Competition and “Other Community Benefits” provided by Nonprofit Hospitals: Beyond Uncompensated Care.¹
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I. Introduction

Nonprofit organizations provide multiple collectively-consumed (public) goods. In this paper, we study nonprofit hospitals, which provide both private goods (health care to paying customers is mostly private) and collectively-consumed goods. Nonprofit hospitals compete in local markets, both with other nonprofit hospitals and with for-profit and sometimes government hospitals. One collective good provided by hospitals in all three sectors is free or reduced-cost medical care for the medically-indigent. This has been extensively studied by others, as surveyed in Schlesinger and Gray (2006). But nonprofit hospitals also provide wellness education for the local community, medical training and education, medical research, health needs assessments, donations to other nonprofit organizations, and invest in community development. These are the “other” community benefits provided by nonprofit hospitals, and there are few studies of the

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determinants of expenditures on these collective goods.

In this paper we exploit newly-available data which provides detailed hospital expenditure levels on these other community benefits for every nonprofit hospital system in the states of Indiana, California, and Florida in 2011. We will econometrically estimate the effect of the level and sectoral composition of competition on other community benefits, individually and in total. Potential implications for antitrust policy are clear – if competition reduces provision of community benefits sufficiently, this can outweigh deadweight loss calculations and reverse traditional policy conclusions. Under a rule of reason, such evidence but be relevant in FTC and Justice Department hospital merger cases.

Our work will also have implications for tax policy, although the chain of links necessary to apply our results to this question extend beyond the scope of this paper. The exemption of nonprofit, but not competing for-profit hospitals from the federal corporate income tax and from state and local sales, income, and property taxes is justified under subsidy theories if nonprofit exemption furthers social welfare or relieves the government of a burden it would otherwise be obligated to bear (Simon, Dale, and Chisholm, 2006). Nonprofit tax exemption serves as a barrier to entry by for-profit hospitals, and hence reduces the level of for-profit competition faced by nonprofit hospitals. If the social welfare gains from reduced for-profit competition are sufficient, we have a new justification for differential taxation.

We have not yet procured this data, but have obtained funding and verified feasibility with the consultant who will provide this data. Hence, we have no empirical results to report at this time. We provide an outline of our research plan below, and invite your comments and suggestions as we proceed to implement our plan.
II. Lit review

A. Bazolli et al. (2010) looked at 2005 data from California and Florida nonprofit hospitals to see how either including or excluding bad debt and charity care affects the assessment of the hospital's commitment to other community benefits. They found that only when bad debt and Medicare shortfall are included do hospitals in those states meet acceptable community benefit levels. They tracked market factors especially HMO competition and the presence of for-profit hospitals, but found "few significant relationships were present for the market factors" (p. 1022).

B. Gray and Schlesinger (2008) looked at Maryland hospitals expenditures for other than charity care, using data made available through the state's community benefit laws. They found variability in other community benefit expenditures, much of it based on "local needs, resources, and resource allocation decisions." They did not include competition variables in their analysis.

C. Ginn, Shen and Moseley (2006) tested the effect of community benefit laws and type of ownership on hospital-based health promotion services. A measure of competition (the Herfindahl-Hirschmann Index (HHI), as measured by admissions adjusted for outpatient volume, was included among the control variables. They concluded that: "intensity of competition is significantly and positively associated with the provision of hospital-based health promotion services. This suggests that hospitals offer these services for competitive reasons."

D. Ginn and Moseley (2009); and Moseley, Shen, and Ginn (2010). Quasi-
experimental panel study to determine the extent to which state-level community benefit laws affect provision levels of other community benefits. Included a dummy variable based on the HHI as a control, but did not report results for this variable. However, in explaining their main finding of little difference between states adopting and not adopting such laws, they comment "... some part of this could be attributed to the possibility that the not-for-profit hospitals in both states without community benefit laws and states with community benefit laws may have been responding to competitive forces by providing more health promotion services as a marketing strategy to increase inpatient utilization. This assumes, however, that not-for-profit hospitals are more likely to use this marketing strategy than are investor-owned hospitals."

E. Proenca, Rosko, and Zinn (2000; 2003) (based on citation – need to confirm by reading the original). Found that the intensity of competition is significantly and positively associated with the provision of hospital-based health promotion services. This suggests that hospitals offer these services for competitive reasons.

F. Capps, Dvaid and Carleton (2010). Using California data, found little difference in for-profit and nonprofit reactions to competition.

G. Young et al. (2013). Determined the impact of many covariates, including HHI (based on admissions to general acute-care hospitals within the county) on community benefits and other community benefits, using Form 990 Section H data. Found no statistically-significant effect of competition on community benefits and other community benefits.
H. Ferdinand et al. (2013). Used Form 990 section H data to compare community and other community benefits provided by religiously-affiliated hospitals with other nonprofits and for-profits. Found religious hospitals had a significantly higher provision of community benefits than other hospital categories. Although the HHI (at the health service area level) was included as a covariate, its coefficient is neither displayed nor discussed.

