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POLICY BRIEF

West Virginia's Certificate-of-Need Program: Lessons from Research

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In West Virginia, healthcare providers who wish to open or expand facilities must first obtain a certificate of need (CON). They can acquire this only if they can prove to the satisfaction of the West Virginia Health Care Authority that their community needs the service in question. The purpose of CON regulation is to limit spending by discouraging providers from acquiring unnecessary medical equipment. Unfortunately, in practice, the rules appear to protect incumbent providers from competition more than they protect patients from harm or payers from unnecessary costs.

In this brief, I review the history of CON laws, compare West Virginia's CON program to the programs in other states, and provide an overview of the economic evidence suggesting that these laws harm patients and taxpayers. I conclude with several reforms—including outright repeal—that could improve outcomes for patients, particularly in low-income and rural areas.

INTRODUCTION TO CON LAWS

CON laws require healthcare providers wishing to open or expand a healthcare facility to first prove to a regulatory body that their community needs the services the facility would provide. The regulations are typically *not* designed to assess a provider's qualifications or safety record. Other regulations such as occupational licensing aim to do that. Instead, CON laws aim to determine whether a service is economically viable and valuable.

The process for obtaining a CON can take years and can cost tens or even hundreds of thousands of dollars in preparation costs.[1] Although these regulations appear to benefit incumbent providers by limiting their competition, the regulations' effects on patients and taxpayers have generally

been found to be negative. This finding helps explain why antitrust authorities at the Federal Trade Commission (FTC) and at the US Department of Justice (DOJ) have long taken the position that these rules are anticompetitive. In a joint report from 2004, for example, the FTC and DOJ declared,

> The Agencies believe that, on balance, CON programs are not successful in containing health care costs, and that they pose serious anticompetitive risks that usually outweigh their purported economic benefits.[2]

A BRIEF HISTORY OF CON REGULATION

More than four decades ago, Congress passed and President Gerald Ford signed the National Health Planning and Resources Development Act of 1974.[3] The statute enabled the federal government to withhold federal funds from states that failed to adopt CON regulations in healthcare.

New York had already enacted the first CON program in 1964; by the early 1980s, with the federal government's encouragement, every state except Louisiana had implemented some version of a CON program.[4] Policymakers hoped that these programs would restrain healthcare costs, increase healthcare quality, and improve access to care for poor and underserved communities.

In 1986—after Medicare changed its reimbursement practices and as evidence mounted that CON laws were failing to achieve their stated goals—Congress repealed the federal act, eliminating federal incentives for states to maintain their CON programs.[5] Since then, 15 states, representing about 40 percent of the US population, have done away with all or most of their healthcare CON regulations, and many others have pared them back.[6] A majority of states still maintain CON programs, however, and vestiges of the National Health Planning and Resources Development Act can be seen in the justifications that regulators and state legislatures offer in support of these regulations.

CON REGULATION IN WEST VIRGINIA

West Virginia operates an extensive CON program, requiring providers to obtain permission before making changes to equipment, services, facilities, hospital beds, and nonhospital beds. West Virginia's CON application fees can be as high as $35,000, though applicants typically spend much more on consulting fees and compliance costs. The application process typically takes 60–105 days, depending on whether a hearing is scheduled.[7] Incumbent providers are allowed to challenge the applications of their would-be competitors.

Table 1 shows the number of technologies and procedures regulated by West Virginia and by the surrounding states. Among all states with CON regulations, the average number of technologies and procedures regulated is 15. In the region surrounding West Virginia, the average is also 15. West Virginia regulates 24 technologies and procedures.[8]

Table 1. Certificate-of-Need Laws in West Virginia and Surrounding States	
STATE	NUMBER OF TECHNOLOGIES AND PROCEDURES REGULATED
West Virginia	24
Kentucky	23
Maryland	18
Ohio	1
Pennsylvania	0
Virginia	22
national average for CON-law states	15

Source: Matthew D. Mitchell, Anne Philpot, and Jessica McBirney, "The State of Certificate-of-Need Laws in 2020," Mercatus Center at George Mason University, February 19, 2021, https://www.mercatus.org/publications/healthcare/con-laws-2020-about-update.

