Matthew Mitchell, PhD Senior Research Fellow



FLORIDA'S CON LAW LESSONS FROM THREE DECADES OF RESEARCH

Florida House of Representative Health Market Reform Subcommittee

February 6, 2019

WHAT IS A CON LAW?





- A permission slip to compete
- Not a quality gate
- Designed to assess "need"
- Unusual in a market economy
- A barrier to entry that restricts supply
- Anticompetitive







A SHORT HISTORY OF CON LAWS

Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC Promote charity care Encourage hospital substitutes Restrain the cost of care

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1974

No CON Regulation **CON Regulation**

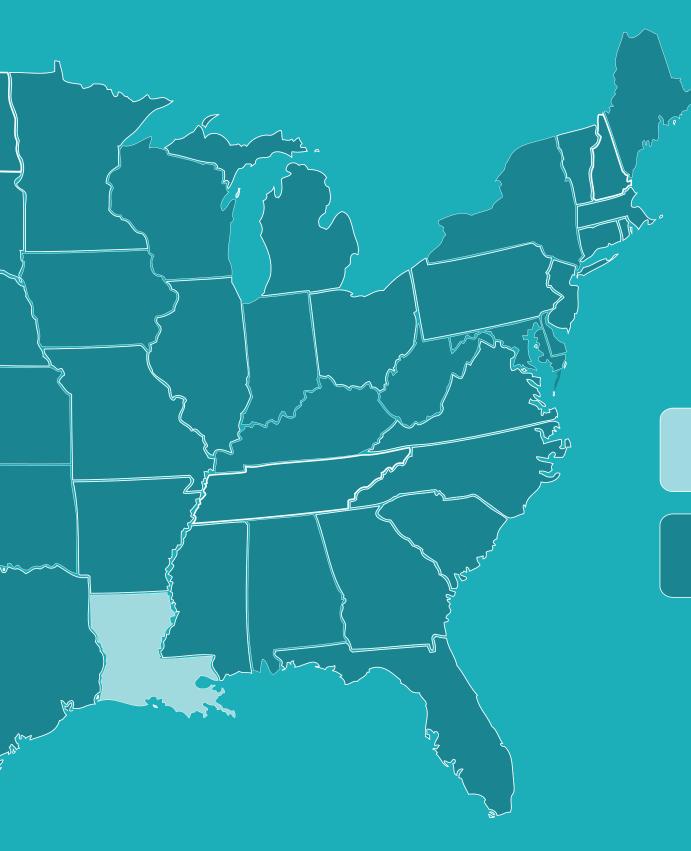




- 8

he have

1980



No CON Regulation **CON Regulation**



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he have

1990

a

No CON Regulation **CON Regulation**



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2000

No CON Regulation **CON Regulation**

a





2015

No CON Regulation **CON Regulation**

a



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he had

2019

No CON Regulation **CON Regulation**

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intermediate care facilities / mental disabilities burn care psychiatric services NICU open-heart surgery cardiac catheterization long-term acute care

subacute services





home health organ transplants Nursing home beds substance / drug abuse rehabilitation hospice swing beds acute hospital beds assisted living / residential care facilities

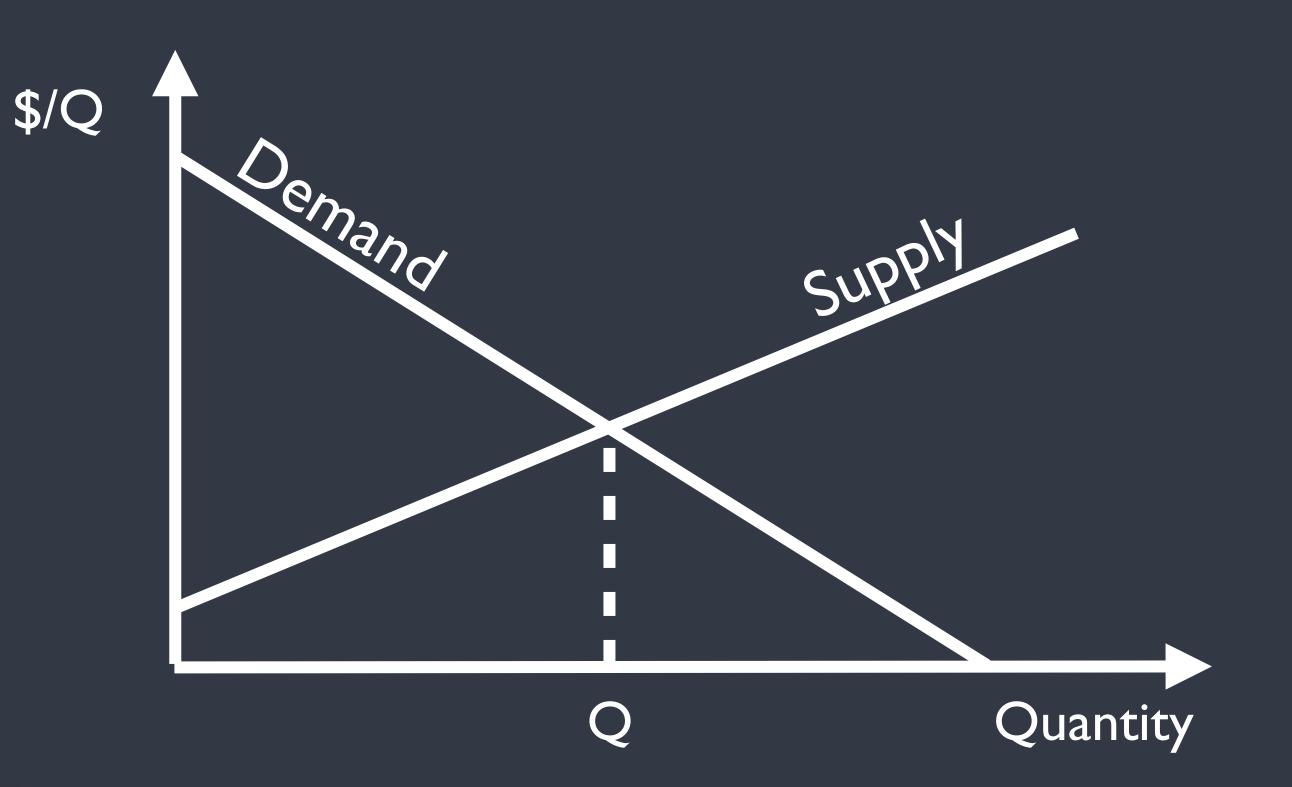






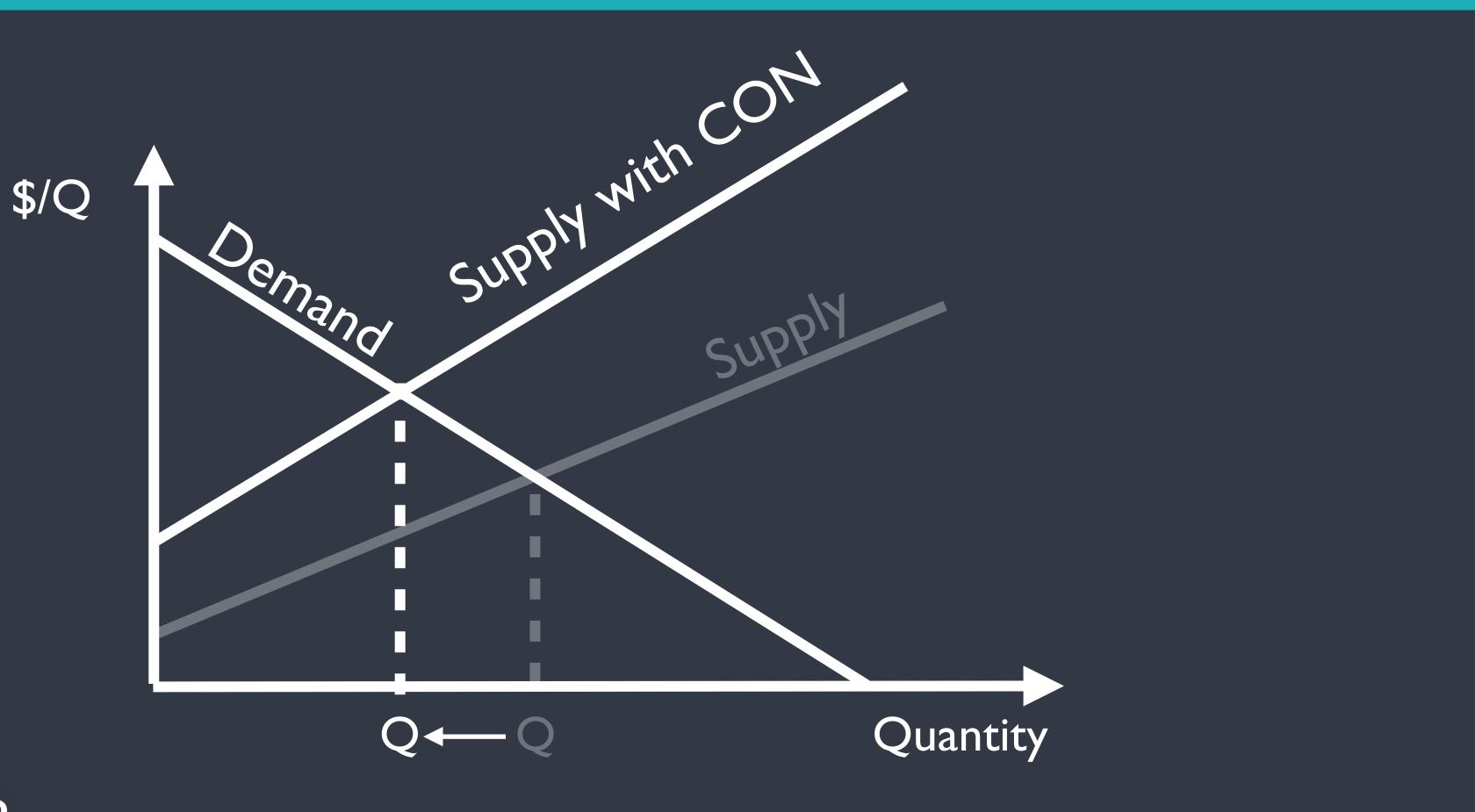
THE STATED GOALS OF CON LAWS

Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC Promote charity care Encourage hospital substitutes Restrain the cost of care













Limited supply of hospice care (Carlson et al., 2010)

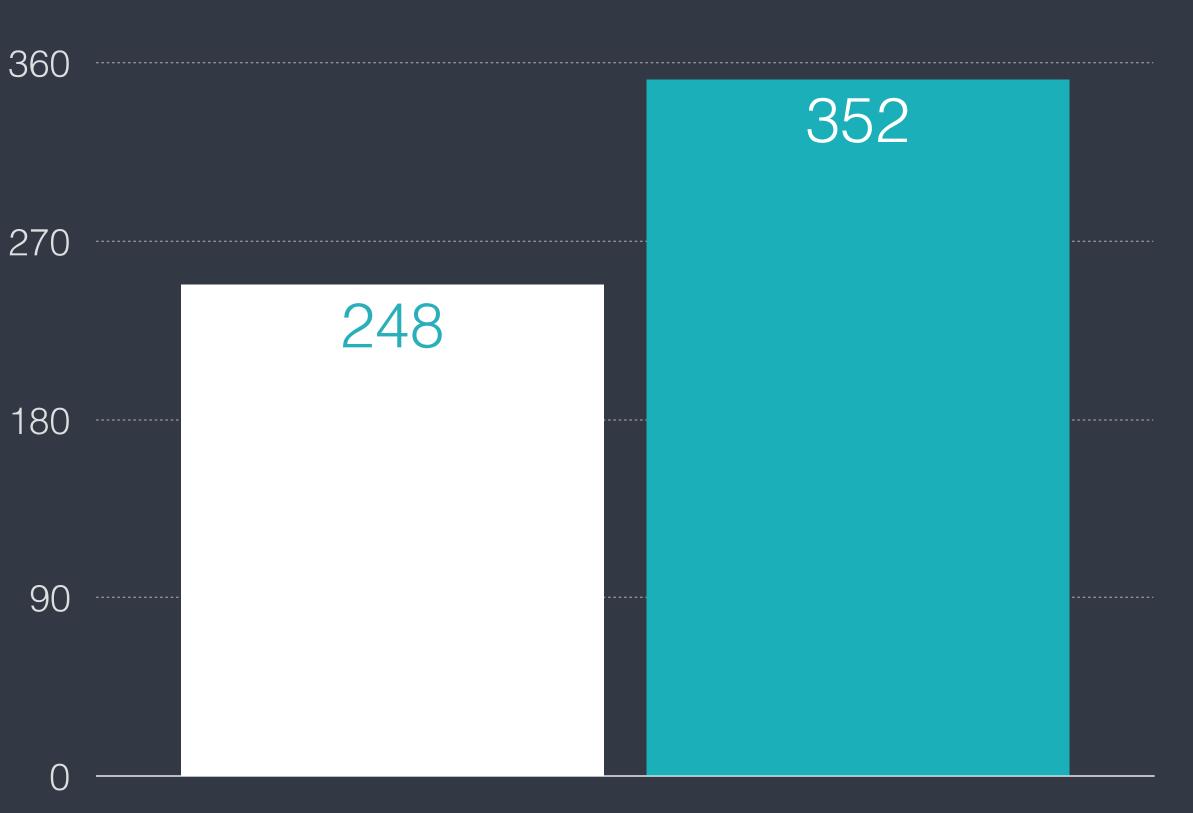


- Limited supply of dialysis clinics (Ford and Kaserman, 1993)
- Fewer hospitals per capita (Stratmann and Russ, 2014)
- Fewer hospital beds per capita (Stratmann and Russ, 2014)
- Fewer hospitals with MRIs (Stratmann and Russ, 2014)
- Fewer CT, MRI, PET scans (Stratmann and Baker, 2017)
- More out-of-county CT, MRI, PET scans (Stratmann and Baker, 2017)