III. Theory

A. Multiple Theories relevant

B. We focus on Eckel and Steinberg (1991, 1993)

1. Managers have preferences over collective goods (CG) and perks (X)
   a. They also care about $, but can be simplified out here.
   b. The managerial preference parameter $\alpha$ ranges from 0 to 1 and measures the relative importance placed on CG and X.
      (1) If $\alpha=0$, the manager cares only about X
      (2) If $\alpha=1$, the manager cares only about CG
      (3) The bigger $\alpha$ is, the more the manager cares about CG and the less she cares about X
   c. Empirical support for this general approach Eldenburg et al.(2004) found, in a sample of California hospitals, that “different ownership types place different weights on levels of charity care and administrative expenses.”

2. Results
a. In equilibrium, profits from the provision of medical care are spent on CG and X in proportions determined by managerial preferences and the relative price of collective goods.

b. Competition reduces those profits, resulting in a decrease in both P and G.

c. Competition for donors reduces the net revenues from fundraising, also reducing P and CG.

d. Competition can raise or lower social welfare, as it reduces the standard dead-weight loss due to monopoly underprovision of medical services but increases losses due to underprovision of collective goods.

3. Applied to the present problem

a. Suggests that there is a statistical distribution of values for the marginal effect of profits from medical care on CG expenditures, depending on the distribution of $\alpha$ and the mechanism that sorts managers into nonprofit and for-profit positions.

b. At the low end, nonprofits will look just like for-profits

   (1) Both provide CG to the extent they enhance profits.

   (2) Competition, if anything, reduces the profit maximizing level of CG in both sectors (not modeled in present context).

   (a) Bagnoli and Watts (2003) model predicts
competition reduces for-profit provision of CG, but this is a very different model.

(b) Look for evidence on competition and csr/corporate donations.

(3) So there should be no differences between for-profit and nonprofit mean expenditure on CG.

c. At the upper end (say, top quintile by expenditure on collective goods), there are differences

(1) Nonprofits with high $\alpha$ spend more than the profit-maximizing amount on CG.

(2) In response to increased competition, both sectors will reduce CG spending because the profit-maximizing expenditure falls.

(3) But the nonprofit response to competition will be larger because competition reduces their ability to exceed profit-maximizing expenditure levels.

d. The sectoral composition of competing firms affects a nonprofit's expenditures on collective goods.

(1) Within the Eckel-Steinberg model

(a) For-profits do not compete for donors

(b) So the effect of for-profit competition on resources available for CG is smaller than the effect of
nonprofit competition.

(c) Hence a nonprofit competitor reduces nonprofit CG expenditure more than a for-profit competitor.

(2) Outside the model: Schlesinger and Gray, 2006 list a variety of other reasons composition matters, most of which go in the opposite direction (We need to confirm this interpretation).

4. Testable predictions

a. Competition reduces nonprofit hospital CG expenditures.

b. The effect of a nonprofit competitor on nonprofit CG expenditure differs from that of a for-profit competitor.

c. In response to competition, high-end nonprofits reduce their CG expenditures more than low-end nonprofits.

(1) But not quite testable with our cross-section data, CG depends on both the competition level and $\alpha$.

(2) Testable in a panel (need a few more years of data to have sufficient within-organization variation before this approach is feasible).

(3) Or is there an IV for us here?

C. Do other models make the same predictions?

1. James (1983) makes similar predictions

   a. She models nonprofits as providing multiple outputs, some favored
in organizational utility, some neutral (used only to raise money to finance other outputs), and some disfavored but nonetheless used when sufficiently profitable.

b. If Medical Care is a neutral output and CG provision is a favored one, then competition will decrease collective-good expenditures.

c. If CG provision is neutral and either Medical Care, X, or both are favored, competition will have no effect on CG expenditures.

2. Models of hospital competition and quality

a. Quality is not the same as CG provision, but results may carry over to CG

(1) Hospital competition models assume quality increases consumer demand so that quality is a form of non-price competition.

(2) If CG also increases consumer demand, it could be modeled isomorphically.

(3) Corporate philanthropy and corporate social responsibility theories detail reasons for effects on consumer demand and provide supporting evidence (e.g., Galaskiewicz and Colman, 2006).

b. If prices are administratively set (e.g. Medicare), Gaynor (2006) shows that competition unambiguously reduces quality. This is true for both nonprofit and for-profit hospitals, where nonprofits
maximize utility depending on quality and profits. Most of the empirical studies cited in Gaynor and Town (2012) confirm this.

c. If hospitals compete by selecting both prices and quality, competition has an ambiguously-signed theoretical effect on quality. Empirical studies cited find mixed results in a fashion consistent with theory. (Gaynor and Town, 2012).