The state requires CONs for several services that are unlikely to be overprescribed, such as burn care, neonatal intensive care, renal failure treatment, and radiation therapy. The state also requires CONs for facilities and types of care that often go to vulnerable populations, such as substance abuse treatment, intermediate care facilities for those with intellectual disabilities, and psychiatric care. Some of the regulated services can be provided without expensive capital investments (home health and psychiatric care, for example). And some of these regulated services are lower-cost alternatives to hospital care such as hospice and ambulatory surgery.[9] The following services and technologies are regulated under West Virginia's CON program:[10]

- Ambulatory surgical centers (ASCs)
- Cardiac catheterization
- Computed tomography (CT) scanners
- Home health
- Hospice
- Hospital beds
- Intermediate care facilities (ICFs) for individuals with intellectual disabilities
- Linear accelerator radiology
- Long-term acute care (LTAC)
- Magnetic-resonance imaging (MRI) scanners
- Mobile HI technology (CT/MRI/PET, etc.)
- Neonatal intensive care
- New hospitals or hospital-sized investments
- Nursing home beds/long-term care beds
- Obstetrics services

- Open-heart surgery
- Organ transplants
- Positron emission tomography (PET) scanners
- Psychiatric services
- Radiation therapy
- Rehabilitation
- Renal failure/dialysis
- Substance/drug abuse treatment
- Ultrasound

In addition, the state maintains a catch-all CON requiring providers to obtain a CON for any expenditure exceeding $5,618,381.[11]

THE ECONOMICS OF CON REGULATION

Unfortunately, by limiting supply and undermining competition, CON programs may undercut each of the laudable aims that policymakers desire to achieve with these rules. In fact, research shows that CON laws fail to achieve the goals most often given when enacting such laws. These goals include

- ensuring an adequate supply of healthcare resources,
- ensuring access to healthcare for rural communities,
- promoting high-quality healthcare,
- ensuring charity care for those unable to pay or for otherwise underserved communities,
- encouraging appropriate levels of hospital substitutes and healthcare alternatives, and
- restraining the cost of healthcare services.[12]

Researchers have ample information to help predict what would happen if West Virginia were to repeal its CON regulations because 15 states have repealed all or most of their CON requirements, and others have pared theirs back. Economists have used modern statistical methods to compare outcomes in CON and non-CON states to estimate the effects of these regulations. These methods control for factors such as socioeconomic conditions that might confound the estimates. Table 2 summarizes some of this research. It is organized around the stated goals of CON laws.

Based on the experiences of other states, one can estimate what fiscal and health outcomes are likely to prevail in a West Virginia without CON regulation. These estimates are derived from cross-state regression analyses that track outcomes over decades. They account for socioeconomic differences as well as differences in the underlying health of the state populations.[13]

Table 2. Summary of Research Addressing the Goals of Certificate-of-Need (CON) Laws in Healthcare