Estimated number of Florida hospitals without CON





with CON

without CON



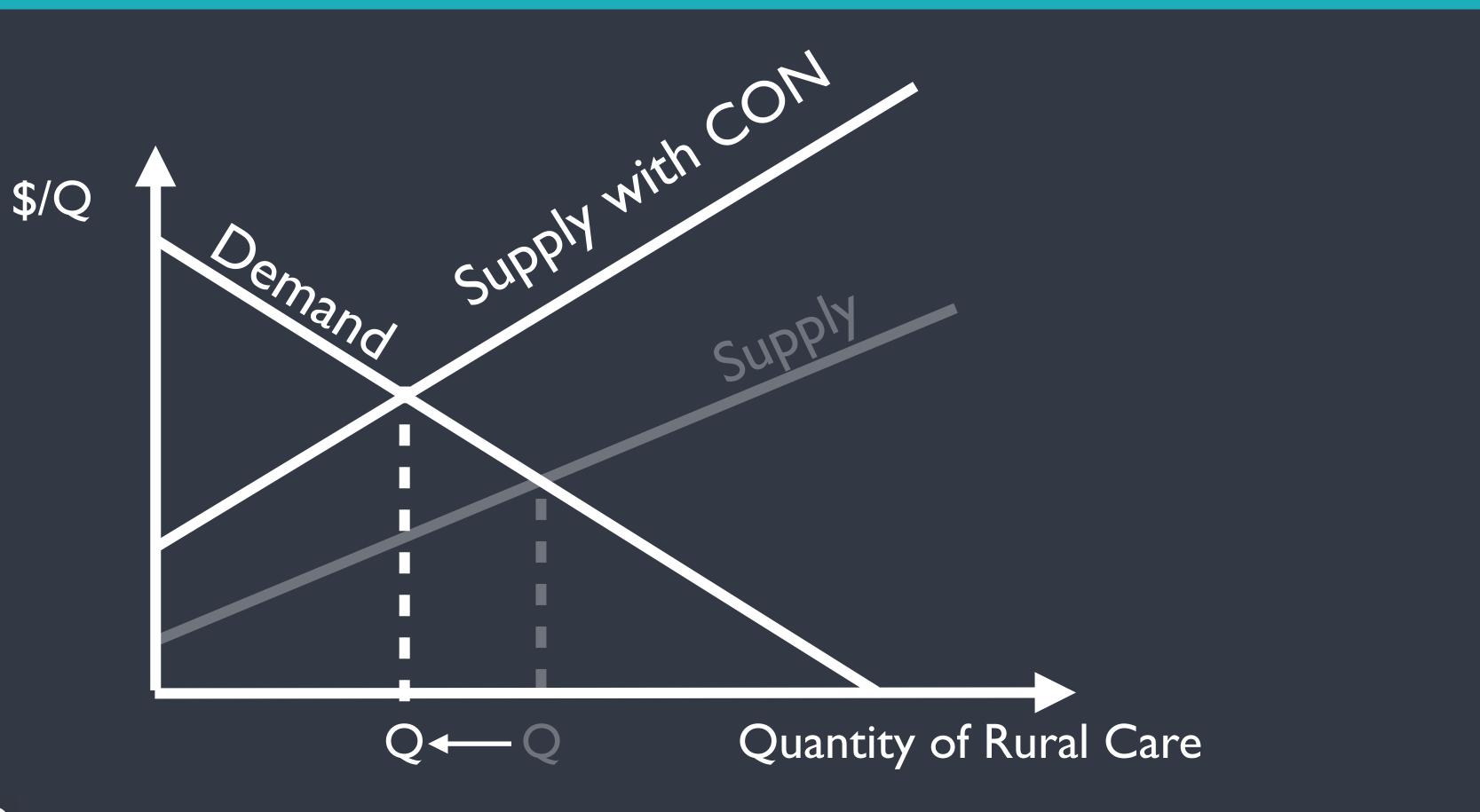




Ensure an adequate supply of HC Ensure rural access to HC

THE STATED GOALS OF CON LAWS

THE REALITY OF CON LAWS Ensure rural access to HC?







THE REALITY OF CON LAWS Ensure rural access to HC?

Baker, 2017)

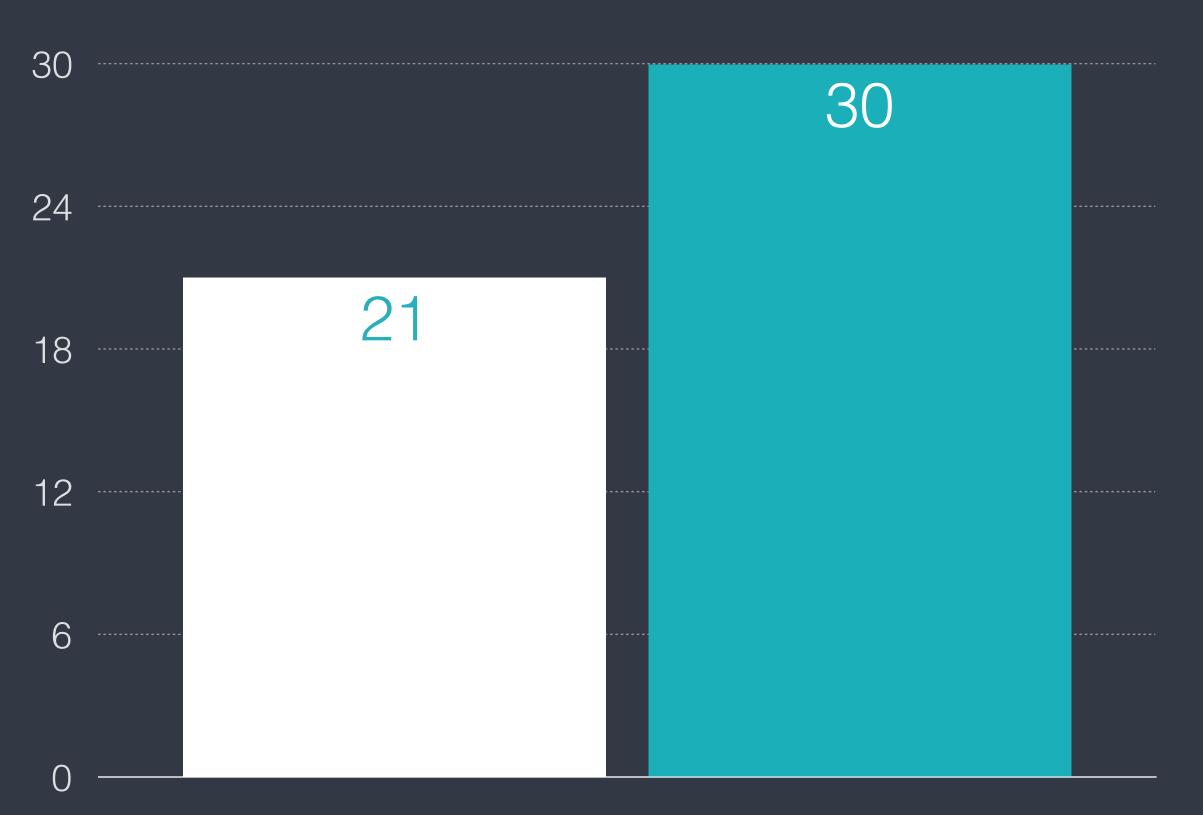


- 30% fewer rural hospitals (Stratmann and Koopman, 2016)
- Less access to rural hospice (Carlson et al., 2010)
- Longer travel distance to care (Cutler et al., 2010)
- More out-of-county CT, MRI, PET scans (Stratmann and



Estimated number of *rural* Florida hospitals without CON





with CON

without CON







THE STATED GOALS OF CON LAWS

Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC

THE REALITY OF CON LAWS Promote high quality HC? scale competence vs. less competition

(Stratmann and Wille, 2016)

Wille, 2016)

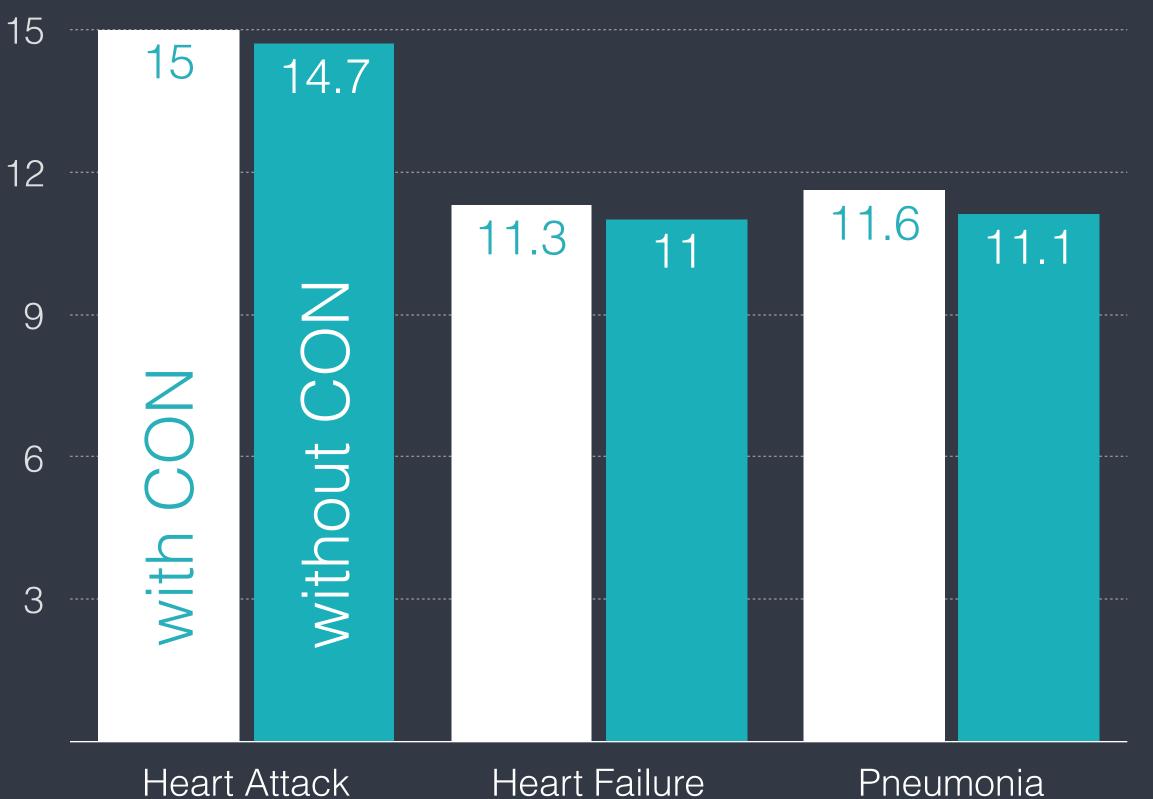


- Mixed early research on particular conditions
- No effect on all-cause mortality (Bailey, 2016)
- Higher mortality rates following heart failure, pneumonia, heart attacks (Stratmann and Wille, 2016)
- Higher rates of post-surgery complications
- Lower levels of patient satisfaction (Stratmann and

THE REALITY OF CON LAWS Promote high quality HC?

Estimated mortality rates in Florida





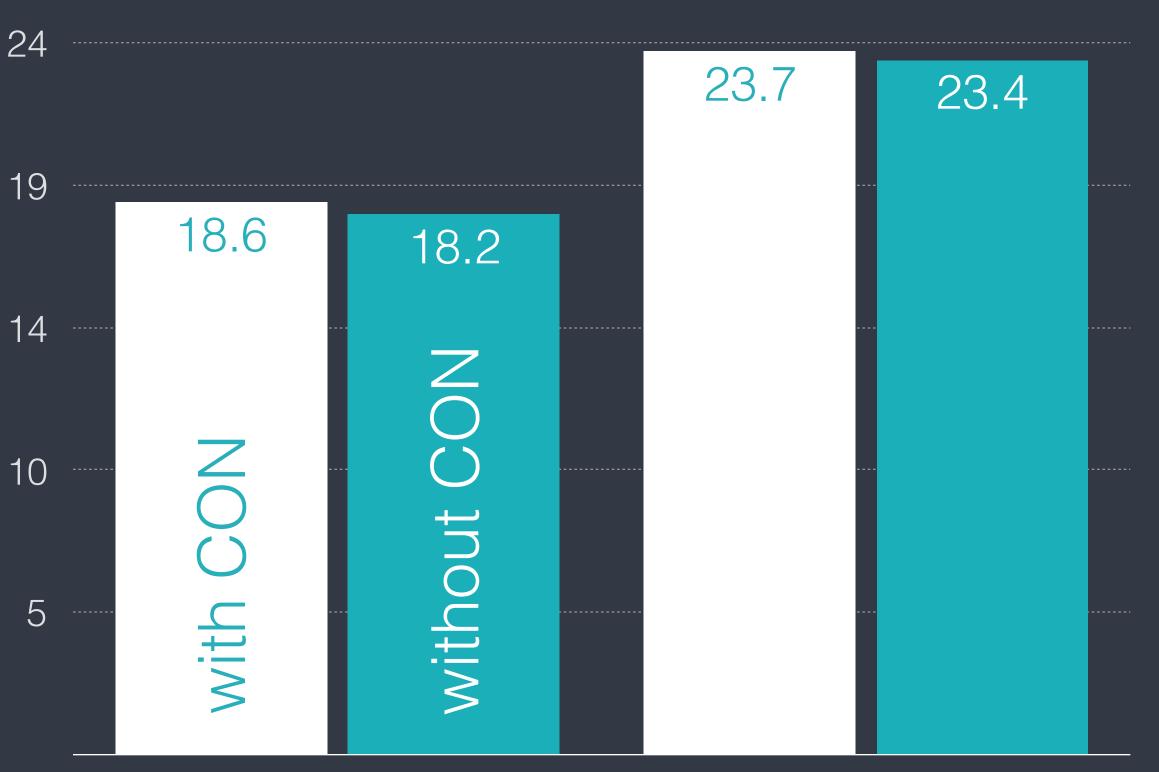
Heart Attack

Heart Failure

THE REALITY OF CON LAWS Promote high quality HC?

Estimated readmission rates in Florida





Heart Attack

Heart Failure

THE REALITY OF CON LAWS Promote high quality HC?



