1220)	-0.0787 (0.1315)	-0.3450 ** (0.1379)	-0.1145 (0.1415)	0.1105 (0.2816)	0.2599 (0.3656)
Occupancy Rate	0.0018 (0.0030)	-0.0209 *** (0.0028)	0.0061 (0.0037)	-0.0216 *** (0.0032)	-0.0079 (0.0058)	-0.0178 *** (0.0064)
<i>Facility Case-Mix</i>						
Physical Acuity Level (Acuindex)	0.0081 (0.0314)	-0.0312 (0.0311)	-0.0266 (0.0378)	-0.0475 (0.0364)	0.0715 (0.0599)	0.0119 (0.0595)
% Residents with Dementia	-0.0014 (0.0025)	0.0007 (0.0023)	-0.0013 (0.0029)	0.0014 (0.0026)	-0.0036 (0.0048)	-0.0028 (0.0055)
% Residents with Psychiatric Illness	-0.0009 (0.0029)	0.0123 *** (0.0027)	0.0009 (0.0034)	0.0112 *** (0.0029)	-0.0062 (0.0064)	0.0191 *** (0.0070)
Alzheimer's Special Care Unit	0.1060 (0.1011)	0.0229 (0.1074)	0.3238 *** (0.1177)	0.1048 (0.1216)	-0.3293 * (0.1929)	-0.3866 (0.2359)
<i>Supply and Demand Factors</i>						
Growth in Per Capita Income (5 year)	0.0006 (0.0057)	0.0047 (0.0061)	0.0036 (0.0072)	0.0051 (0.0070)	0.0065 (0.0106)	0.0169 (0.0132)
Growth in Population 85+ (10 year)	0.0002 (0.0018)	-0.0078 *** (0.0021)	-0.0017 (0.0022)	-0.0065 *** (0.0024)	0.0037 (0.0037)	-0.0200 *** (0.0052)
Growth in SNF Beds	-0.0004 * (0.0003)	-0.0004 (0.0004)	-0.0004 (0.0004)	-0.0009 (0.0007)	-0.0005 (0.0005)	-0.0002 (0.0005)
Herfindahl-Hirschmann Index	0.4485 ** (0.1940)	0.0194 (0.2166)	0.6076 *** (0.2178)	0.1177 (0.2312)	-0.1279 (0.4116)	-0.6809 (0.6648)
<i>Other Factors</i>						
Corporate Tax Rate	-0.0367 ** (0.0170)	-0.0461 ** (0.0182)	-0.0323 (0.0208)	-0.0663 *** (0.0207)	-0.0484 (0.0310)	0.0286 (0.0397)
% Change in FP Hospitals	0.0298 *** (0.0077)	0.0253 *** (0.0092)	0.0342 *** (0.0086)	0.0184 * (0.0102)	0.0302 (0.0215)	0.0774 *** (0.0249)

Multinomial probit regression with robust standard errors is used. Regressions control for regional characteristics and are parameterized with the base category of open with unchanged ownership status. The standard errors are in parentheses.

* p<0.10 ** p<0.05 *** p<0.01

Notes:

1: The sample is all free-standing facilities that are certified for Medicare between July 1, 1997 and July 1, 1998 that have merged OSCAR and Medicare Cost Reports that are not missing information for any of the variables.

2: The reference group is facilities that are certified for Medicare for over ten years.

3: The reference group is facilities that have current ratios between 1 and 2.

4: The reference group is facilities with patient profit margins between 0 and 5 percent.