QUESTION	ANSWER	RESEARCH
1. Do CON programs help ensure an adequate supply of healthcare resources?	No. CON regulation explicitly limits the establishment and expansion of healthcare facilities, and patients in CON law states have access to fewer hospitals, ambulatory surgical centers, dialysis clinics, home health agencies, substance treatment facilities, psychiatric hospitals, open-heart surgery programs, nursing home beds, and hospice care facilities. CON regulation is also associated with fewer hospital beds, longer wait times, and decreased access to medical imaging technologies. Residents of CON law states are more likely than residents of non-CON law states to leave their state for care, and they tend to travel farther for care. A 2016 regression analysis by Thomas Stratmann and Christopher Koopman suggests that a West Virginia without CON laws would have 42 percent more hospitals than it has currently.	Stratmann and Russ (2014); Baker and Stratmann (2021); Stratmann and Koopman (2016); Ford and Kaserman (1993); Polsky et al. (2014); Bailey, Lu, and Vogt (2020); Bailey and Lewin (2021); Harrington et al. (1997); Carlson et al. (2010); Myers and Sheehan (2020)
2. Do CON programs help ensure access to healthcare for rural communities?	No. CON programs are associated with not only fewer hospitals overall but also fewer rural hospitals and rural hospital substitutes. Residents of CON law states must drive farther to obtain care than residents of non-CON-law states and are more likely to leave their state for care. Stratmann and Koopman's research suggests that a West Virginia without CON laws would have 43 percent more rural hospitals than it has currently.	Cutler, Huckman, and Kolstad (2010); Stratmann and Koopman (2016)
3. Do CON programs promote high-quality healthcare?	Most likely not. Three times as many studies document negative effects of CON laws on quality as studies that document positive effects. For example, Medicare mortality rates are 5 to 6 percent higher in CON law states than non-CON law states. Nursing home patients are more likely to be physically restrained in CON law states than in non-CON law states. Stratmann and David Wille find that patients in CON law states die at higher rates from treatable complications following surgery and die at higher rates from heart failure, pneumonia, and heart attacks. They also find that in states with especially comprehensive programs, such as West Virginia, patients are less likely to rate hospitals highly.	Shortell and Hughes (1988); Zinn (1994); Chiu (2021); Stratmann and Wille (2016)
4. Do CON programs help ensure charity care for those unable to pay or for otherwise underserved communities?	No. There is no difference in the provision of charity care between states with CON programs and states without them. Moreover, CON regulation is associated with greater racial disparities in the provision of care as well as with more limited provision of care for the elderly.	Cantor et al. (2009); DeLia et al. (2009); Stratmann and Russ (2014); Ho et al. (2007)
5. Do CON programs encourage appropriate levels of hospital substitutes and healthcare alternatives?	No. CON regulations have a disproportionate effect on new hospitals and nonhospital providers of medical imaging services. Researchers also find that states such as West Virginia that require CONs for ambulatory surgical centers have, on average, 14 percent fewer such centers.	Baker and Stratmann (2021); Stratmann and Koopman (2016)

Table 2 (continued)

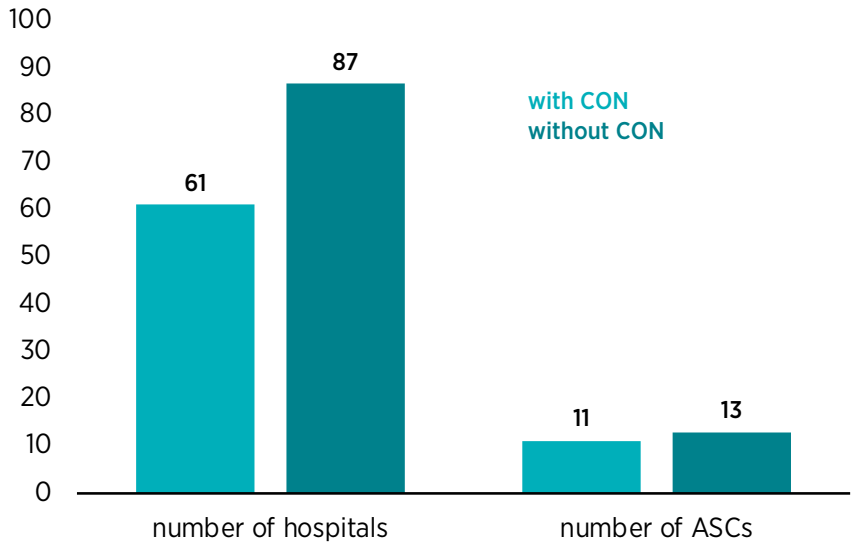
QUESTION	ANSWER	RESEARCH
6. Do CON programs help restrain the cost of healthcare services?	No. By limiting supply, CON regulations increase per-service and per-procedure healthcare costs. Even though CON regulations might reduce overall healthcare spending by reducing the quantity of services that patients consume, the balance of evidence suggests that CON laws actually increase total healthcare spending. James Bailey's research suggests that a West Virginia without CON laws would spend about $232 less per person per year on healthcare.	Anderson and Kass (1986); Browne et al. (2018); Noether (1988); Ho and Ku-Goto (2013); Mitchell (2016); Bailey (2016); Ziino, Bala, and Cheng (2020)