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7. Organizational behavior theories.

IV. Data

A. CG expenditures

1. Section H of form 990 was added in 2009. The section, required only for nonprofit hospitals, asks about hospital CG expenditures.

a. Other Community Benefit expenditures (OCB) are those in programs intended to improve community health, advance medical education and research, or benefit other community groups through donations made by the hospital to others.

b. A consolidated system report sufficed until 2011. Thereafter, hospitals are required to report OCB for each facility.
c. We will use the following net expense variables from section H:

1. Community Health Improvement Services and Community Benefit Operations (Part I, line 7e)
2. Health Professions Education (I, 7f)
3. Subsidized Health Services (I, 7g)
4. Research (I, 7h)
5. Cash and In-kind Contributions to Community Groups (I, 7j)
6. Community Building Activities (includes physical improvements and housing, economic development, coalition building, community health improvement advocacy, and other such activities (II, 10)

d. We will not use information from I, 7a through I, 7d or part III on charity care, bad debt, medicare, and under- or unreimbursed expenditures for means-tested government programs.

e. Selvam (2011) notes that mandatory completion of section H was delayed in response to a 2011 petition from AHA and other hospital associations that indicated confusion about some of the categories on the part of many hospitals. Thus, our 2011 data may be incomplete and suffer from inconsistencies related to confusion.

2. Digitized data from Section H are available for purchase from Guidestar (pricy) or a consultant who is digitizing the data for NCCS (more reasonable).
a. We are requesting data for fiscal year 2011 from the consultant

b. We are requesting data at the consolidated system level – facility data has not yet been digitized and would cost a lot more.

c. Our sample will include all available digitized forms from 3 states: California (n = 127), Florida (n = 87), and Indiana (n = 69).

B. Other hospital data from form 990

1. location

2. total revenue (form 990, section I, line 12)

3. total expenses (I, 18)

4. net assets or fund balances, EOY (I, 22).

5. number of facilities (constructed for us from Schedule H, part V)

6. type(s) of facilities (Licensed hospital, General medical and surgical, children’s hospital, teaching hospital, critical access hospital, research facility, ER - 24 hours, ER - other. (H, V, 2-9).

C. Data on the local community

1. competition – to be constructed from various on-line state data bases.

2. we may use other community variables – urban or rural county, poverty rate, etc. available from standard sources.

V. Empirical Specification

A. A series of regressions with varying measures of community benefit expenditures as dependent variable, varying measures of competition as the independent variable of interest, and various controls.
B. Issue: Censored dependent variable.

1. Solutions to be chosen from Tobit, CLAD, and the Two-Part Model.

C. Issue: What measures of competition?

1. HHI (Herfindahl Hirschmann Index) is the usual measure, consisting of the sum of squared market shares for all the firms in a market
   a. Various definitions of “market.” We are probably restricted to defining markets by county and/or SMSA. Markets defined by distance and patterns of consumer use are available from proprietary sources, but are too expensive and/or cannot be matched with our 990 data.
   b. Various measures of market shares. We are probably restricted to using total outpatient beds owing to cost of data, but other candidates include inpatient and outpatient discharges.

2. But HHI does not line up with the economic theory very well.
   a. It was developed to capture the impact of concentration on the price when oligopolists produce a homogeneous product and compete in a Cournot-Nash game. It does not have theoretical justification elsewhere. (see, e.g., Gaynor and Town, 2012).
   b. Hospitals do not produce a homogeneous product (if for no other reason than specialization of for-profit, government, and nonprofit hospitals into different market niches). HHI pays no attention to sector.
c. The hospital market is one of Cournot Nash competition on price only. Prices often result from bargaining between insurers or government agencies and providers, and consumer incentives do not always line up with those of the payer. There is nonprice competition as well as price competition.

d. The Dept. of Justice and the Federal Trade Commission recently revised their horizontal merger guidelines to de-emphasize the HHI in favor of “econometric and economic-theory based approaches to merger analysis” (quote is from Gaynor and Townes, 2012).

3. Alternatives:

a. # of beds per capita (that is, divided by market-area population of potential patients) by hospitals in the same market, excluding beds per capita for the hospital being observed. Include controls for shares of those beds in for-profit and government hospitals. See Gaynor and Townes (2013) for a discussion of the merits of this approach, which captures the constraining influence of competition on individual firm behavior.

b. HHI of others – calculate the HHI as if the hospital being observed were not in the market. Include controls for shares of those beds in for-profit and government hospitals.

VI. Results

VII. Conclusions
References


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