Can We Measure Hospital Quality from Physicians’ Choices?

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February 15, 2005

Abstract

In this paper, we provide an alternative methodology to rank hospitals. We argue that our measure of relative hospital quality has the following desirable properties: a) robustness to manipulation from the hospital’s administrators; b) comprehensiveness in the scope of the services analyzed; c) inexpensive in terms of data requirements, and d) not subject to selection biases. Accurate measures of health provider quality are needed in order to establish incentive mechanisms, to assess the need for quality improvement, or simply to increase market transparency and competition. Public report cards in certain US states and the NHS ranking system in the UK are two attempts at constructing quality rankings of health care providers. Although the need for such rankings is widely recognized, the criticisms at these attempts reveal the difficulties involved in this task. Most criticisms alert to the inadequate risk-adjustment and the potential for perverse consequences such as patient selection. The recent literature, however, uses sophisticated econometric models that are capable of controlling for case-mix, hospital and patient selection and measurement error. The detailed data needed for these evaluations is, however, often unavailable to researchers. In Spain, there is, neither public hospital rankings, nor public data on hospital output measures such as mortality rates. Lacking this information, we propose to construct a relative hospital quality measure using the choices of Medical Schools graduates over all training vacancies in hospitals. We complement this information with available data on hospital characteristics. The data covers the period 1995 to 2000. Spanish graduates choose hospital training vacancies in a sequential manner that depends on their average grade. Our framework relies on three assumptions. First, high quality hospitals provide high quality training. Second, graduates are well informed decision makers who are well qualified to assess hospital quality. Third, they prefer to choose a high quality vacancy rather than a low quality one ceteris paribus. If these assumptions hold, then the first graduates to choose are likely to grab the best vacancies and the last ones to choose are stuck with the worst available. Thus, it is possible to infer from graduates’ choices quality differentials amongst hospitals. We model the graduate’s decision as a multinomial-logit a la McFadden. Unlike in standard applications of McFadden’s model, in our data, the choice set is not constant across physicians but it shrinks along the sequential hospital choice process. This characteristic results in a likelihood function which resembles the “exploding conditional multinomial logit” of Chapman and Staëlén (1982) and Bradlow and Fader (2001).

Keywords: Hospital Quality, Exploding Nested Logit, Revealed Preference, Physicians labor market.

We acknowledge the support of the Ramón Areces Foundation grant. We thank Michael Creel, Zvi Eckstein and Pedro Albarrán for valuable comments on previous versions of our work. We would also like to thank Elvira González and Mercedes Cabañas for providing us with the main data.