Sources: Keith B. Anderson and David I. Kass, *Certificate of Need Regulation of Entry into Home Health Care: A Multi-Product Cost Function Analysis* (Washington, DC: Federal Trade Commission, 1986); James B. Bailey, "Can Health Spending Be Reined In through Supply Constraints? An Evaluation of Certificate-of-Need Laws" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, July 2016); James B. Bailey and Eleanor Lewin, "Certificate of Need and Inpatient Psychiatric Services" (working paper, 2021); James B. Bailey, Thanh Lu, and Patrick Vogt, "Certificate of Need and Substance Use Treatment" (working paper, 2020); Matthew C. Baker and Thomas Stratmann, "Barriers to Entry in the Healthcare Markets: Winners and Losers from Certificate-of-Need Laws," *Socio-Economic Planning Sciences* 77, issue C (2021): 101007; James A. Browne et al., "Certificate-of-Need State Laws and Total Knee Arthroplasty," *Journal of Arthroplasty* 33, no. 7 (2018): 2020–24; Joel C. Cantor et al., "Reducing Racial Disparities in Coronary Angiography," *Health Affairs* 28, no. 5 (2009): 1521–31; Melissa D. A. Carlson et al., "Geographic Access to Hospice in the United States," *Journal of Palliative Medicine* 13, no. 11 (2010): 1331–38; Kevin Chiu, "The Impact of Certificate of Need Laws on Heart Attack Mortality: Evidence from County Borders," *Journal of Health Economics* 79 (2021): 102518; David M. Cutler, Robert S. Huckman, and Jonathan T. Kolstad, "Input Constraints and the Efficiency of Entry: Lessons from Cardiac Surgery," *American Economic Journal: Economic Policy* 2, no. 1 (2010): 51–76; Derek DeLia et al., "Effects of Regulation and Competition on Health Care Disparities: The Case of Cardiac Angiography in New Jersey," *Journal of Health Politics, Policy and Law* 34, no. 1 (2009): 63–91; Jon M. Ford and David L. Kaserman, "Certificate-of-Need Regulation and Entry: Evidence from the Dialysis Industry," *Southern Economic Journal* 59, no. 4 (1993): 783–91; Charlene Harrington et al., "The Effect of Certificate of Need and Moratoria Policy on Change in Nursing Home Beds in the United States," *Medical Care* 35, no. 6 (1997): 574–88; Vivian Ho et al., "Cardiac Certificate of Need Regulations and the Availability and Use of Revascularization Services," *American Heart Journal* 154, no. 4 (2007): 767–75; Vivian Ho and Meei-Hsiang Ku-Goto, "State Deregulation and Medicare Costs for Acute Cardiac Care," *Medical Care Research and Review* 70, no. 2 (2013): 185–205; Matthew D. Mitchell, "Do Certificate-of-Need Laws Limit Spending?" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, September 2016); Molly S. Myers and Kathleen M. Sheehan, "The Impact of Certificate of Need Laws on Emergency Department Wait Times," *Journal of Private Enterprise* 35, no. 1 (2020): 59–75; Monica Noether, "Competition among Hospitals," *Journal of Health Economics* 7, no. 3 (1988): 259–84; Daniel Polsky et al., "The Effect of Entry Regulation in the Health Care Sector: The Case of Home Health," *Journal of Public Economics* 110 (2014): 1–14; Stephen M. Shortell and Edward F. X. Hughes, "The Effects of Regulation, Competition, and Ownership on Mortality Rates among Hospital Inpatients," *New England Journal of Medicine* 318, no. 17 (1988): 1100–1107; Thomas Stratmann and Christopher Koopman, "Entry Regulation and Rural Health Care: Certificate-of-Need Laws, Ambulatory Surgical Centers, and Community Hospitals" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, February 2016); Thomas Stratmann and Jacob W. Russ, "Do Certificate-of-Need Laws Increase Indigent Care?" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, July 2014); Thomas Stratmann and David Wille, "Certificate-of-Need Laws and Hospital Quality" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, September 2016); Chason Ziino, Abiram Bala, and Ivan Cheng, "Does ACDF Utilization and Reimbursement Change Based on Certificate of Need Status?," *Clinical Spine Surgery* 33, no. 3 (2020): E92; J. S. Zinn, "Market Competition and the Quality of Nursing Home Care," *Journal of Health Politics, Policy and Law* 19, no. 3 (1994): 555–82.

