



## Regulators Using New 'Travel Cost' Models in Merger Enforcement

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July 18, 2013

*Big estimated travel cost results in small geographic markets.*



The antitrust agencies (Federal Trade Commission's Bureau of Competition and Department of Justice's Antitrust Division) are on a roll. After a decade of losses, they have successfully challenged seven hospital mergers. While the agencies' goal remains the same — protecting competition between hospitals for preferred spots in payer networks — how they go about meeting it has changed. And, that change, appears to be fueling a more aggressive posture toward hospital mergers.

The agencies now use "travel cost" models to analyze hospital mergers with the result that they are finding bigger merger effects in smaller markets. The term "travel cost" comes from environmental economics, where similar models are used to evaluate pollution abatement programs. The agencies refer to the model as "hospital merger simulation," "willingness to pay," or "patient choice."

Although the agencies are careful to qualify their public statements — that the methodology is just one of many enforcement tools they use, and that any model must "fit" the commercial realities of a particular case — the new methodology seems to be behind a number of enforcement decisions.

In this article, we describe how the agencies came to adopt the methodology, how travel cost models are used to predict the effects of mergers, and where the methodology is likely to find problems. We conclude by critiquing the methodology and by outlining the challenges for merger analysis in a post-Affordable Care Act world.

### How did we get here?

In 2002, after seven straight unsuccessful merger challenges, then-FTC Chairman Timothy Muris announced that the agency would study consummated mergers to gain a better understanding of how hospitals compete and how mergers change that competition. About the same time, the agencies also began to develop formal models of the bargaining between health plans and hospitals to evaluate hospital mergers. In these models, a hospital's bargaining power is derived from its location, and from cost of travel time for prospective patients.

### How the travel cost methodology works

Since most medical care in the United States is covered by third-party insurance, out-of-pocket patient expenses are only a fraction (sometimes zero) of the price. To infer value, economists use travel costs as a proxy for the "price" that consumers pay to consume hospital services. In other words, the value of a hospital to a patient is determined, in part, by how far patients are willing to travel to get to it.

To implement the methodology, economists first estimate a "choice model" that determines the probability that a particular patient goes to a particular hospital. The choice probabilities are determined by both patient and hospital characteristics, and they typically vary with travel time (patients prefer closer hospitals), with quality (patients prefer hospitals with lower mortality and morbidity risk), by acuity (patients undergoing elective surgery are willing to travel further), and by political and geographic boundaries (patients are reluctant to cross state lines or rivers).

The choice model determines the value of a particular hospital to a health plan's network by calculating the "harm" to consumers if the hospital declines to participate in a network, thereby removing it as a choice for patients. The methodology measures this harm in terms of an individual's "willingness to pay" for a given hospital, which is measured in minutes of travel time.

To convert the bargaining power of a hospital, measured in minutes of travel time, into a monetary value, the agencies relate observed prices for hospital services to the measures of bargaining power. Because the bargaining power (in minutes) is small relative to the price for the service, the imputed travel cost can be quite large; one estimate is in excess of \$125 per minute. This is well above the value of time typically used in travel cost studies of environmental harm (about \$25 per hour). The sensitivity of hospital choice to travel time is the salient feature of the methodology, and is behind the prediction that mergers between nearby hospitals are likely to raise price.

**Where the methodology is likely to find anticompetitive problems**

In our experience, the travel cost methodology is likely to find significant competitive problems in four different scenarios:

1. Where the two merging hospitals are located near one another, but far from non-merging hospitals.
2. In areas of low population density. In these areas, the non-merging hospitals are likely to be far away from the merging hospitals, so that they cannot provide much of a constraint on the bargaining power of the merging hospitals.
3. In areas where population is arrayed on a line, like along the east coast of Florida, where most of the population is clustered within 20 miles of the coast. In areas like this, geographic competition is limited to only one dimension (e.g., north-south). This increases competition between adjacent hospitals and limits competition from non-merging hospitals.
4. Where the merging hospitals are big relative to non-merging hospitals. Anyone familiar with antitrust should recognize that these four conditions are similar to those that cause competitive issues in other industries. What is different about hospitals is that it is much easier to get to a significant loss of competition, due to the large imputed cost of travel. For example, if travel time is valued at \$125 a minute, a 5 percent increase on a \$10,000 hospital bill represents only four minutes of travel time.

**Is the methodology reliable?**

When Froeb was appointed chief economist of the FTC in 2003, the use of formal models of competition to evaluate mergers was relatively new. Then-Chairman Muris asked him to determine how formal models should be used to evaluate mergers. His findings can be easily summarized:

*Before using a model to predict the unobserved post-merger world, make sure that it can explain the significant features of competition that we can observe.*

The travel cost models can explain some of what we observe, like variation in price across providers. But to reconcile the observed prices with the apparent reluctance of patients to travel, the models impute what seems like an implausibly large travel cost. We suspect that most patients would travel willingly to more distant, out-of-network hospitals for much less than \$125 a minute, especially for less acute care. If so, this would raise obvious questions about the model's reliability.

Of course, patients' observed reluctance to travel could be due to factors other than travel costs, like lack of information. If so, we should find this out and build it into the analysis.

The travel cost model has been developed in a world of large open networks, little patient cost-sharing, and with a focus on only one component of the health care value chain — hospitals. Increasingly, patients will face significantly higher out-of-pocket costs, and find that the purchase of a health insurance product limits choice to a narrow network. Analyzing competition in a post-ACA world may require a different method of modeling competitive efforts that take into account such things as the choice of the health plan, in addition to the choice of hospital.

**Conclusion**

Every model is an abstraction away from reality. If you look long enough, you will find some feature or assumption of the model that is at odds with what you can observe. This is neither surprising nor interesting. The relevant question is whether the discrepancy is significant enough to make us question the model's predictions. We have pointed out a number of features of the travel cost models that, in our view, raise significant issues and merit further study.

Economists, led by those at the agencies, have made a lot of progress toward understanding hospital competition. Further progress is going to depend on the same kind of transparency and research that led to the development of the travel cost models in the first place. As the cost and quality pressures on hospitals to merge increase, it is important to be able to predict their anticompetitive costs accurately so that we can weigh them against their pro-competitive benefits.

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*The opinions expressed by authors do not necessarily reflect the policy of Health Forum Inc. or the American Hospital Association. The authors acknowledge support from the American Hospital Association, and useful comments from Gregory Werden, Steven Tschantz, Michael Doane and Cory Capps. This article is based on findings in Doane et al. (2013).*

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**Donald Bellefeuille** · 2 days ago

All well and good except that most hospitals were founded long ago in communities where the people who would use them resided. They didn't travel at all to get to the hospital. I don't think this model properly understands this and the fact that the Hill-Burton Act after WWII helped finance more community hospitals and hospital expansions that fixed them in place. These are hard to move assets so people have been forced to go to them but that is changing as the necessity for inpatient care declines and outpatient resources, easy to build and move around, develops. This is what they should be studying, not hospitals.

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