Is Vertical Integration Anticompetitive?
Definitely Maybe (But That's Not Final) *

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1 Introduction

The papers in this issue by Cuellar and Gertler (2005) and by Ciliberto and Dranove (2005) present some interesting new evidence on a phenomenon we know relatively little about: vertical integration in health care. The authors are to be credited for their pioneering work.

In what follows I will first provide some background on integration in health care and on the economic theory on vertical integration. I then turn to discussing the seemingly contradictory results in these two studies, and indicate that they may not be as puzzling as they first seem. Last, I discuss directions for research and policy.

*I am thankful to Richard Frank for his patience and helpful comments. Much of my thinking on vertical integration was developed through collaborative work with Deborah Haas-Wilson. I am grateful to her for her insights and collegial interaction. The usual caveat applies.

2 Background

Much attention has been devoted to the analysis of competition in health care, both in research and in antitrust (see Dranove and Satterthwaite, 2000; Federal Trade Commission and Department of Justice, 2004; Gaynor and Haas-Wilson, 1999; Gaynor and Vogt, 2000; Haas-Wilson, 2003, for surveys). Most of the attention has focused on horizontal competition among hospitals. This is certainly appropriate – it is obvious that hospitals compete with one another, and it is now well understood that this competition has a significant impact on prices and quality. Further, there has been a large amount of horizontal consolidation in hospital markets, leading to serious concerns about impacts on competition (Federal Trade Commission and Department of Justice, 2004).

Vertical relations between health care firms, however, have not been studied extensively.[1] Certain types of vertical relations in health care have been the subject of significant antitrust scrutiny — exclusive dealing between physician practices and hospitals (usually for a specialized service, e.g., radiology, anesthesiology, or pathology), and most-favored-nations clauses between insurers and providers, which require the provider to give the insurer a rate as low as it gives to any buyer (see Gaynor and Haas-Wilson, 1998; Haas-Wilson, 2003, for reviews of vertical issues in health care).[2]

[1] "Vertical" typically refers to firms that have a supplier-demander relationship. The supplier is referred to as the "upstream" firm, and the demander is referred to as the "downstream" firm. Upstream firms sell an input to downstream firms, which they use in production. For example, an auto manufacturer is upstream from dealers, who are downstream. In turn, steelmakers are upstream from auto manufacturers, who are downstream. By vertical relations I mean any significant non-market relation between upstream and downstream firms. This includes for example, vertical integration, exclusive dealing, and most-favored-nation clauses.

[2] Complaints about exclusive contracts between hospitals and physician practices are the most numerous type of antitrust case brought in health care. One of these cases was decided by the Supreme Court (Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2(1984)), and represents an important legal precedent on exclusive dealing and tying. There have also been a number of cases on most-favored-nations clauses, e.g., Ocean State Physicians Health Plan v. Blue Cross & Blue Shield, 883 F.2d 1101 (1st Cir. 1989), *cert.*

Vertical integration in health care has not been subject to significant antitrust scrutiny. This is due in part to the fact that vertical integration was quite rare in health care until recently. Integration between hospitals and physician practices peaked in 1996 at approximately 40 percent of all hospitals, and declined thereafter (Burns and Pauly, 2002; Ciliberto, 2005).[3] This pattern was repeated with vertical integration of hospitals into the insurance market, although the extent of vertical integration was never as great as between hospitals and physicians (Burns and Pauly, 2002). This growth coincided with the growth of managed care, and in particular with the perceived growth in managed care organizations' negotiating power with hospitals. It has been well documented that managed care exerted significant downward pressure on hospital prices. One might readily imagine two possible responses on the part of hospitals: take actions to increase efficiency and thereby reduce costs[4], or take actions to increase bargaining power with insurers.

The change in vertical relations in the health care sector that occurred in the 1990s is potentially significant. In spite of the importance of this topic, there has been little empirical economic research in this area, up until the papers by Cuellar and Gertler and Ciliberto and Dranove.

It should also be noted that there is relatively little empirical evidence in the general economics literature on the effects of vertical integration. There are papers on U.S. gaso-

denied, 494 U.S. 1027 (1990) and Blue Cross & Blue Shield v. Marshfield Clinic, 65 F.3d 1406 (7th Cir. 1995), *cert. denied*, 116 S. Ct. 1288 (1996).

