



Administration of Emergency Medicine



CrossMark

EFFECT OF CERTIFICATE OF NEED LAW ON EMERGENCY DEPARTMENT LENGTH OF STAY

Jomon Aliyas Paul, PhD, Huan Ni, PhD, and Aniruddha Bagchi, PhD

Department of Economics, Finance and Quantitative Analysis, Kennesaw State University, Kennesaw, Georgia

Reprint Address: Jomon Aliyas Paul, PhD, BB 318 Coles College of Business, Kennesaw State University, Kennesaw, GA 30144

Abstract—Background: The impact of the Certificate of Need (CON) law on Emergency Department (ED) care remains elusive in the academic literature. **Objectives:** We study the impact of CON law on ED Length of Stay (LOS). **Methods:** We examine ED LOS to detect any statistically significant difference between CON and non-CON states. We then estimate the effects of CON law on ED LOS by treating CON as an exogenous (endogenous) variable. **Results:** We find that the CON legislation positively impacts ED care by reducing ED LOS (95% confidence interval [CI] –61.3 to –10.3), and we can't reject the hypothesis that the CON legislation can be treated as an exogenous variable in our model. An increase in the stringency of the CON law (measured by the threshold on equipment expenditure that is subject to a CON review) tends to diminish this positive impact on ED LOS (95% CI 9.9–68.0). The party affiliation of the Governor (95% CI 10.3–37.5), the political environment as a function of the agreement on voting between state senators (95% CI –64.8 to –12.9), proportion of young population (0–17 years) when compared with the elderly (>65 years) (95% CI –2299.7 to –184.1), proportion of population covered by privately purchased insurance (95% CI –819.3 to –59.9), etc., are found to significantly impact ED LOS in a state. **Conclusion:** This study provides a better understanding of the impact of CON law on ED care, which extends the previous literature that has mainly focused on CON effects on inpatient care. © 2014 Elsevier Inc.

Keywords—health policy; emergency department

INTRODUCTION

Background

One of the fundamental elements in the analysis of the health care industry is the legal framework and related reforms. This project focuses on studying the effects of a health care law known as the Certificate of Need (CON) on the length of stay (LOS) in the emergency department (ED). The CON laws were developed to some extent in 1972 by Social Security Amendments, but more significantly in 1974 by the National Health Planning and Resource Development Act. It is a legal document required before proposed acquisitions, expansions, or creations of facilities are allowed. The primary motivation behind its enactment was to avoid unnecessary capacity (supply), control health expenditure, improve access and quality of care, and increase competition (1). This law is still in vogue in 36 states. A detailed description of the changes that CON law has undergone in various states over the years since its enactment is available in Hellinger (2).

Further, studies focusing on impacts of the CON law on ED care are notably lacking, especially at the national level. Examining the effect of CON on ED is important for at least 2 reasons: 1) the ED is generally the front end of the hospital for a majority of the patient population, especially those who are uninsured; and 2) other

departments derive a substantial proportion of their revenue from the ED. Furthermore, empirical models analyzing the health care industry from a legal standpoint need to take a comprehensive look at variables besides measures of CON. These variables include but are not limited to economic indicators, health care supply, health care demand that may be affected by demographic characteristics, health status, health insurance coverage status of local population, and state political environment/policy-based variables.

Most of the existing studies model the CON as a simple binary variable, that is, whether a state has a CON law or not. This line of analysis consequently fails to capture the effects of CON that result from the variations in the features of the CON law (such as its stringency) across states. Under CON law, health care providers have to obtain the government's approval if they plan to substantially expand capacity or enter a new market. Thus, any hospital expenditure beyond a threshold has to undergo a formal CON review. Note that a higher threshold indicates less stringency of the CON law because in such a case, fewer projects need to undergo a CON review. In this article, we control for the stringency of CON law across states by using information on the thresholds for expenditure on equipment, capital, and service.

In the literature, CON law has been treated as exogenous, even though there are econometric concerns that it could be endogenously decided by policymakers to improve health care supply. We provide a brief discussion of key statistical terminologies used in this article for the benefit of the readership in the [Appendix Table 1](#). For a detailed overview of the same, readers are encouraged to refer to Wooldridge (3).

If CON law is exogenous, then it means that in the regression model, the prediction error is random conditional on the status of CON law in a state. In contrast, if CON law is endogenous, then it means that the prediction error varies systematically with the status of the CON law in that state. Exogeneity could therefore be too strong an assumption because we cannot rule out the possibility that there may exist variables that are unobserved and omitted in such a model. Such an omitted variable might be correlated with CON law but will be included in the error term because it is unobserved. This further indicates that CON law itself could be correlated with error term and therefore might warrant an endogenous treatment. Failing to treat CON law as endogenous could bias the estimated effects of CON if it is indeed endogenously determined, that is, we may not be able to consistently estimate the causal effect of the regressor (CON law) on the dependent variable (ED LOS) by treating CON law as exogenous.

This study contributes to the literature along the following lines: 1) we focus our attention in particular

on the effect of CON law on ED care (average length of stay in ED for each state) at the national level, whereas most studies have been mainly focused on its effects at the hospital level within a specific region; 2) we take into account some important characteristics of CON law such as stringency of the law that is measured by the thresholds of capital, equipment and service expenditures, etc., to model the effects of CON law beyond a binary framework; 3) we relax the strong exogenous assumption about CON law that has been made in the literature and investigate whether CON law should be treated as an endogenous variable; and 4) our models consider a host of variables featuring population demographics, health insurance coverage, political environment, etc. in addition to CON features, which could provide some insight into health disparity for health policymakers.

METHODS

In this study, we investigate the impact of CON law on ED LOS in each state at the national level. To the best of our knowledge, there is no single data set that would include all the variables we need for our analyses. Therefore, we collect information on these variables from a variety of sources ([Appendix Table 2](#)).

Our outcome measure is the average LOS in the ED in each state for the years 2007 through 2009. We chose ED LOS as our variable of interest as it has often been used in the literature as one of the measures of ED care quality, which has been found to have a negative relation with ED patient satisfaction (4–7). The key variables of interest are CON law-related measures, which include a binary variable of whether a state has CON law in effect and indices on stringency of CON law that are constructed based on thresholds of hospital expenditures on capital, equipment, or service. The index on capital expenditure takes a value of 0 if there is no threshold for review regarding capital expenditures, and 1 if that threshold is zero (explained below). Namely, conditional on having CON law in a state, a threshold of 0 means that all capital expenditures are subject to a CON review. This is a state whether its CON law has maximum stringency on capital expenditures. In summary, a higher value of the capital expenditure index indicates a more stringent CON restriction on capital expenditures. Likewise, we construct indices on stringency of the CON law on equipment or service.

Because LOS could measure health care quality in the ED, an outcome of a health care product, it could be affected by both the supply and demand sides of the health care market. On the supply side, LOS could be influenced by hospital characteristics in a state such as the number of physicians working in the ED, and the number of teaching hospitals. On the demand side, ED

Download English Version:

<https://daneshyari.com/en/article/3246304>

Download Persian Version:

<https://daneshyari.com/article/3246304>

[Daneshyari.com](https://daneshyari.com)