Figure 1 shows the actual number of hospitals and ASCs as well as the estimated number of hospitals and ASCs in a West Virginia without CON regulation.

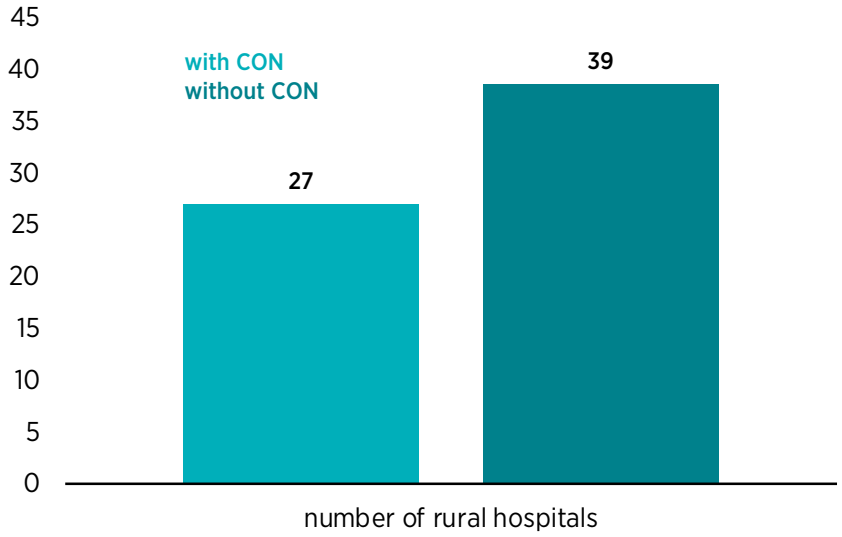
West Virginia's rural hospitals are financially strained, so the effect of CON regulation on rural care is especially important to the state's rural communities.[14] Figure 2 shows the number of rural hospitals in West Virginia and estimates of how many there would be in a West Virginia without CON regulation.

Figure 1. Estimated Difference in Access to Healthcare Facilities in a West Virginia without CON Laws



Sources: Matthew D. Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile," Mercatus Center at George Mason University, November 11, 2020; Stratmann and Koopman, "Entry Regulation and Rural Health Care."

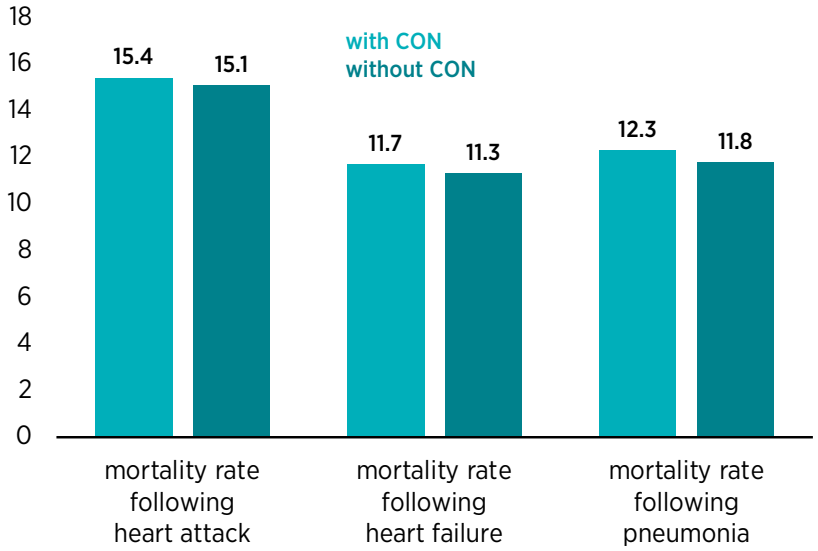
Figure 2. Estimated Difference in Access to Rural Healthcare Facilities in West Virginia without CON Regulation



Sources: Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile"; Stratmann and Koopman, "Entry Regulation and Rural Health Care."