[3]I note that the "vertical" categorization does not properly apply to hospitals and physician practices. Physicians supply a service which is used in the production of hospital services. Hospitals, however, also supply inputs that doctors use in the production of their services. Further, both hospital and physician services are sold directly to buyers. The relationship between hospitals and physician practices might be better described as "complementary," rather than "vertical." I will, however, continue to use the term "vertical" to be consistent with the existing literature.

[4]A profit-maximizing firm would already be efficient. However, it is possible that hospitals do not maximize profits, either because most of them are not-for-profit, or due to a variety of reasons that could lead firms of any ownership type to deviate from perfectly maximizing behavior.

line markets (Barron and Umbeck, 1984; Hastings, 2004; Shepard, 1993; Vita, 2000), retail beer sales in the U.K. (Slade, 1998; Snyder, 1994), cable television (Chipty, 2001; Ford and Jackson, 1997), fast food (Graddy, 1997), and cement (Hortasçu and Syverson, 2004). The majority (but not all) of these papers find that vertical integration results in lower prices. The papers by Cuellar and Gertler and Ciliberto and Dranove in this issue also make a contribution by providing new evidence on the effects of vertical integration from an industry where this has not been previously examined.

3 Economic Theory

What does economic theory tell us about the likely effects of vertical integration? For better or for worse, there is no definite effect that vertical integration must have. Theory tells us that integration can enhance efficiency or that it can be anticompetitive (see Cooper et al., 2005; Motta, 2004; Rey and Tirole, 2005, for surveys). Further, the results are specific to the different models, and are often fragile within a particular model (in other words, a given model often produces different results under specific conditions).

Vertical integration can be efficiency enhancing by lowering transaction costs, ensuring supply of an input, or improving monitoring. In addition, there are gains from pricing coordination. Doctors and hospitals sell complementary products.[5] However, since the firms are independent, they do not coordinate pricing. This means there can be an efficiency gain from integration due to a single firm internalizing the effects that physician and hospital pricing decisions have on each other.[6]

[5]One wouldn't want open heart surgery performed without a doctor, nor would one want the doctor performing open heart surgery in her office.

[6]Note that the standard "double marginalization" problem does not arise in this context because hospitals and physician practices are not literally vertical to each other.

Vertical integration can have anticompetitive effects via a number of possible mechanisms. Since physicians and hospitals complement it other in producing health care treatments, it is possible that integration could have a foreclosure effect.[7] Integration could foreclose rival hospitals from access to doctor services, or it could foreclose rival physician practices from hospital services. This can increase market power.

It is also possible that integration between a hospital and multiple physician practices can be anticompetitive by reducing the number of firms in the physician services market. The vertical integration can thereby have a horizontal, anticompetitive, effect.

Hospital-physician integration may also lead to increased prices, not through a foreclosure effect, but by increasing the bargaining power of the integrated firm with insurers (Gal-Or, 1999). In particular, when the competitiveness of the hospital and physician markets are similar, then both the hospital and the physician practice (profitably) charge higher prices. When the two markets differ significantly in their competitiveness, then integration may be profitable if the hospital and physician practice deal with each other exclusively. In Gal-Or's model, there is no effect on social welfare, although increased prices reduce consumer welfare (and transfer it to producers).

Overall, it is hard to say what to expect the effect of hospital-physician integration to be. Many things are possible — nothing is definite.

Although the picture appears muddled, some conclusions that can be drawn from existing theory. With regard to anticompetitive effects, it is possible for vertical integration to reduce welfare only when one of the firms involved possesses significant market power. Thus, one should not expect to find anticompetitive effects if either the hospital or physician practice in an integrated firm did not have market power prior to integration. If integration increases

[7]Foreclosure does not have to be absolute, it simply has to make the factor more costly.

hospital market power, it will be accompanied by an increase in price (more accurately the price-cost margin). If integration increases hospital efficiency, then it leads to decreased hospital costs.

There are some additional predictions that theory yields. If integration increases hospital market power by foreclosure of physician services, then rival hospitals will receive fewer physician services from the integrated firm.[8] If integration increases hospital market power via foreclosure, then the physician practice(s) that became part of the integrated firm must have substantial market power prior to integration. Alternatively, integration may have the effect of increasing the integrated firm's power in the physician market. In that case, the converse of the preceding predictions apply. Price should increase in the physician market, the hospital should have had substantial market power prior to integration, and rival physician practices should have less access to hospital services from the integrated firm.