Estimated Change in Patient Satisfaction in Florida without CON



Estimated Change in Post-Surgery Complications in Florida without CON







Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC Promote charity care



THE STATED GOALS OF CON LAWS

THE REALITY OF CON LAWS Promote charity care?

No evidence of higher rates of charity care (Stratmann and Russ, 2014)

Greater racial disparity in the provision of services (DeLia et al., 2009)









Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC Promote charity care Encourage hospital substitutes



THE STATED GOALS OF CON LAWS

THE REALITY OF CON LAWS Encourage hospital substitutes?

capita (Stratmann and Koopman, 2016)

per capita (Stratmann and Koopman, 2016)

Baker, 2017)



- ASC-specific CON states have 14% fewer ASCs per
- ASC-specific CON states have 13% fewer rural ASCs
- CON limits use of *new* hospitals and *non*-hospital providers, but not existing hospitals (Stratmann and





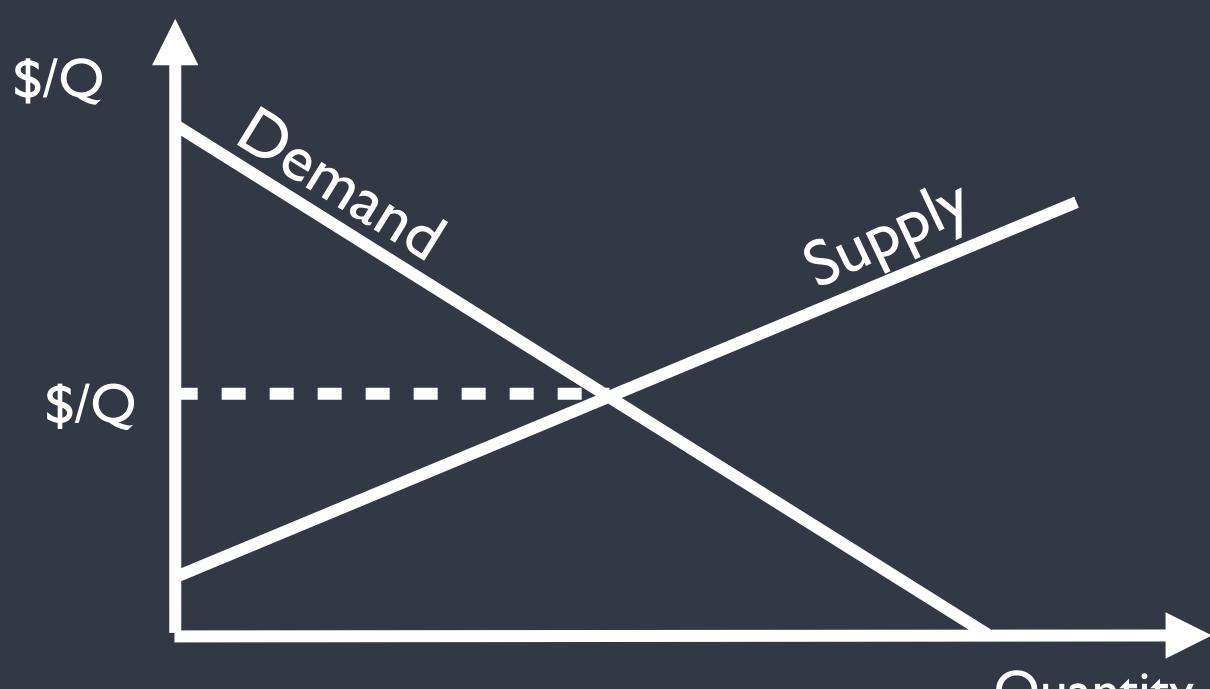


Ensure an adequate supply of HC Ensure rural access to HC Promote high quality HC Promote charity care Encourage hospital substitutes Restrain the cost of care



THE STATED GOALS OF CON LAWS

THE REALITY OF CON LAWS Restrain the cost of care?

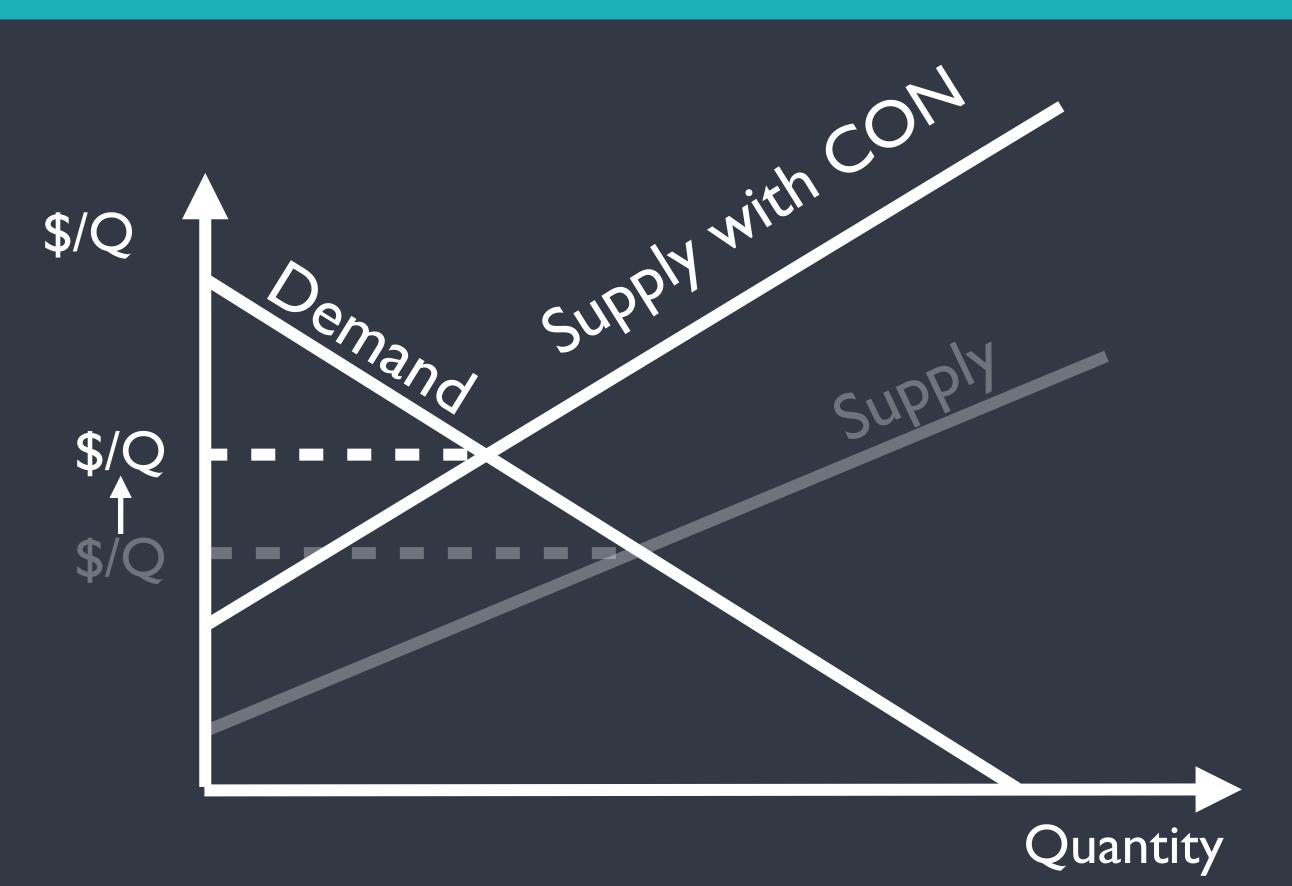








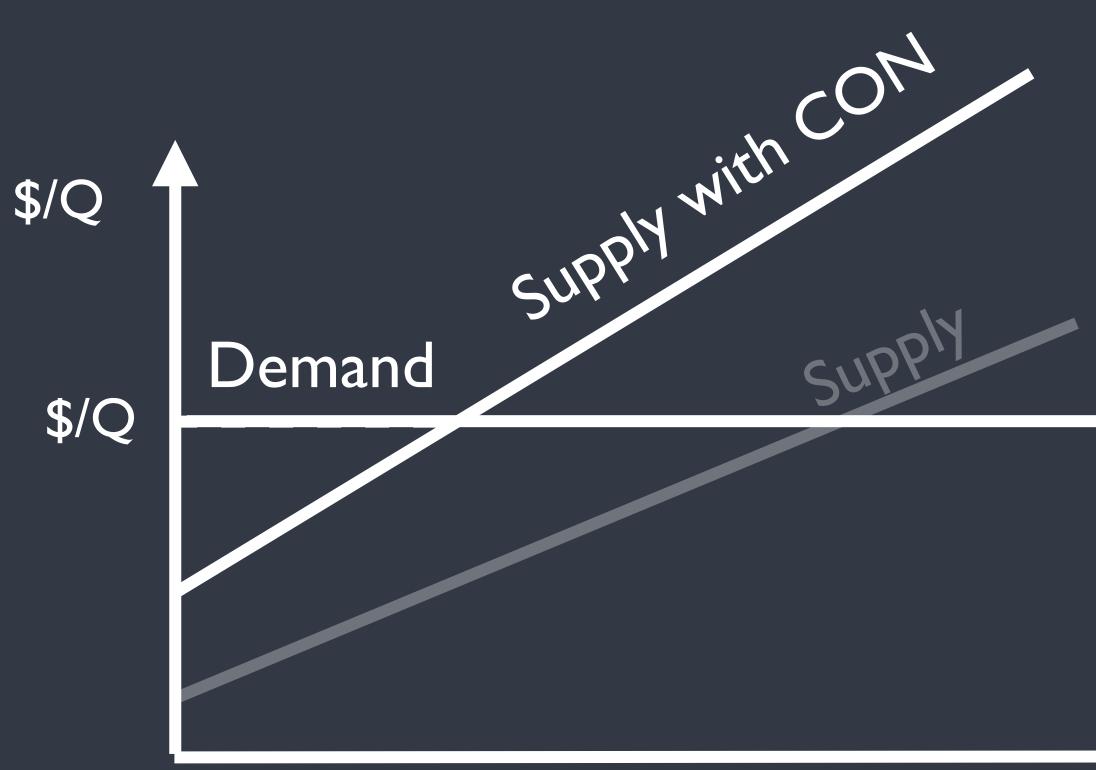
THE REALITY OF CON LAWS Restrain the cost of care?







THE REALITY OF CON LAWS Restrain the cost of care?











MERCATUS WORKING PAPER





Do Certificate-of-Need Laws Limit Spending?

Matthew D. Mitchell

September 2016

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3434 Washington Blvd., 4th Floor, Arlington, Virginia 22201 www.mercatus.org

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A review of 20 peer-reviewed academic studies finds that CON laws have worked largely as economic theory predicts and that they have failed to achieve their stated goal of cost

reduction. The overwhelming weight of evidence suggests that CON laws are associated with both higher per unit costs and higher total expenditures.

Matthew Mitchell, PhD Senior Research Fellow



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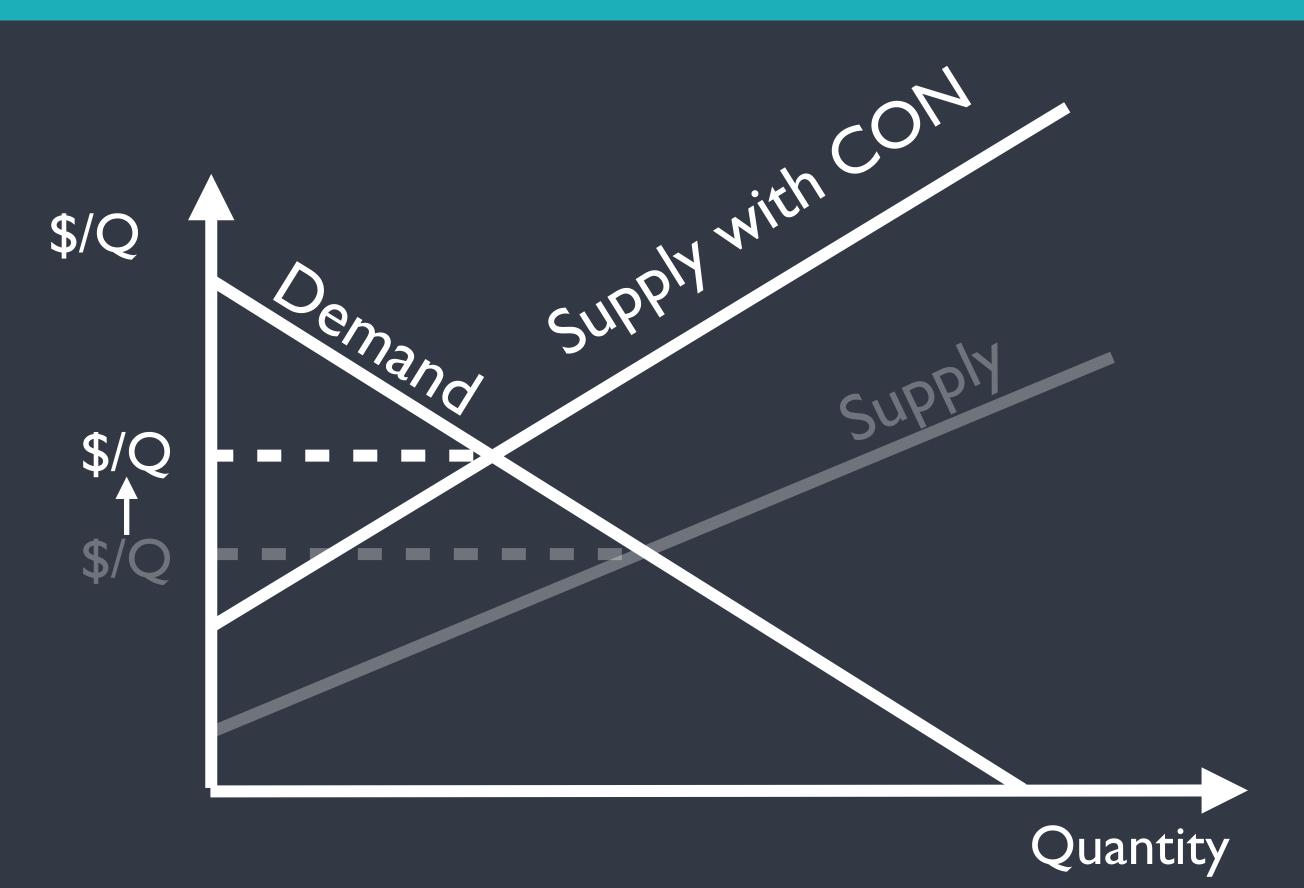
February 6, 2019