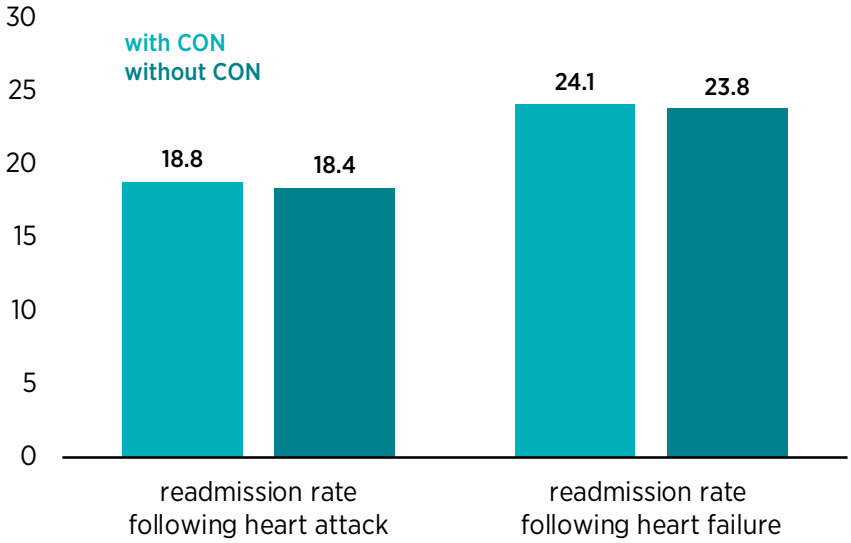
Figure 3 shows the actual and the estimated mortality rates following heart attack, heart failure, and pneumonia. Figure 4 shows the actual and estimated readmission rates following heart attack and heart failure.

Figure 3. Estimated Difference in Mortality Rates in West Virginia without CON Regulation (Restricted Sample, Four or More CON Laws)



Sources: Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile"; Stratmann and Wille, "Certificate-of-Need Laws and Hospital Quality."

Figure 4. Estimated Difference in Readmission Rates in West Virginia without CON Regulation (Restricted Sample, Four or More CON Laws)



Sources: Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile"; Stratmann and Wille, "Certificate-of-Need Laws and Hospital Quality."

In addition, researchers estimate that postsurgery complications would be approximately 5.5 percent lower and that the share of patients rating their hospital experience a 9 of 10 or 10 of 10 would be approximately 4.9 percent higher in a West Virginia without CON regulation. Finally, economists estimate that annual per capita healthcare spending would be approximately $232 lower in a West Virginia without CON regulation.[15]

REFORM OPTIONS

The weight of evidence suggests that a full repeal of CON laws would expand access to healthcare in West Virginia that is of both high quality *and* low cost. Repeal might be scheduled to take effect in the near future or at a later date. Alternatively, policymakers might phase in repeal by requiring the CON board to approve an ever-larger percentage of applications over a certain number of years.

Short of full repeal, policymakers have several options to reform the program and limit its negative effects. For example, the state might eliminate specific CON requirements. Some requirements ripe for reform include

- CONs that restrict access to facilities and services used by vulnerable populations, such as substance abuse treatment, intermediate care facilities for those with intellectual disabilities, or psychiatric services;
- CONs for services that are unlikely to be overprescribed, such as neonatal intensive care, renal failure treatment, and radiation therapy;
- CONs for services that require limited capital expenditures, such as psychiatric services or home health; and
- CONs that restrict access to low-cost modes of care, such as hospice and ASCs.

Policymakers might also consider a number of options to ease the administrative burden of CON laws. For example, they might reduce West Virginia's fees, reduce the administrative burden of the application process, or require incumbents who unsuccessfully challenge an entrant's CON application to pay the entrant's legal and compliance costs. Going further, the state could follow Indiana, Louisiana, Michigan, Nebraska, and New York and no longer solicit or consider the objections of a competitor when a provider applies for a CON, given that the process is manifestly anticompetitive.

The criteria used to evaluate a CON application might also be changed. For example, a CON application should not be rejected to prevent the provision of duplicative services. Such a rejection guarantees monopoly status for the current service provider in the area, and healthcare monopolies are associated with high-cost and low-quality care.[16] Utilization rate is another poor criterion. If an existing hospital knows that potential competitors are less likely to obtain CONs if it keeps its bed utilization rate low, then it faces an incentive to acquire more beds than it needs and ensure that many of them remain empty. This is exactly the sort of unnecessary capital expenditure that CON regulation was supposed to discourage.