If integration increases bargaining power via an insurer, as in Gal-Or, then there are some other predictions. When the hospital and physician markets differ substantially in their competitiveness, we will find integration (and higher prices) only if the components of the integrated firm deal exclusively with each other. When hospital and physician markets are similar in their degree of competition, then integration can occur and lead to higher prices without exclusive dealing. While one might think that physician markets are typically more competitive than hospital markets, that will not necessarily be true in markets for specialized physician services.

[8]If they purchased physician services another impact would be that they could pay a higher price.

4 Evidence and Inference

What are the contributions of the studies by Cuellar and Gertler and Ciliberto and Dranove? These authors have done exactly what should be done with first wave studies — extract hypotheses from theory at the highest level of generality and look at broad trends in the data. The most basic economic question about vertical integration is whether it is efficiency enhancing or anticompetitive. That is precisely the question these studies are trying to answer.

What do we make of the seemingly contradictory results of these two studies? Cuellar and Gertler find evidence consistent with anticompetitive effects of physician-hospital integration. Ciliberto and Dranove find no such evidence. Their results point to integration being associated with lower hospital prices, although these effects are imprecisely estimated.

Is it surprising that these two studies have different results? My answer is "no." As the previous section indicates, theory is ambiguous regarding the effects of vertical integration. It should come as no surprise that two different studies that use data from (substantially) different markets arrive at different sets of results.[9] It is entirely plausible that physician-hospital integration increased market power in hospital markets in Arizona, Florida, and Wisconsin from 1994 to 1998, but did not do so in California from 1994-2001. It is also consistent with empirical literature on any topic. When we look at any empirical literature, we find studies with contradictory results. The fact that this has occurred in studying this topic is not surprising, especially given that these are the first two papers on the subject.

Is it a problem that these two studies have different results? Again, my answer is "no."

[9]The two studies use similar methods, but data from different states. Cuellar and Gertler use data from Arizona, Florida and Wisconsin from 1994 to 1998. Ciliberto and Dranove use data from California from 1994-2001.

I have two reasons for this response. We tend to look for a single answer — "someone must be right" (ergo someone must be wrong). As pointed out above, this is not correct. A reasonably likely answer is "they're both right." Even though this is true, the fact that these studies arrive at different answers will act as a spur to further research — and that's a good thing.

What should the antitrust policy response be to the findings in these two studies? The majority of studies of vertical integration in other industries find that it is benign or beneficial. The Cuellar and Gertler study is a potentially important exception from that general trend. The antitrust enforcement agencies should scrutinize vertical mergers in health care where there is some initial evidence providing cause for concern, however, the research evidence does not support treating them as generally harmful to competition.

Cuellar and Gertler and Ciliberto and Dranove have done us a service by opening up a new area of inquiry with intriguing and important results. These first generation studies have uncovered some broad trends. The task for the next generation of studies is to dig deeper. I see two directions in which future studies should go. The first, and most obvious, is to uncover the specific mechanisms behind the broad findings in Cuellar and Gertler and Ciliberto and Dranove. There are some predictions from theory that can be brought to bear for this purpose. Part of this effort will probably be the necessary development of institutionally accurate applied theory that takes account of the complementary (as opposed to vertical) relationship of hospitals and physician practices. The second is to use some broad theoretical predictions that were not explored in either of these two studies. Theory indicates that one of the parties in the integrated firm must have pre-existing market power in order for integration to be anticompetitive. This prediction should provide some additional leverage for empirical work. In addition, theory provides some predictions about what should happen

in physician markets when physician-hospital integration is anticompetitive.[10] There is also the interesting and important question of whether integration supports price increases by unintegrated rivals as well as the integrated firm (if integration does lead to a price increase).

The institutional changes that occurred in health care markets during the 1990s offer an excellent opportunity to learn about the impacts of vertical integration that is not present in many other industries. The papers in this issue pave the way for a rich and interesting program of research. This research should be built on the three supports essential to good empirical research in economics: institutional facts, economic theory, and data. They must each be present to support the research. It is my hope that we will soon see papers that use this research framework to build upon the efforts of Cuellar and Gertler and Ciliberto and Dranove and further illuminate this interesting and important area.

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[10] I should mention that data on physician markets are far more limited than for hospital markets. This presents a significant challenge for studies of this type.

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