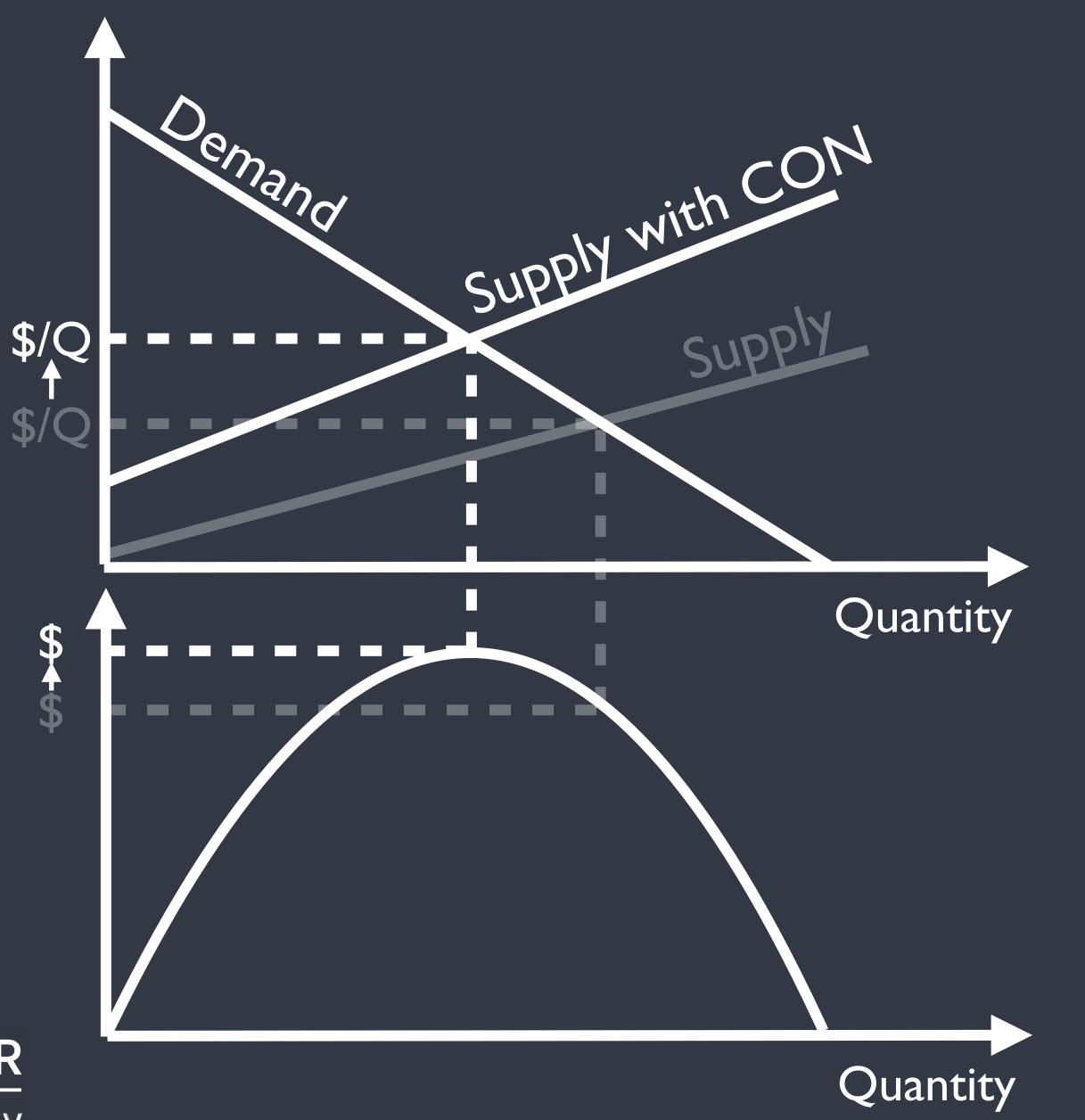


WHY WOULD ANYONE THINK CON LAWS Restrain the cost of care?



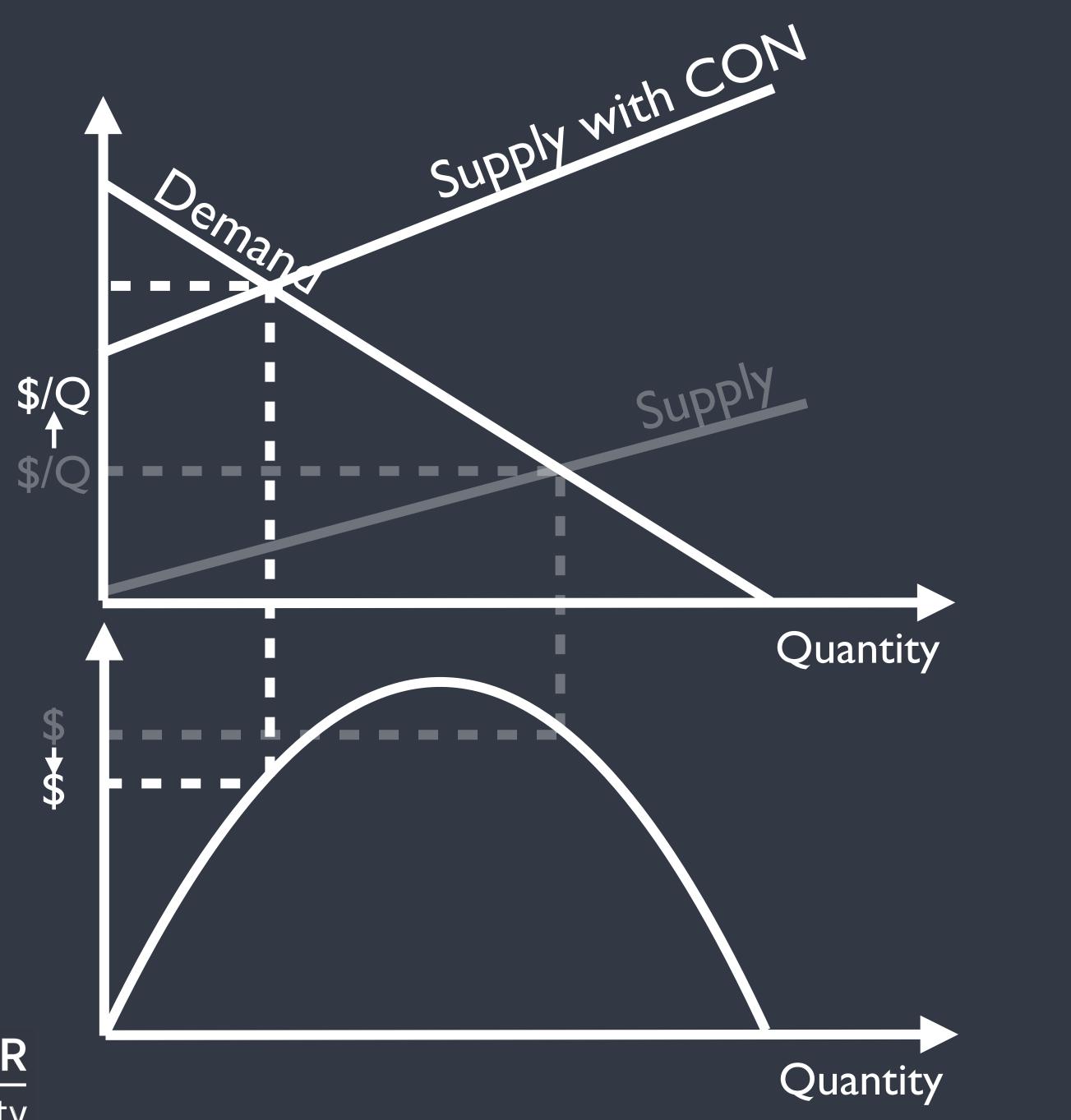












- decades of research

20 studies ON V peer reviewed







This article, submitted to Medical Care Research and Review on A for publication on December 5, 2013. 'Widener University, Chester, PA, USA Substance Abuse and Mental Health Services Administration, Ce Quality, Rockville, MD, USA **Corresponding Author:** Michael D. Rosko, School of Business Administration, Widener Chester, PA, 19013, USA. Email: mérosko@widener.edu **Kevwords** Heasthal efficiency: Certification for a service of this state with a submitty of service, implying that the proper allocation of resources to this for the efficiency of service in the Corresponding for the state with a submitty of services in the state with a submitty of services in the formation of the formation of production of the efficiency of the services in the services administration, Ce certificate of the efficiency of the formation of the formation of production of production of production of the efficiency of the services in the state with a submitted to the formation of the formatio mail: mdrosko@widener.edu

The Impact of Certificate-of Nee on Hospital Invest

> DAVID S. SALKEV THOMAS W. BICE

Certificate-of-Need (CON) controls over hospital inv umber of states in recent years and the National Health Planni

trolling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for exvansion. Finally, we caution against the conclusion that CON controls should be parason, rinaity, we contron against the conclusion that CON controls Should be broadened and tightened, though our results might be so interpreted, because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Introduction

In the wake of rapid post-Medicare cost inflation, investment controls have emerged as important regulatory mechanisms for moderating the rise in health services expenditures. These controls take two forms: (1) legal prohibitions of unnecessary capital investment, and (2) financial controls, whereby a health care institution's eligibility to receive capital or operating funds relating to an investment project is dependent upon the approval of designated planning agencies. Presently, both types are widespread. Legal prohibitions are in effect through certificate-of-need (CON) laws in twenty-four states, and similar legislation has been proposed in seven other states (Lewin and Associates, Inc., 1974). Moreover, with the passage of P.L. 93-641, the National Health Planning and Resources Development Act of 1974, CON was slated for adoption by all participating states.

Several types of financial controls have been applied. Under 185

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Keywords Hospital efficiency · Certificate of need · Directional distance function · Structural efficiency

rienced cha ABG) surgery or p popped CON exper ous coronary interv edures in states th ons slightly excee st growth.

deregulation. Assur ting CABG surgery r CABG may not b

eed, (CON) co vention (PCI), pan

itted to Medical Care Ri gust 7, 2012. 146 louston, TX, USA

> Rexford E. Santer University of Connect

This article uses data envelopment analysis and mul ine empirically the impact of various market-structu ciency of the hospital services industry in various States. Market-structure elements include the degree og of HMO activity, and health insurer concentration. Th hospital services industry experienced 11 percent ineff tiple regression analysis indicates the level of technical metropolitan hospital services industries in response vate health insurer concentration in the state. The rivalry among hospitals had no marginal effect on tee level. Evidence also implies that the presence of a stat associated with a greater degree of inefficiency in the

Health care spending as a percentage of GDF in the United States, spurting upward from 13