In addition, the state might raise the $5.6 million monetary threshold for investments that necessitate a CON.[17] It might bar those with a financial interest in incumbent providers from serving on the board of the West Virginia Health Care Authority. It might also require the board to seek input from parties without financial interest in the outcome or from parties dedicated to the preserva-

tion of market competition and patient outcomes, such as patient health advocates, economists, or antitrust authorities at the FTC.

Finally, policymakers might consider a number of options that would increase the transparency of the CON program and make legislative oversight easier. One option would be to require the board to regularly disclose the CON approval rate. The regulator could also be required to report the share of applications opposed by incumbent providers as well as the different approval rates for opposed and unopposed applications.

The regulator could also be required to ask applicants to estimate their costs of applying for a CON and then regularly report these numbers to the public. And finally, the regulator could be required to follow up with denied applicants to evaluate how the denial has affected their provision of services.

CONCLUSION

Given the substantial evidence that CON regulations do not achieve their stated goals, one may wonder why these rules continue to exist in so much of the country. The explanation seems to lie in the special-interest theory of regulation.[18] Specifically, CON regulations perform a valuable function for incumbent providers of healthcare services by limiting their exposure to new competition. Researchers find greater market concentration in CON law states than in non-CON law states.[19] Moreover, the average provider in a CON law state has a significantly higher volume of patients.[20] Provider profits fall in states that remove CON laws (though profits recover after a few years).[21] These facts, combined with the fierce opposition to deregulation by industry insiders, suggest that the rules do indeed protect incumbents' profits. Furthermore, political donations have been shown to increase the odds that a CON request will be granted, so the rules may invite corrupt quid pro quos.[22]

Whereas patients and payers are harmed by the regulation, hospital executives benefit from it. Researchers find that urban hospital CEO pay is over $90,000 higher in CON law states than in non-CON law states.[23]

These aspects of CON regulation are why economists as well as antitrust authorities have long believed that these regulations are anticompetitive and harmful to consumers.

ABOUT THE AUTHOR

Matthew D. Mitchell is a senior research fellow and director of the Equity Initiative at the Mercatus Center at George Mason University. In his writing and research, he specializes in public choice economics and the economics of government favoritism toward particular businesses, industries, and occupations. Mitchell received his PhD and MA in economics from George Mason University and his BA in political science and BS in economics from Arizona State University.