Table 4: Marginal Effects of Multinomial Probit Results

	Entire Sample (N = 7841) ¹		For-Profit (N = 5970) ¹		Not-For-Profit (N = 1871) ¹	
	Converted	Closed	Converted	Closed	Converted	Closed
<i>Nonprofit Ownership Status in 1998</i>	0.0493 ***	0.0023				
<i>Efficiency Measures</i>						
Number of Beds	-0.0001	-0.0002 ***	-0.0000	-0.0002 ***	-0.0001	-0.0001 **
Indicator of Chain Membership	0.0060	0.0102 ***	0.0013	0.0071	0.0156 *	0.0116 **
Less than 5 Years Certified for Medicare ²	0.0009	0.0098 **	0.0055	0.0102 *	-0.0109	0.0094
5 to 10 Years Certified for Medicare ²	0.0050	0.0075	0.0084	0.0119 **	-0.0065	-0.0028
Adjusted Per Diem Cost	0.0001 **	-0.0000	0.0000	-0.0001	0.0003 ***	-0.0000
Ancillary Services Per Diem Cost	-0.0001	-0.0000	0.0002	-0.0002	-0.0016 **	0.0004
<i>Reliance of Medicare</i>						
% Residents on Medicaid	0.0006 ***	0.0007 ***	0.0000	0.0007 ***	0.0016 ***	0.0005 ***
% Residents on Medicare	0.0006 **	0.0005 **	0.0002	0.0005 *	0.0011 *	0.0003
Medicare Managed Care Penetration	0.0006 ***	0.0004 **	0.0006 ***	0.0003 *	0.0001	0.0004 **
State Medicaid Reimbursement Rate	-0.0001	0.0002 **	0.0001	0.0003 **	-0.0005 *	-0.0000
<i>Ability to Reduce Costs</i>						
RN HRPD	-0.0157	0.0094	-0.0103	0.0085	-0.0269	0.0083
LPN HRPD	-0.0025	0.0056	-0.0078	-0.0015	0.0138	0.0149 **
CNA HRPD	-0.0040	-0.0077 **	0.0023	-0.0074 *	-0.0193 **	-0.0063 *
Any Contracted Staff	-0.0059	0.0000	-0.0019	0.0008	-0.0191 **	0.0003
Minimum Direct Care Staff (HRPD)	-0.0011	-0.0005	-0.0044 **	0.0011	0.0095 *	-0.0027
<i>Facility Financial Characteristics</i>						
Current Ratio Less than 1 ³	0.0063	0.0087 *	0.0050	0.0047	0.0068	0.0140 **
Current Ratio Greater than 2 ³	-0.0137 ***	0.0040	-0.0078 *	0.0034	-0.0233 **	0.0047
Negative Patient Profit Margin ⁴	0.0042	0.0177 ***	0.0033	0.0197 ***	0.0088	0.0099 **
Patient Profit Margin Greater than 5% ⁴	-0.0112 **	-0.0024	-0.0129 ***	-0.0040	0.0061	0.0066
Occupancy Rate	0.0002	-0.0009 ***	0.0003 **	-0.0010 ***	-0.0004	-0.0004 ***
<i>Facility Case-Mix</i>						
Physical Acuity Level (Acuindex)	0.0006	-0.0014	-0.0009	-0.0021	0.0043	0.0001
% Residents with Dementia	-0.0001	0.0000	-0.0001	0.0001	-0.0002	-0.0001
% Residents with Psychiatric Illness	-0.0001	0.0006 ***	-0.0000	0.0005 ***	-0.0004	0.0005 ***
Alzheimer's Special Care Unit	0.0056	0.0005	0.0156 **	0.0036	-0.0172 *	-0.0069
<i>Supply and Demand Factors</i>						
Growth in Per Capita Income (5 year)	0.0000	0.0002	0.0001	0.0002	0.0003	0.0004
Growth in Population 85+ (10 year)	0.0000	-0.0003 ***	-0.0000	-0.0003 ***	0.0003	-0.0005 ***
Growth in SNF Beds	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
Herfindahl-Hirschmann Index	0.0231 **	-0.0012	0.0255 ***	0.0030	-0.0057	-0.0150
<i>Other Factors</i>						
Corporate Tax Rate	-0.0017 *	-0.0019 **	-0.0011	-0.0030 ***	-0.0030	0.0008
% Change in FP Hospitals	0.0014 ***	0.0010 **	0.0014 ***	0.0007	0.0016	0.0017 ***

Multinomial probit regression controlled for regional characteristics. The marginal effects reflect the change in the probability of the outcome of converting or closing for a one unit change from the mean for continuous variables and a discrete change from 0 to 1 for

* p<0.10 ** p<0.05 *** p<0.01

Notes:

1: The sample is all free-standing facilities that are certified for Medicare between July 1, 1997 and July 1, 1998 that have merged OSCAR and Medicare Cost Reports that are not missing information for any of the variables.

2: The reference group is facilities that are certified for medicare for over ten years.

3: The reference group is facilities that have current ratios between 1 and 2.

4: The reference group is facilities with patient profit margins between 0 and 5 percent.