			Access to	Community-Based						
	1	g-Term Care:			= POLICY =					
	Medicaid's Role						of Certificate-of-Need La			
	NANCY A. MILLER, PhD University of Maryland Baltimore County				and Healthcare Expenditures: An Empirical Analysis					
	arch	CHARLENE HARRINGTON, PhD University of California, San Francisco				Fred J. Hellinger, PhD				
	eregulation	Medical Care Research and F 70(2) 18 © The Author(s	5-205 Health C	ETH GOLDSTEIN, PhD are Financing Administration						
ttes as rever,	dicare Costs te Cardiac Care	Reprints and perm sagepub.com/journalsPermissio DOI: 10.1177/10775587124 mcr.sagepu	ns.nav 59681	te variation in expenditures for Medicaid community-		tion of unnecessar	programs attempt to curtail the construc- ry healthcare facilities and to limit the dy equipment that provides little benefit	Objective: To estimate the effect of certificate- of-need legislation on hospital bed supply and healthcare expenditures.		
at 1998,	e Cardiac Care	\$S/	GE based care services for the perio model is used to explore the rela	d 1990 to 1997. Method: A random effects panel tionship between state demographic, supply, eco-		by compelling hospitals and approval from a government	other healthcare entities to acquire prior tal entity. ¹⁻³ Indeed, efforts to control the	Study Design: This study uses state data on several variables, including healthcare expendi- tures, hospital bed supply, and the existence of a certificate-of-need program, from 4 periods (1985,		
In the ovides	^{1,2} and		care expenditures. Results: Althe	cal factors and states' Medicaid community-based ough states increased provision of services over the rel variation was evident. Expenditures were posi-		have been ongoing for more The 1946 federal Hill-Bur	ton program provided funds for new hospi-	1990, 1995, and 2000). Methods: We estimate 2 multivariate regression equations. In the first equation, hospital bed supply is the dependent variable, and certificate		
ith the	ng Ku-Goto'		tively associated with state per ca and the number of Medicard	with state per capita income, regulation of nursing home bed supply, Medicar / Conclus es of most		detailed the process by which The Hill-Burton program er	on-the adoption of a state health plan that h proposed projects would be evaluated. ⁵⁶ neouraged local planning to facilitate the	of need is included as an independent variable. In the second equation, healthcare expenditures is the dependent variable, and hospital bed supply and certificate of need are included as indepen-	Journal of Regulatory Economics; 3:137-154 (1991) ©1991 Kluwer Academic Publishers	
ays. First, it			home bed supply. Conclus strated preferences of most cies to foster the expansion				of local needs. ensive Health Planning agencies (so-called ted by the 1966 amendments to the Public	dent variables. Results: Certificate-of-need laws have reduced the number of hospital beds by about 10% and have		
n Medicaid he 1981 to	suggests that Certificate of Need (CON) re in improving quality, but less is known a	about the effect of CON	on and long-term care supply i	COSTS AND IN		Health Service Act. These a plan for healthcare facilities power to implement their in	agencies were obligated to produce a state growth, but they were given no statutory dements and were incapable of mandating	reduced healthcare expenditures by almost 2%. Contificate-of-need programs did not have a direct effect on healthcare expenditures. Conclusion: Certificate-of-need programs have limited the growth in the supply of hospital	Iospital Regulation and Its Effects on	
6 states re- vs for some ria on new	We analyzed Medicare data for 1991-2002 experienced changes in costs or reimburs (ABG) surgery or percutaneous coronary	sements for coronary ar	tery	FRANK A. SLOAN and BR Vanderbilt Univ		9 the submittal of capital budg limited. Nevertheless, many the internet and depreciation	ets. Consequently, their effectiveness was Blue Cross plans refused to reimburse for expenses associated with unapproved capi-	beds, and this has led to a slight reduction in the growth of healthcare expenditures. (Am J Manag Care. 2009;15(10):737-744)	spital and Non-hospital Expenditures	
noratorium. N programs	opped CON experienced lower costs per bus coronary intervention.Average Medicar	r patient for CABG but re reimbursement was lo	not ing long-term care for j	I. INTRODU	TION	to projects	is enacted in 1966 and adopted a cost-based hort-term hospital services. Following the		JOYCE A. LANNING	
care expen- ting nursing	edures in states that dropped CON. The ons slightly exceed the total fixed costs of denergiation. Assuming continued costs of	of new CABG facilities	that AUTHORS' NOTE: An ea	N the first half of this century, most re designed to promote quality assurance through the second s	ough accreditation	reimbursement method for s enactment of Medicare, large created an intense interest an	hort-term hospital services. Following the e increases in hospital and healthcare costs iong third-party payers, lawmakers, and the e of short-term hospitals. me the first state to enact a certificate-of-		MICHAEL A. MORRISEY ROBERT L. OHSFELDT University of Alabama at Birmingham	
id to greater people eligi- argued that	deregulation. Assuming continued cost sa ting CABG surgery outweigh the fixed cost r CABG may not be justified in terms of	sts of new entry. Thus, C	ON Policy Analysis and Managem	facilities and personnel. Then health plant and subsequently made compulsory, arose ing access to health services and for corre	from a dual co	 public in the size and expense In 1967, New York becar need program. Shortly therea 	e of short-term hospitals." me the first state to enact a certificate-of- after, Rhode Island, Maryland, and Califor-		Pickwick Place, Room 118, UAB Station, Birmingham, AL 35294	
ursing home The study d Medicaid	st growth.		© 2002 Sage Publications	health care marketplace. During the pas expenditures has led to more targeted effe	t decade, the g	Section 1122 of the 1972	legislation. amendments to the Public Health Service capital expansion by healthcare facilities			
	Need, (CON) coronary artery bypass g	graft (CABG), percutan	138 eous	cost increases. At present, hospitals in th wide variety, and still growing number,	of controls dev	through the withholding of M and depreciation expenses as	fedicare and Medicaid funds for the interest ssociated with unapproved projects. States ther their state health planning agency or		g regulation conclude that mature programs have been effective in . However, if rate regulation is influenced by higher hospital expen- xpenditures and rate setting is confounded. This study assesses the	
licy, Lister Hill the Department Department of Ilabama at Bir-	vention (PCI), panel data methods			state, and local governmental agencies ar including Blue Cross. The case for hospital regulation is buttr			Hill-Burton agency to determine the need for new capital expenditures. The National Health Planning and		ind non-hospital expenditures using a simultaneous-equation model spital expenditures on the decision to regulate from the effects of simultaneous-equation results indicate that mature rate setting is	ve Inefficiency in the Production of
licy, University	itted to Medical Care Research and Review on June 29,	2011 was revised and accept	d for	the hospital market is far from the com hospitals are nonprofit and therefore may	not be as subje	Take-Away Points / p738 www.ajmc.com Full text and PDF	Resources Development Act of 1974 required states to enact certificate-of-	For author information and disclosures, see end of text.	ealth care expenditures, including hospital and non-hospital expendi-	l Services*
146	gust 7, 2012. Houston, TX, USA	2011, Was forsed and accept	vid C. Grabowski ³ ,	efficient production as are profit-maximizi Overinsurance also undermines incentives vations and has probably led to overuse of	to implement c	VOL. 15, NO. 10	 THE AMERICAN JOURNAL OF MANAGE 	ED CARE • 737		KIN
Baylor College	of Medicine, Houston, TX, USA			are local monopolists and perhaps monop characteristics of the industry, including m	osonists as well	. Other structural	ew of Economics		and political pressure to limit their spending on Medicaid	1
	Rice University, Baker Institute for Public Policy-MS 4	40, 6100 Main St., Houston,		limit patient and physician choice of ho want" aspect of health and hospital care, s	ociety may not	be satisfied with a	NOVEMBER 1981 AND THE RISING COST	NUMBER 4	are in ourtailing health care over increasese for private health	
	xford E. Santerre	influenced by severa	sing homes and home health I Medicare and Medicaid policy change	market solution, even if the above imped Regulation offers the appeal of directly			Frank A. Sloan*			
Unive	ersity of Connecticut	term home and com	nent for Medicare-paid postacute care munity-based care reforms. This article	¹ General discussions of these issues include Stuart H. Altman & San tion as Second Best, in Competition in the Health Care Sector: Past, Pro (Warren Greenberg ed 1978; Alain C. Fothesuen, Concurrent Cherry (San Sector) (Holdb Blog (atc. 1.8. 2) in 1965 and 1978, expen-		of need really contain	ve offered numerous theoretical models of hospital behavior that suggest ineffi- rovision of hospital services. ¹ Explanations of inefficiency are tied to the organi-	
ta envelopmen	it analysis and multiple regression analy	were designed to li	ors was affected by state certificate-of- nit the growth of providers and have mpared with states without CON laws	iders and have 298 New England J. Medicine 650, 709 (1978); Clark C. Havighui Costs: Strengthening the Private Sector's Hand, 1 J. Health Politic		s, Policy, & Law 471 (1977); y hospitals grew at an- of data availat 1967. All d		the United States?	lation of the industry, principal-agent problems, and the dominance of third-party . Eakin and Kniesner [3] use a non-minimum cost function to obtain estimates of ciency for 331 U.S. short-term hospitals. In this paper, I fill a void in the hospital	
tal services in	ious market-structure elements on the te dustry in various metropolitan areas of s include the degree of rivalry among hosp	spending in states wi for home health car	th CON laws grew faster for nursing ho e. In particular, we observed the slower	faster for nursing ho Sector, supra, at 149-62.		Excess Health Insurance, 81 c indication of the second data and th		Patrick A Rivers ^a , Myron	D Fottler ^b and Mustafa Zeedan Younis ^c	by investigating variations in allocative inefficiency in the short-term hospital in- done by regressing the allocative inefficiency estimates from Eakin and Kniesner
dustry experie	rer concentration. The DEA results shou nced 11 percent inefficiency in 1999. Mo	Thus, controlling for	with CON for both the nursing home an other factors, public postacute and long	81			ct qualitative changes in rell as inflation, there are ssures to curb hospital regulatory approaches to-			I characteristics predicted by theory as determinants of inefficiency. locative inefficiency at the firm level, but from a social point of view. Specifically, ciency results from the technically efficient employment of inputs in a combination
al services ind	the level of technical efficiency varied di lustries in response to greater HMO action in the state. The analysis suggests the		become dominated by nursing homes.	This study examines the impact of Certificat ondary data from multiple sources were use general, nonfederal US hospitals operating d	d for the	governments over ma	fortunately without much fortunately without much facilities and	Abstract Objective This study e regulation on hospital c	examines the impact of certificate of need (CON)	ost-minimizing. A hospital may choose a non-cost-minimizing set of inputs if it hadow prices of inputs as being different from the actual prices. A shadow price is
vitals had no n implies that t	narginal effect on technical efficiency at t he presence of a state Certificate of Need	Keywords certificate of need, care spending	STATE REGULATION	AND HOSPITAL COSTS	ogram tly relat f or exp words:	empirical evidence on This study's objectiv two major forms of ho	regulation's effects. ve is to gauge impacts of Regulation ospital regulation: controls compasses co	Design A modified st	osts. rructure-conduct-performance paradigm was mple of US hospitals in order to investigate the	Iternal perception of the unit cost of an input. This perception may differ from the t price if, for example, the input enters directly into the hospital's objective function. It is assumed to minimize shadow cost by equating the marginal rate of technical sub-
reater degree o	f inefficiency in the typical metropolitan l	This article, submitted to	John J. Antel, Robert L. Ohst		al com	allowable revenues-co- effects, behavioral red	ities and services and on expansion, gr sts. To analyze regulatory fixed equipment state form cost and profit vices (such as	impact of CON regulation		d the ratio of input shadow prices. Thus, it is the shadow cost function that is dual to ing technology.
hnical efficies	ncy; hospital services; data envelopm	accepted for publication	Abstract—The effects of various regulations on hospital costs are estimated using a two decade long panel data set which spans the initiation, and in some instances the repeal, of various forms of hospital regulation. The long panel fosters have immements our previous research. First as state hos-	last twenty years' diverse set of regulations, and also facilitates estimation of regulation interac- tions or complementarities. Although many states	n)s ts	supplemented by equa cost, output, and bed	I and estimated. These are for such regul ations with growth rate of complete insu s as dependent variables. hospitals have		tical areas (SMSAs) from the American Hospital	spital is modelled as a multiproduct firm. A modified translog cost function is used to ystem of observed cost and share equations which is estimated via seemingly unrelated
nding as a p	ercentage of GDP has begun to ris	² Temple University, Phil ³ Harvard Medical Schoo	pital cost levels may affect states' incentive to regulate, fixed	uons or complementarities. Autoogn many states					rvey of Hospitals in 1991 were used. The depend-	regressions. Empirical results indicate that overcapitalization and underemployment of
s, spurting	s, spurting upward from 13.3 percent in 200(RI, USA		effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per-	adopted multiple regulations, it is unknown whether regulations acting in concert are more	1- 1- 12	Received for publication At	ime series of state cross- supported by planners have	Association's Annual Su ent variable was hospita		egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in
	upward from 13.3 percent in 2000 05). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ⁷ The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail	1- 12- 12- 11- 11-	Received for publication Ag for publication February 10 * Vanderbilt University. This research was support Health Care Financing Ad	me series of state cross- supported by pril 30, 1980. Revision accepted t, 1981. red in part by a grant from the ministration (#18-P97978044) to	Association's Annual Su ent variable was hospita variables were the existe dollar limit (if any) req environmental, market,	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics te measure of allocative inefficiency.
teview, Vol. 63 No		⁴ Providence Veterans A RI, USA Corresponding Auth Momotazur Rahman, De G-S121(6), Providence,	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial	e Ab	Received for publication A for publication February 10 * Vanderhit University. This research was suppor Health Care Financing Ad Vanderbit University. In a base preparation came from Health Planning and Resso sources Administration with Systems Research and Engin	me series of state cross- to overuilizat supported by planners have tal expenditu forces to area contention in appropriates appropriates supported by planners have tal expenditu forces to area contention in appropriates geographic at supported by planners have tal expenditu forces to area contention in appropriates Supported by tal expenditu for data supported by tal expenditu for data support	Association's Annual Su ent variable was hospita variables were the exist dollar limit (if any) req environmental, market, between predictor and multiple regression ana	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the uired for CON approval. Control variables were , and institutional characteristics. Associations dependent variables were investigated using lyses.	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics
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THE REALITY OF CON LAWS Per unit cost

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COMPETITION AMONG HOSPITALS*

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Received March 1987, final version received April 1988

The traditional view of hospital competition has posited that hospitals compete primarily along 'quality' dimensions, in the form of fancy equipment to attract admitting physicians and pleasant surroundings to entice patients. Frice competition anong hospitals is through to be non-existent. This paper esimates the effects of various hospital amartet characteristics on hospital prices and expenses in an attempt to determine the form of hospital competition. The results suggest that both price and quality competition are greater in markets that are less concentrated, although the net effect of the two on prices is insignificant. It appears, therefore, that, despite important

1. Introduction

Introduction Hospital competition is generally perceived to differ from that observed in other industries where price competition and profit maximization govern firm behavior. Various characteristics of the hospital industry may alter normal incentives and reduce constraints on the prices hospitals may charge. Hospital competition may instead focus on quality' in order to attract Hospital competition may instead focus on qualityl in order to attract "This paper was for the most part written while the author was employed by the Foderal trade Commission. It reflects the views of the author and is not intended to represent the position of the Foderal Trade Commission or any individual Commissioner. It is condensed the author. Cheryl Adaet initiated this project, frequentiated many of the basic idea, and collected and compiled most of the data. Her efforts were indispensable to this project. I with also to thank Jim Fergeran. Mark Frankens, Ted Freq. Soci Harvey, Richard Higgins, Pauline topolito, Mike Lynck, Joe Newhouse, Paul Paulter, Dave Scheffman and three referees for many valuable suggestions. John Holminger and Nellic Ling served as able research assistants bundle of input server in the project frequency of the server in the server in the server server and the server in the server in the project specific and the server bundle of input server in the forter of the server in the server assistants to bundle of input server in the forter of the server in the server in the server to bundle of input server in the server in the project aspects of competitions to be senver, used in a hospital competition is in fast totally wasteful in the results would na hospital competition has been important used in a fort-best sense, at leasy provides better health outcomes. If some hospital competition is in fast totally wasteful in the situations where quality competition has been important such as the server as always provided some utility to communer. This may not be the case for some hospital competitions only physicians and/or hospital administrators may benefit.

167-6296/88/\$3.50 © 1988, Elsevier Science Publishers B.V. (North-Holland

mes Bailey. "Can Health Spending Be Reined In through Supply Constraints? An Evaluation f Certificate-of-Need Laws." Mercatus Working Paper, Mercatus Center at George Mason 'niversity, Arlington, VA, July 2016.