NOTES

1. Kent Hoover, "Doctors Challenge Virginia's Certificate-of-Need Requirement," *Business Journals*, June 5, 2012.
2. Federal Trade Commission and US Department of Justice, *Improving Health Care: A Dose of Competition*, July 2004, 22. For more recent examples, see Competition in Healthcare and Certificates of Need, Hearing before a Joint Session of the Health and Human Services Committee of the State Senate and the CON Special Committee of the State House of Representatives of the General Assembly of the State of Georgia, 149th Gen. Assemb. (2007) (statement of Mark J. Botti, Chief, Litigation I Section, US Department of Justice, Antitrust Division); Federal Trade Commission and US Department of Justice, *Joint Statement of the Federal Trade Commission and the Antitrust Division of the U.S. Department of Justice to the Virginia Certificate of Public Need Working Group*, October 2015; Federal Trade Commission and US Department of Justice, *Joint Statement of the Federal Trade Commission and the Antitrust Division of the U.S. Department of Justice on Certificate-of-Need Laws and South Carolina House Bill 3250*, January 2016; Hearing before the Senate Labor and Commerce Standing Committee, 30th Leg. (2018) (statement of Daniel Gilman, Attorney Advisor, Federal Trade Commission, Office of Policy Planning).
3. National Health Planning and Resources Development Act of 1974, Pub. L. No. 93-641, 88 Stat. 2225 (1975) (codified at 42 U.S.C. §§ 300k–300n-5), repealed by Pub. L. No. 99-660, § 701, 100 Stat. 3799 (1986).
4. Matthew D. Mitchell and Christopher Koopman, "40 Years of Certificate-of-Need Laws across America," Mercatus Center at George Mason University, September 27, 2016.
5. Patrick John McGinley, "Beyond Health Care Reform: Reconsidering Certificate of Need Laws in a 'Managed Competition' System," *Florida State University Law Review* 23, no. 1 (1995): 141–88.
6. Florida significantly pared back its CON program in 2019, eliminating CON requirements for new hospitals, hospitals converting to or from specialty hospitals, and several other procedures. New Hampshire is the state that most recently repealed its entire CON program, which it did in the summer of 2016. For information on Florida's repeal, see Matthew D. Mitchell and Anne Philpot, "Floridians Will Now Have More Access to Greater Quality, Lower Cost Health Care," *The Bridge*, June 27, 2019. For information on all states, see Mitchell and Koopman, "40 Years of Certificate-of-Need Laws Across America."
7. Jaimie Cavanaugh et al., *Conning the Competition: A Nationwide Survey of Certificate of Need Laws* (Arlington, VA: Institute for Justice, August 2020), 189.
8. This number may not count rare CONs that appear in West Virginia but not in other states.
9. The National Health Planning and Resources Development Act directed states to adopt CON laws, in part, to encourage low-cost, ambulatory care. National Health Planning and Resources Development Act of 1974, Pub. L. No. 93-641, 88 Stat. 2225 (1975) (codified at 42 U.S.C. §§ 300k–300n-5).
10. Matthew D. Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile," Mercatus Center at George Mason University, November 11, 2020.
11. "Certificate of Need," West Virginia Health Care Authority, accessed September 2, 2021, https://hca.wv.gov/certificateofneed/Pages/default.aspx.
12. Each of these goals was first articulated in the National Health Planning and Resources Development Act of 1974.

13. For more details, see Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile."

14. Jenny Jarvie, "In a Time of Pandemic, Another Rural Hospital Shuts its Doors," *Los Angeles Times*, May 16, 2020.

15. Mitchell et al., "Certificate-of-Need Laws: West Virginia State Profile"; James B. Bailey, "Can Health Spending Be Reined In through Supply Constraints? An Evaluation of Certificate-of-Need Laws" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, 2016).

16. Zack Cooper et al., "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured," *Quarterly Journal of Economics* 134, no. 1 (2019): 51–107; Thomas Stratmann and David Wille, "Certificate-of-Need Laws and Hospital Quality" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, September 2016).

17. "Certificate of Need," West Virginia Health Care Authority.

18. This theory holds that regulations exist as a way to limit competition, lock in higher prices, artificially increase demand, or raise rivals' costs. George J. Stigler, "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science* 2, no. 1 (1971): 3–21; Ernesto Dal Bó, "Regulatory Capture: A Review," *Oxford Review of Economic Policy* 22, no. 2 (2006): 203–25; Matthew D. Mitchell, *The Pathology of Privilege: The Economic Consequences of Government Favoritism* (Arlington, VA: Mercatus Center at George Mason University, 2014).

19. Daniel Polsky et al., "The Effect of Entry Regulation in the Health Care Sector: The Case of Home Health," *Journal of Public Economics* 110 (2014): 2.

20. Jamie L. Robinson et al., "Certificate of Need and the Quality of Cardiac Surgery," *American Journal of Medical Quality* 16, no. 5 (2001): 155–60; Susan L. Ettner et al., "Certificate of Need and the Cost of Competition in Home Healthcare Markets," *Home Health Care Services Quarterly* 39, no. 2 (2020): 51–64.

21. David M. Cutler, Robert S. Huckman, and Jonathan T. Kolstad, "Input Constraints and the Efficiency of Entry: Lessons from Cardiac Surgery," *American Economic Journal: Economic Policy* 2, no. 1 (2010): 51–76.

22. Thomas Stratmann and Steven Monaghan, "The Effect of Interest Group Pressure on Favorable Regulatory Decisions: The Case of Certificate-of-Need Laws" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, 2017).

23. Traci L. Eichmann and Rexford E. Santerre, "Do Hospital Chief Executive Officers Extract Rents from Certificate of Need Laws?," *Journal of Health Care Finance* 47, no. 4 (2011): 1–14.