For 50 years. US policymakers and economists have searched for ways to slow the growth of For 30 years, 0.5 pointy indices and economises taken by a backfeet to ways to show as growth of spending on health care. One supproach currently taken by 35 attacks is to restrict the supply of health care by requiring new and growing providers to have a certificate of need (CON) from a state Hospitals and certain other health providers more to have a certificate of need (CON) from a state Hospitals and certain other health providers must obtain a certificate of need (CON) from a state board before opening or expanding. I show that in a simple model where CON restricts supply, the effect of CON on spending depends on the price elasticity of market demand for health care. CON will work to restrain spending when demand is elastic; however, most estimates show the demand for health care to be quite inelastic. I therefore predict that CON will increase prices for health care without much reducing its use, leading to an increase in spending. Using data from the National Health Expenditure Accounts, I estimate that CON laws do not reduce spending by any major payer or for any major type of provider and that they increase spending on some types of health care.

JEL codes: I11, I18, H75

Keywords: healthcare spending, certificate of need, healthcare supply, regulation

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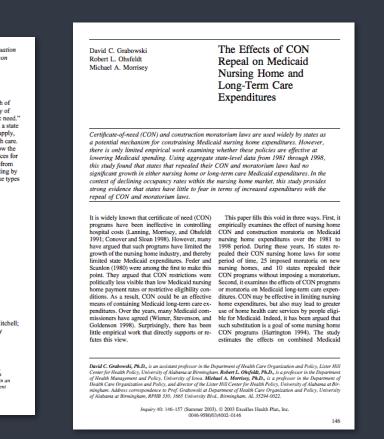
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I studies in the Mercanas Working Paper series have followed a rigorous process of academic craduat clading (except where otherwise notational la classt one double-blind peer creises). Working Papers present when's provisional findings, which, upon further consideration and revision, are likely to be republish adamic journal. The optionous expressed in Mercanas Working Papers are the authors' and do not rep ficial positions of the Mercanas Center or George Mason University.

3 studies: CON associated with higher cost

1 study: No detected effect on Medicaid costs





Empirical Research

State Deregulation and Medicare Costs for Acute Cardiac Care Medical Care Research and Review 70(2) 185-205 © The Author(s) 2012 Reprints and permission: sagepub.com/journalsPermissions.nav DOI: 10.1177/1077558712459681

Vivian Ho^{1,2} and Meei-Hsiang Ku-Goto¹

Past literature suggests that Certificate of Need (CON) regulations for cardiac care were ineffective in improving quality, but less is known about the effect of CON on patient costs. We analyzed Medicare data for 1991-2002 to test whether states that dropped CON experienced changes in costs or reimbursements for coronary artery bypass graft (CABG) surgery or percutaneous coronary interventions. We found that extern that demand COM lemonators and there are strate for CAPC but not demand and the menances of the strate strate for CAPC but not strate that demand COM. states that dropped CON experienced lower costs per patient for CABG but not for percutaneous coronary intervention. Average Medicare reimbursement was lower for both procedures in states that dropped CON. The cost savings from removing CON regulations slightly exceed the total fixed costs of new CABG facilities that entered after deregulation. Assuming continued cost savings past 2002, the savings from deregulating CABG surgery outweigh the fixed costs of new entry. Thus, CON regulations for CABG may not be justified in terms of either improving quality or trolling cost growth.

Certificate of Need, (CON) coronary artery bypass graft (CABG), percutaneous coronary intervention (PCI), panel data methods

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This article, submitted to Medical Care Research and Review on A for publication on December 5, 2013. 'Widener University, Chester, PA, USA Substance Abuse and Mental Health Services Administration, Ce Quality, Rockville, MD, USA **Corresponding Author:** Michael D. Rosko, School of Business Administration, Widener Chester, PA, 19013, USA. Email: mérosko@widener.edu **Kevwords** Heasthal efficiency: Certification for a service of this state with a submitty of service, implying that the proper allocation of resources to this for the efficiency of service in the Corresponding for the state with a submitty of services in the state with a submitty of services in the formation of the formation of production of the efficiency of the services in the services administration, Ce certificate of the efficiency of the formation of the formation of production of production of production of the efficiency of the services in the state with a submitted to the formation of the formatio mail: mdrosko@widener.edu

The Impact of Certificate-of Nee on Hospital Invest

> DAVID S. SALKEV THOMAS W. BICE

Certificate-of-Need (CON) controls over hospital inv umber of states in recent years and the National Health Planni

trolling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for exvansion. Finally, we caution against the conclusion that CON controls should be parason, rinaity, we contron against the conclusion that CON controls Should be broadened and tightened, though our results might be so interpreted, because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Introduction

In the wake of rapid post-Medicare cost inflation, investment controls have emerged as important regulatory mechanisms for moderating the rise in health services expenditures. These controls take two forms: (1) legal prohibitions of unnecessary capital investment, and (2) financial controls, whereby a health care institution's eligibility to receive capital or operating funds relating to an investment project is dependent upon the approval of designated planning agencies. Presently, both types are widespread. Legal prohibitions are in effect through certificate-of-need (CON) laws in twenty-four states, and similar legislation has been proposed in seven other states (Lewin and Associates, Inc., 1974). Moreover, with the passage of P.L. 93-641, the National Health Planning and Resources Development Act of 1974, CON was slated for adoption by all participating states.

Several types of financial controls have been applied. Under 185

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Keywords Hospital efficiency · Certificate of need · Directional distance function · Structural efficiency

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This article uses data envelopment analysis and mul ine empirically the impact of various market-structu ciency of the hospital services industry in various States. Market-structure elements include the degree og of HMO activity, and health insurer concentration. Th hospital services industry experienced 11 percent ineff tiple regression analysis indicates the level of technical metropolitan hospital services industries in response vate health insurer concentration in the state. The rivalry among hospitals had no marginal effect on tee level. Evidence also implies that the presence of a stat associated with a greater degree of inefficiency in the

Health care spending as a percentage of GDF in the United States, spurting upward from 13

			Access to	Community-Based						
	1	g-Term Care:			= POLICY =					
	Medicaid's Role						of Certificate-of-Need La			
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ttes as rever,	dicare Costs te Cardiac Care	Reprints and perm sagepub.com/journalsPermissio DOI: 10.1177/10775587124 mcr.sagepu	ns.nav 59681	te variation in expenditures for Medicaid community-		tion of unnecessar	programs attempt to curtail the construc- ry healthcare facilities and to limit the dy equipment that provides little benefit	Objective: To estimate the effect of certificate- of-need legislation on hospital bed supply and healthcare expenditures.		
at 1998,	e Cardiac Care	\$S/	GE based care services for the perio model is used to explore the rela	d 1990 to 1997. Method: A random effects panel tionship between state demographic, supply, eco-		by compelling hospitals and approval from a government	other healthcare entities to acquire prior tal entity. ¹⁻³ Indeed, efforts to control the	Study Design: This study uses state data on several variables, including healthcare expendi- tures, hospital bed supply, and the existence of a certificate-of-need program, from 4 periods (1985,		
In the ovides	^{1,2} and		care expenditures. Results: Althe	cal factors and states' Medicaid community-based ough states increased provision of services over the rel variation was evident. Expenditures were posi-		have been ongoing for more The 1946 federal Hill-Bur	ton program provided funds for new hospi-	1990, 1995, and 2000). Methods: We estimate 2 multivariate regression equations. In the first equation, hospital bed supply is the dependent variable, and certificate		
ith the	ng Ku-Goto'		tively associated with state per ca and the number of Medicard	with state per capita income, regulation of nursing home bed supply, Medicar / Conclus es of most		detailed the process by which The Hill-Burton program er	on-the adoption of a state health plan that h proposed projects would be evaluated. ⁵⁶ neouraged local planning to facilitate the	of need is included as an independent variable. In the second equation, healthcare expenditures is the dependent variable, and hospital bed supply and certificate of need are included as indepen-	Journal of Regulatory Economics; 3:137-154 (1991) ©1991 Kluwer Academic Publishers	
ays. First, it			home bed supply. Conclus strated preferences of most cies to foster the expansion				of local needs. ensive Health Planning agencies (so-called ted by the 1966 amendments to the Public	dent variables. Results: Certificate-of-need laws have reduced the number of hospital beds by about 10% and have		
n Medicaid he 1981 to	suggests that Certificate of Need (CON) re in improving quality, but less is known a	about the effect of CON	on and long-term care supply i	COSTS AND IN		Health Service Act. These a plan for healthcare facilities power to implement their in	agencies were obligated to produce a state growth, but they were given no statutory dements and were incapable of mandating	reduced healthcare expenditures by almost 2%. Contificate-of-need programs did not have a direct effect on healthcare expenditures. Conclusion: Certificate-of-need programs have limited the growth in the supply of hospital	Iospital Regulation and Its Effects on	
6 states re- vs for some ria on new	We analyzed Medicare data for 1991-2002 experienced changes in costs or reimburs (ABG) surgery or percutaneous coronary	sements for coronary ar	tery	FRANK A. SLOAN and BR Vanderbilt Univ		9 the submittal of capital budg limited. Nevertheless, many the internet and depreciation	ets. Consequently, their effectiveness was Blue Cross plans refused to reimburse for expenses associated with unapproved capi-	beds, and this has led to a slight reduction in the growth of healthcare expenditures. (Am J Manag Care. 2009;15(10):737-744)	spital and Non-hospital Expenditures	
ealed their moratorium. N programs	opped CON experienced lower costs per bus coronary intervention.Average Medicar	r patient for CABG but re reimbursement was lo	not ing long-term care for j	I. INTRODU	TION	to projects	is enacted in 1966 and adopted a cost-based hort-term hospital services. Following the		JOYCE A. LANNING	
care expen- ting nursing	edures in states that dropped CON. The ons slightly exceed the total fixed costs of denergiation. Assuming continued costs of	of new CABG facilities	that AUTHORS' NOTE: An ea	N the first half of this century, most re designed to promote quality assurance through the second s	ough accreditation	reimbursement method for s enactment of Medicare, large created an intense interest an	hort-term hospital services. Following the e increases in hospital and healthcare costs iong third-party payers, lawmakers, and the e of short-term hospitals. me the first state to enact a certificate-of-		MICHAEL A. MORRISEY ROBERT L. OHSFELDT University of Alabama at Birmingham	
id to greater people eligi- argued that	deregulation. Assuming continued cost sa ting CABG surgery outweigh the fixed cost r CABG may not be justified in terms of	sts of new entry. Thus, C	ON Policy Analysis and Managem	facilities and personnel. Then health plant and subsequently made compulsory, arose ing access to health services and for corre	from a dual co	 public in the size and expense In 1967, New York becar need program. Shortly therea 	e of short-term hospitals." me the first state to enact a certificate-of- after, Rhode Island, Maryland, and Califor-		Pickwick Place, Room 118, UAB Station, Birmingham, AL 35294	
ursing home The study d Medicaid	st growth.		© 2002 Sage Publications	health care marketplace. During the pas expenditures has led to more targeted effe	t decade, the g	Section 1122 of the 1972	legislation. amendments to the Public Health Service capital expansion by healthcare facilities			
	Need, (CON) coronary artery bypass g	graft (CABG), percutan	138 eous	cost increases. At present, hospitals in th wide variety, and still growing number,	of controls dev	through the withholding of M and depreciation expenses as	fedicare and Medicaid funds for the interest ssociated with unapproved projects. States ther their state health planning agency or		g regulation conclude that mature programs have been effective in . However, if rate regulation is influenced by higher hospital expen- xpenditures and rate setting is confounded. This study assesses the	
licy, Lister Hill the Department Department of Ilabama at Bir-	vention (PCI), panel data methods			state, and local governmental agencies ar including Blue Cross. The case for hospital regulation is buttr			Hill-Burton agency to determine the need for new capital expenditures. The National Health Planning and		ind non-hospital expenditures using a simultaneous-equation model spital expenditures on the decision to regulate from the effects of simultaneous-equation results indicate that mature rate setting is	ve Inefficiency in the Production of
licy, University	itted to Medical Care Research and Review on June 29,	2011 was revised and accept	d for	the hospital market is far from the com hospitals are nonprofit and therefore may	not be as subje	Take-Away Points / p738 www.ajmc.com Full text and PDF	Resources Development Act of 1974 required states to enact certificate-of-	For author information and disclosures, see end of text.	ealth care expenditures, including hospital and non-hospital expendi-	l Services*
146	gust 7, 2012. Houston, TX, USA	2011, Was forsed and accept	vid C. Grabowski ³ ,	efficient production as are profit-maximizi Overinsurance also undermines incentives vations and has probably led to overuse of	to implement c	VOL. 15, NO. 10	 THE AMERICAN JOURNAL OF MANAGE 	ED CARE • 737		KIN
Baylor College	of Medicine, Houston, TX, USA			are local monopolists and perhaps monop characteristics of the industry, including m	osonists as well	. Other structural	ew of Economics		and political pressure to limit their spending on Medicaid	1
	Rice University, Baker Institute for Public Policy-MS 4	40, 6100 Main St., Houston,		limit patient and physician choice of ho want" aspect of health and hospital care, s	ociety may not	be satisfied with a	NOVEMBER 1981 AND THE RISING COST	NUMBER 4	are in ourtailing health care over increasese for private health	
	xford E. Santerre	influenced by severa	sing homes and home health I Medicare and Medicaid policy change	market solution, even if the above imped Regulation offers the appeal of directly			Frank A. Sloan*			
Unive	ersity of Connecticut	term home and com	nent for Medicare-paid postacute care munity-based care reforms. This article	¹ General discussions of these issues include Stuart H. Altman & San tion as Second Best, in Competition in the Health Care Sector: Past, Pro (Warren Greenberg ed 1978; Alain C. Fothesuen, Concurrent Cherry (San Sector) (Holdb Blog (atc. 1.8. 2) in 1965 and 1978, expen-		of need really contain	ve offered numerous theoretical models of hospital behavior that suggest ineffi- rovision of hospital services. ¹ Explanations of inefficiency are tied to the organi-	
ta envelopmen	it analysis and multiple regression analy	were designed to li	ors was affected by state certificate-of- nit the growth of providers and have mpared with states without CON laws	iders and have 298 New England J. Medicine 650, 709 (1978); Clark C. Havighui Costs: Strengthening the Private Sector's Hand, 1 J. Health Politic		s, Policy, & Law 471 (1977); y hospitals grew at an- of data availat 1967. All d		the United States?	lation of the industry, principal-agent problems, and the dominance of third-party . Eakin and Kniesner [3] use a non-minimum cost function to obtain estimates of ciency for 331 U.S. short-term hospitals. In this paper, I fill a void in the hospital	
tal services in	ious market-structure elements on the te dustry in various metropolitan areas of s include the degree of rivalry among hosp	spending in states wi for home health car	th CON laws grew faster for nursing ho e. In particular, we observed the slower	faster for nursing ho Sector, supra, at 149-62.		Excess Health Insurance, 81 c indication of the second data and th		Patrick A Rivers ^a , Myron	D Fottler ^b and Mustafa Zeedan Younis ^c	by investigating variations in allocative inefficiency in the short-term hospital in- done by regressing the allocative inefficiency estimates from Eakin and Kniesner
dustry experie	rer concentration. The DEA results shou nced 11 percent inefficiency in 1999. Mo	Thus, controlling for	with CON for both the nursing home an other factors, public postacute and long	81			ct qualitative changes in rell as inflation, there are ssures to curb hospital regulatory approaches to-			I characteristics predicted by theory as determinants of inefficiency. locative inefficiency at the firm level, but from a social point of view. Specifically, ciency results from the technically efficient employment of inputs in a combination
al services ind	the level of technical efficiency varied di lustries in response to greater HMO action in the state. The analysis suggests the		become dominated by nursing homes.	This study examines the impact of Certificat ondary data from multiple sources were use general, nonfederal US hospitals operating d	d for the	governments over ma	fortunately without much fortunately without much facilities and	Abstract Objective This study e regulation on hospital c	examines the impact of certificate of need (CON)	ost-minimizing. A hospital may choose a non-cost-minimizing set of inputs if it hadow prices of inputs as being different from the actual prices. A shadow price is
vitals had no n implies that t	narginal effect on technical efficiency at t he presence of a state Certificate of Need	Keywords certificate of need, care spending	STATE REGULATION	AND HOSPITAL COSTS	ogram tly relat f or exp words:	empirical evidence on This study's objectiv two major forms of ho	regulation's effects. ve is to gauge impacts of Regulation ospital regulation: controls compasses co	Design A modified st	osts. rructure-conduct-performance paradigm was mple of US hospitals in order to investigate the	Iternal perception of the unit cost of an input. This perception may differ from the t price if, for example, the input enters directly into the hospital's objective function. It is assumed to minimize shadow cost by equating the marginal rate of technical sub-
reater degree o	f inefficiency in the typical metropolitan l	This article, submitted to	John J. Antel, Robert L. Ohst		al com	allowable revenues-co- effects, behavioral red	ities and services and on expansion, gr sts. To analyze regulatory fixed equipment state form cost and profit vices (such as	impact of CON regulation		d the ratio of input shadow prices. Thus, it is the shadow cost function that is dual to ing technology.
hnical efficies	ncy; hospital services; data envelopm	accepted for publication	Abstract—The effects of various regulations on hospital costs are estimated using a two decade long panel data set which spans the initiation, and in some instances the repeal, of various forms of hospital regulation. The long panel fosters have immements our previous research. First as state hos-	last twenty years' diverse set of regulations, and also facilitates estimation of regulation interac- tions or complementarities. Although many states	n)s ts	supplemented by equa cost, output, and bed	I and estimated. These are for such regul ations with growth rate of complete insu s as dependent variables. hospitals have		tical areas (SMSAs) from the American Hospital	spital is modelled as a multiproduct firm. A modified translog cost function is used to ystem of observed cost and share equations which is estimated via seemingly unrelated
nding as a p	ercentage of GDP has begun to ris	² Temple University, Phil ³ Harvard Medical Schoo	pital cost levels may affect states' incentive to regulate, fixed	uons or complementarities. Autoogn many states					rvey of Hospitals in 1991 were used. The depend-	regressions. Empirical results indicate that overcapitalization and underemployment of
s, spurting	s, spurting upward from 13.3 percent in 200(RI, USA		effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per-	adopted multiple regulations, it is unknown whether regulations acting in concert are more	1- 1- 12	Received for publication At	ime series of state cross- supported by planners have	Association's Annual Su ent variable was hospita		egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in
	upward from 13.3 percent in 2000 05). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ⁷ The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail	1- 12- 12- 11- 11-	Received for publication Ag for publication February 10 * Vanderbilt University. This research was support Health Care Financing Ad	me series of state cross- supported by pril 30, 1980. Revision accepted t, 1981. red in part by a grant from the ministration (#18-P97978044) to	Association's Annual Su ent variable was hospita variables were the existe dollar limit (if any) req environmental, market,	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics te measure of allocative inefficiency.
teview, Vol. 63 No		⁴ Providence Veterans A RI, USA Corresponding Auth Momotazur Rahman, De G-S121(6), Providence,	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial	e Ab	Received for publication A for publication February 10 * Vanderhit University. This research was suppor Health Care Financing Ad Vanderbit University. In a base preparation came from Health Planning and Resso sources Administration with Systems Research and Engin	me series of state cross- to overuilizat supported by planners have tal expendition forces to area contention in ministration (e18-97908/41 to dation, some support for data geographic at ures Develomment. Health Re-	Association's Annual Su ent variable was hospita variables were the exist dollar limit (if any) req environmental, market, between predictor and multiple regression ana	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the uired for CON approval. Control variables were , and institutional characteristics. Associations dependent variables were investigated using lyses.	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics
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Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. 11-6615, USA. privers@siu.edu	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. 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Lic Health, Florido International University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University, 1365 Douglos Drive 11-6015, USA. privers@su.edu ght @ SAGE 2007 www.sogepublications.com	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. The traditional minimum cost function is a special case and thus sorifin, homas Knisner, Knos Loveli and a refere how made helpful comments. example, see Hamis [7]. Lee [12]. 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Email: momotzur_rahm 499 J'22 A Ibber e agency or Hinl-Bu- the need for new ca ia la expenditure is de under generally ace is not properly cl expense and that changes the bed ca ic changes the service funder Section 11 the designated stat hospital construction g the use of internal f hospital construction the stated: ' f Nevertheless, the will probably fa the oblight planning c to dovide more s penalty of withthe prevalue of withthe prevalue of the service the stated: ' f the data planning c to dovide more s penalty of withthe prevalue of more s the prevalue of the states of the service the states of the states of t	<text><section-header><text><text><text><text></text></text></text></text></section-header></text>	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial to control costs, then the feasibility of more com- plex complex control costs, then the feasibility of more than the complex control costs of the cost of a complex control costs, then the feasibility of more than complex control costs, then the feasibility of more feasibility of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of the cost of the cost of the cost of the cost of the cost of the cost of regulatory variables, the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost o	n i for t fusi s sect d tech h the d tion y redd d tion y redd d to in c in a f iso e effe a ulat s may y i d to ulat s a may y i d to in c in c in c in a in a	Received for publication After publication February IB - Vanderhilt University. 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THE REALITY OF CON LAWS Per patient expenditure

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FRANK A. SLOAN				ST OF HOSPITAL CARI
I. IN IN the first half of this century, a designed to promote quality assuration	nce through acc	s affecting hospitals w reditation and licensu	were	covering 1963-78. ² The time span re-Medicare-Medicaid years (before 19 rs in which no major hospital re rogram was in effect. Primarily beca availability, some analysis is limited All denendent variables are mean
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The Effect of Certificate- and Healthcare Expend				ally contain
Fred J	J. Hellinger, PhD			1 States?
				Mustafa Zeedan Youni
Generation of course are programs attempt to curral acquisition of courly equipment that provide by compelling hospitals and other healthcare facilities and acquisition of courly equipment that provide growth from a governmental entity. ¹¹ Indeed, efforts growth of healthcare facilities and acquisition of expens have been ongoing for more than §0 yeas! The 1946 facteral [10]. British proposed projects would I the Hill-Nerror forgorm encouraged local planning to Stefa and [social Comprehensive] Health Falloning are A and B agéncies) were created by the 1966 amendment Health Service Act. These agencies were obligated to plant for healthcare facilities growth; but they were give poster to implement their inducersities and years in capabili- tic algorities. The segment course plant and years in capabili- tic algorities, many Bloc, so plant efficient in the initial. Nervine Act. These agencies in adversion capabil- tic algorities. The description of the second of the initial of Nervine facilities growth; but they were give poster to implement their inducersis in adversion capabilities and the initial of Nervine facilities growth; but they were give poster to implement their inducersis in adversion capabilities in the initiand. Nervine facilities growth; but they were give poster to implement their inducersis in bapoint and the createdian inferes facilities growth; but they result in facilities. The description of the factor in the plant arevices, ensumering of Medicare, large increase in bapoint and the createdian inferes infere theorem hospital services. The Medicare to growth factor factor heapital services. In 1997, New York becenitter, block linnd, Maymin and agence of the 1992 intendiments of the Public Aris incorporated agence of a observicem hospital and heap correst and because the hospital were all were allowed to designance effect the target hashing hield were allowed to designance effect the target hashing hield were allowed to designance effect the target hashing hield were allowed to designance effect	d to limit the so limits prior to acquire prior to acquire prior to control the sive equipment is for new hospi- ealth plan have be evaluated. ¹⁶ of ficilitate the of ficilitate the of ficilitate the of ficilitate the of ficilitate the of ficilitate the of ficili	Section 7: accisates the effect of provide for each of the section	sply and ta on expendi- stence of a riods (1985, gerression al bed operfilicate variable. In diffures is ed supply indepen- reduced the and have most 2%, ave a direct most Ave juital tion in the	t of certificate of need (CON) performance paradigm was ils in order to investigate the te care hospitals in 301 stand- from the American Hospital 1991 were used. The depend- admission in 1991. Predictor each hospital's state and the roval. Control variables were characteristics. Associations bles were investigated using vs had a positive, statistically r adjusted admission. only that CON do not really rease them by reducing com- discussed. I admission, hospital costs, ho
In this article Take-Away Points / p788 www.ajmc.com Full text and PDF	xpenditures. th Planning and nt Act of 1974	For author information and set	disclosures, end of text.	linois University. of Central Florida. ternational University. d Director, Health Care Manag
VOL 15, NO. 10 THE AMERICAN J	OURNAL OF MANAGED	CARE •	737	inois University, 1365 Dougla: ers@siu.edu www.sagepublications.com

7 studies: CON increases expenditures
2 studies: No statistically significant effect
2 studies: Increases some expenditures and reduces others
1 study: Reduces the number of beds









This article, submitted to Medical Care Research and Review on A for publication on December 5, 2013. 'Widener University, Chester, PA, USA Substance Abuse and Mental Health Services Administration, Ce Quality, Rockville, MD, USA **Corresponding Author:** Michael D. Rosko, School of Business Administration, Widener Chester, PA, 19013, USA. Email: mérosko@widener.edu **Kevwords** Heasthal efficiency: Certification for a service of this state with a submitty of service, implying that the proper allocation of resources to this for the efficiency of service in the Corresponding for the state with a submitty of services in the state with a submitty of services in the formation of the formation of production of the efficiency of the services in the services administration, Ce certificate of the efficiency of the formation of the formation of production of production of production of the efficiency of the services in the state with a submitted to the formation of the formatio mail: mdrosko@widener.edu

The Impact of Certificate-of Nee on Hospital Invest

> DAVID S. SALKEV THOMAS W. BICE

Certificate-of-Need (CON) controls over hospital inv umber of states in recent years and the National Health Planni

trolling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for exvansion. Finally, we caution against the conclusion that CON controls should be parason, rinaity, we contron against the conclusion that CON controls Should be broadened and tightened, though our results might be so interpreted, because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Introduction

In the wake of rapid post-Medicare cost inflation, investment controls have emerged as important regulatory mechanisms for moderating the rise in health services expenditures. These controls take two forms: (1) legal prohibitions of unnecessary capital investment, and (2) financial controls, whereby a health care institution's eligibility to receive capital or operating funds relating to an investment project is dependent upon the approval of designated planning agencies. Presently, both types are widespread. Legal prohibitions are in effect through certificate-of-need (CON) laws in twenty-four states, and similar legislation has been proposed in seven other states (Lewin and Associates, Inc., 1974). Moreover, with the passage of P.L. 93-641, the National Health Planning and Resources Development Act of 1974, CON was slated for adoption by all participating states.

Several types of financial controls have been applied. Under 185

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MERCATUS CENTER George Mason University

Keywords Hospital efficiency · Certificate of need · Directional distance function · Structural efficiency

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deregulation. Assur ting CABG surgery r CABG may not b

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> Rexford E. Santer University of Connect

This article uses data envelopment analysis and mul ine empirically the impact of various market-structu ciency of the hospital services industry in various States. Market-structure elements include the degree og of HMO activity, and health insurer concentration. Th hospital services industry experienced 11 percent ineff tiple regression analysis indicates the level of technical metropolitan hospital services industries in response vate health insurer concentration in the state. The rivalry among hospitals had no marginal effect on tee level. Evidence also implies that the presence of a stat associated with a greater degree of inefficiency in the

Health care spending as a percentage of GDF in the United States, spurting upward from 13

			Access to	Community-Based						
	1	g-Term Care:			= POLICY =					
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ttes as rever,	dicare Costs te Cardiac Care	Reprints and perm sagepub.com/journalsPermissio DOI: 10.1177/10775587124 mcr.sagepu	ns.nav 59681	te variation in expenditures for Medicaid community-		tion of unnecessar	programs attempt to curtail the construc- ry healthcare facilities and to limit the dy equipment that provides little benefit	Objective: To estimate the effect of certificate- of-need legislation on hospital bed supply and healthcare expenditures.		
at 1998,	e Cardiac Care	\$S/	GE based care services for the perio model is used to explore the rela	d 1990 to 1997. Method: A random effects panel tionship between state demographic, supply, eco-		by compelling hospitals and approval from a government	other healthcare entities to acquire prior tal entity. ¹⁻³ Indeed, efforts to control the	Study Design: This study uses state data on several variables, including healthcare expendi- tures, hospital bed supply, and the existence of a certificate-of-need program, from 4 periods (1985,		
In the ovides	^{1,2} and		care expenditures. Results: Althe	cal factors and states' Medicaid community-based ough states increased provision of services over the rel variation was evident. Expenditures were posi-		have been ongoing for more The 1946 federal Hill-Bur	ton program provided funds for new hospi-	1990, 1995, and 2000). Methods: We estimate 2 multivariate regression equations. In the first equation, hospital bed supply is the dependent variable, and certificate		
ith the	ng Ku-Goto'		tively associated with state per ca and the number of Medicard	with state per capita income, regulation of nursing home bed supply, Medicar / Conclus es of most		detailed the process by which The Hill-Burton program er	on-the adoption of a state health plan that h proposed projects would be evaluated. ⁵⁶ neouraged local planning to facilitate the	of need is included as an independent variable. In the second equation, healthcare expenditures is the dependent variable, and hospital bed supply and certificate of need are included as indepen-	Journal of Regulatory Economics; 3:137-154 (1991) ©1991 Kluwer Academic Publishers	
ays. First, it			home bed supply. Conclus strated preferences of most cies to foster the expansion				of local needs. ensive Health Planning agencies (so-called ted by the 1966 amendments to the Public	dent variables. Results: Certificate-of-need laws have reduced the number of hospital beds by about 10% and have		
n Medicaid he 1981 to	suggests that Certificate of Need (CON) re in improving quality, but less is known a	about the effect of CON	on and long-term care supply i	COSTS AND IN		Health Service Act. These a plan for healthcare facilities power to implement their in	agencies were obligated to produce a state growth, but they were given no statutory dements and were incapable of mandating	reduced healthcare expenditures by almost 2%. Cartificate-of-need programs did not have a direct effect on healthcare expenditures. Conclusion: Certificate-of-need programs have limited the growth in the supply of hospital	Iospital Regulation and Its Effects on	
6 states re- vs for some ria on new	We analyzed Medicare data for 1991-2002 experienced changes in costs or reimburs (ABG) surgery or percutaneous coronary	sements for coronary ar	tery	FRANK A. SLOAN and BR Vanderbilt Univ		9 the submittal of capital budg limited. Nevertheless, many the internet and depreciation	ets. Consequently, their effectiveness was Blue Cross plans refused to reimburse for expenses associated with unapproved capi-	beds, and this has led to a slight reduction in the growth of healthcare expenditures. (Am J Manag Care. 2009;15(10):737-744)	spital and Non-hospital Expenditures	
ealed their moratorium. N programs	opped CON experienced lower costs per bus coronary intervention.Average Medicar	r patient for CABG but re reimbursement was lo	not ing long-term care for j	I. INTRODU	TION	to projects	is enacted in 1966 and adopted a cost-based hort-term hospital services. Following the		JOYCE A. LANNING	
care expen- ting nursing	edures in states that dropped CON. The ons slightly exceed the total fixed costs of denergiation. Assuming continued costs of	of new CABG facilities	that AUTHORS' NOTE: An ea	N the first half of this century, most re designed to promote quality assurance through the second s	ough accreditation	reimbursement method for s enactment of Medicare, large created an intense interest an	hort-term hospital services. Following the e increases in hospital and healthcare costs iong third-party payers, lawmakers, and the e of short-term hospitals. me the first state to enact a certificate-of-		MICHAEL A. MORRISEY ROBERT L. OHSFELDT University of Alabama at Birmingham	
id to greater people eligi- argued that	deregulation. Assuming continued cost sa ting CABG surgery outweigh the fixed cost r CABG may not be justified in terms of	sts of new entry. Thus, C	ON Policy Analysis and Managem	facilities and personnel. Then health plant and subsequently made compulsory, arose ing access to health services and for corre	from a dual co	 public in the size and expense In 1967, New York becar need program. Shortly therea 	e of short-term hospitals." me the first state to enact a certificate-of- after, Rhode Island, Maryland, and Califor-		Pickwick Place, Room 118, UAB Station, Birmingham, AL 35294	
ursing home The study d Medicaid	st growth.		© 2002 Sage Publications	health care marketplace. During the pas expenditures has led to more targeted effe	t decade, the g	Section 1122 of the 1972	legislation. amendments to the Public Health Service capital expansion by healthcare facilities			
	Need, (CON) coronary artery bypass g	graft (CABG), percutan	138 eous	cost increases. At present, hospitals in th wide variety, and still growing number,	of controls dev	through the withholding of M and depreciation expenses as	fedicare and Medicaid funds for the interest ssociated with unapproved projects. States ther their state health planning agency or		g regulation conclude that mature programs have been effective in . However, if rate regulation is influenced by higher hospital expen- xpenditures and rate setting is confounded. This study assesses the	
licy, Lister Hill the Department Department of Ilabama at Bir-	vention (PCI), panel data methods			state, and local governmental agencies ar including Blue Cross. The case for hospital regulation is buttr			Hill-Burton agency to determine the need for new capital expenditures. The National Health Planning and		ind non-hospital expenditures using a simultaneous-equation model spital expenditures on the decision to regulate from the effects of simultaneous-equation results indicate that mature rate setting is	ve Inefficiency in the Production of
licy, University	itted to Medical Care Research and Review on June 29,	2011 was revised and arrent	d for	the hospital market is far from the com hospitals are nonprofit and therefore may	not be as subje	Take-Away Points / p738 www.ajmc.com Full text and PDF	Resources Development Act of 1974 required states to enact certificate-of-	For author information and disclosures, see end of text.	ealth care expenditures, including hospital and non-hospital expendi-	l Services*
146	gust 7, 2012. Houston, TX, USA	2011, Was forsed and accept	vid C. Grabowski ³ ,	efficient production as are profit-maximizi Overinsurance also undermines incentives vations and has probably led to overuse of	to implement c	VOL. 15, NO. 10	 THE AMERICAN JOURNAL OF MANAGE 	ED CARE • 737		KIN
Baylor College	of Medicine, Houston, TX, USA			are local monopolists and perhaps monop characteristics of the industry, including m	osonists as well	. Other structural	ew of Economics		and political pressure to limit their spending on Medicaid	1
	Rice University, Baker Institute for Public Policy-MS 4	40, 6100 Main St., Houston,		limit patient and physician choice of ho want" aspect of health and hospital care, s	ociety may not	be satisfied with a	NOVEMBER 1981 AND THE RISING COST	NUMBER 4	are in ourtailing health care over increasese for private health	
	xford E. Santerre	influenced by severa	sing homes and home health I Medicare and Medicaid policy change	market solution, even if the above imped Regulation offers the appeal of directly			Frank A. Sloan*			
Unive	ersity of Connecticut	term home and com	nent for Medicare-paid postacute care munity-based care reforms. This article	¹ General discussions of these issues include Stuart H. Altman & San tion as Second Best, in Competition in the Health Care Sector: Past, Pro (Warren Greenberg ed 1978; Alain C. Fothesuen, Concurrent Cherry (San Sector) (Holdb Blog (atc. 1.8. 2) in 1965 and 1978, expen-		of need really contain	ve offered numerous theoretical models of hospital behavior that suggest ineffi- rovision of hospital services. ¹ Explanations of inefficiency are tied to the organi-	
ta envelopmen	it analysis and multiple regression analy	were designed to li	ors was affected by state certificate-of- nit the growth of providers and have mpared with states without CON laws	iders and have 298 New England J. Medicine 650, 709 (1978); Clark C. Havighui Costs: Strengthening the Private Sector's Hand, 1 J. Health Politic		s, Policy, & Law 471 (1977); y hospitals grew at an- of data availat 1967. All d		the United States?	lation of the industry, principal-agent problems, and the dominance of third-party . Eakin and Kniesner [3] use a non-minimum cost function to obtain estimates of ciency for 331 U.S. short-term hospitals. In this paper, I fill a void in the hospital	
tal services in	ious market-structure elements on the te dustry in various metropolitan areas of s include the degree of rivalry among hosp	spending in states wi for home health car	th CON laws grew faster for nursing ho e. In particular, we observed the slower	faster for nursing ho Sector, supra, at 149-62.		Excess Health Insurance, 81 c indication of the second data and th		Patrick A Rivers ^a , Myron	D Fottler ^b and Mustafa Zeedan Younis ^c	by investigating variations in allocative inefficiency in the short-term hospital in- done by regressing the allocative inefficiency estimates from Eakin and Kniesner
dustry experie	rer concentration. The DEA results shou nced 11 percent inefficiency in 1999. Mo	Thus, controlling for	with CON for both the nursing home an other factors, public postacute and long	81			ct qualitative changes in rell as inflation, there are ssures to curb hospital regulatory approaches to-			I characteristics predicted by theory as determinants of inefficiency. locative inefficiency at the firm level, but from a social point of view. Specifically, ciency results from the technically efficient employment of inputs in a combination
al services ind	the level of technical efficiency varied di lustries in response to greater HMO action in the state. The analysis suggests the		become dominated by nursing homes.	This study examines the impact of Certificat ondary data from multiple sources were use general, nonfederal US hospitals operating d	d for the	governments over ma	fortunately without much fortunately without much facilities and	Abstract Objective This study e regulation on hospital c	examines the impact of certificate of need (CON)	ost-minimizing. A hospital may choose a non-cost-minimizing set of inputs if it hadow prices of inputs as being different from the actual prices. A shadow price is
vitals had no n implies that t	narginal effect on technical efficiency at t he presence of a state Certificate of Need	Keywords certificate of need, care spending	STATE REGULATION	AND HOSPITAL COSTS	ogram tly relat f or exp words:	empirical evidence on This study's objectiv two major forms of ho	regulation's effects. ve is to gauge impacts of Regulation ospital regulation: controls compasses co	Design A modified st	osts. rructure-conduct-performance paradigm was mple of US hospitals in order to investigate the	Iternal perception of the unit cost of an input. This perception may differ from the t price if, for example, the input enters directly into the hospital's objective function. It is assumed to minimize shadow cost by equating the marginal rate of technical sub-
reater degree o	f inefficiency in the typical metropolitan l	This article, submitted to	John J. Antel, Robert L. Ohst		al com	allowable revenues-co- effects, behavioral red	ities and services and on expansion, gr sts. To analyze regulatory fixed equipment state form cost and profit vices (such as	impact of CON regulation		d the ratio of input shadow prices. Thus, it is the shadow cost function that is dual to ing technology.
hnical efficies	ncy; hospital services; data envelopm	accepted for publication	Abstract—The effects of various regulations on hospital costs are estimated using a two decade long panel data set which spans the initiation, and in some instances the repeal, of various forms of hospital regulation. The long panel fosters have immements our previous research. First as state hos-	last twenty years' diverse set of regulations, and also facilitates estimation of regulation interac- tions or complementarities. Although many states	n)s ts	supplemented by equa cost, output, and bed	I and estimated. These are for such regul ations with growth rate of complete insu s as dependent variables. hospitals have		tical areas (SMSAs) from the American Hospital	spital is modelled as a multiproduct firm. A modified translog cost function is used to ystem of observed cost and share equations which is estimated via seemingly unrelated
nding as a p	ercentage of GDP has begun to ris	² Temple University, Phil ³ Harvard Medical Schoo	pital cost levels may affect states' incentive to regulate, fixed	uons or complementarities. Autoogn many states					rvey of Hospitals in 1991 were used. The depend-	regressions. Empirical results indicate that overcapitalization and underemployment of
s, spurting	s, spurting upward from 13.3 percent in 200(RI, USA		effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per-	adopted multiple regulations, it is unknown whether regulations acting in concert are more	1- 1- 12	Received for publication At	ime series of state cross- supported by planners have	Association's Annual Su ent variable was hospita		egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in
	upward from 13.3 percent in 2000 05). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ⁷ The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail	1- 12- 12- 11- 11-	Received for publication Ag for publication February 10 * Vanderbilt University. This research was support Health Care Financing Ad	me series of state cross- supported by pril 30, 1980. Revision accepted t, 1981. red in part by a grant from the ministration (#18-P97978044) to	Association's Annual Su ent variable was hospita variables were the existe dollar limit (if any) req environmental, market,	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics te measure of allocative inefficiency.
teview, Vol. 63 No		⁴ Providence Veterans A RI, USA Corresponding Auth Momotazur Rahman, De G-S121(6), Providence,	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial	e Ab	Received for publication A for publication February 10 * Vanderhit University. This research was suppor Health Care Financing Ad Vanderbit University. In a base preparation came from Health Planning and Resso sources Administration with Systems Research and Engin	me series of state cross- to overuilizat supported by planners have tal expenditu forces to area contention in appropriates appropriates supported by planners have tal expenditu forces to area contention in appropriates geographic at supported by planners have tal expenditu forces to area contention in appropriates Supported by tal expenditu for data supported by tal expenditu for data support	Association's Annual Su ent variable was hospita variables were the exist dollar limit (if any) req environmental, market, between predictor and multiple regression ana	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the uired for CON approval. Control variables were , and institutional characteristics. Associations dependent variables were investigated using lyses.	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics
leview, Vol. 63 No 88842)5). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth Momotazur Rahman, De	effect estimators alleviate omitted variable bia derived from the states' regulatory discretions. Second the long panel per- mits the estimation of many different regulatory pergam- program interaction. The empirical results suggest that provi- ous studies have exagerated regulatory out swipe: albough unresponsive to most regulatory programs. Introduction Over the last two decades state and federal governments have adopted hospital rate regula-	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ² The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail to control costs, then the feasibility of more com- plex multifacted regulatory schemes is of vital	n for 1- fusi	Received for publication Af for publication February 10 * manderbill: Inverses- Health Care Financing Ad Vanderbill: University. In a huse preparation care from Health Flaming and Resou- Health Flaming and Resource Bayester Measurement and Roberts Walter for research Roberts Walter for research Roberts Walter for research Clark, Paul Gindbyrg, Wa anonemous references for blam of the anonemous references for blam.	me series of state cross- prof 30, 1980. Revision accepted 1, 1981. read in part by a gata from the acyenditic forces to are: baddities, nome unperformance addities, nome unperformance addi	Association's Annual Su ent variables was hospita variables were the exist dollar limit (if any) req environmental, market, between predictor and multiple regression ana <i>Results</i> The results inc significant relationship	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations dependent variables were investigated using lyses. licate that CON laws had a positive, statistically to hospital costs per adjusted admission.	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. The traditional minimum cost function is a special case and thus sorifin, homas Knisner, Knos Loveli and a refere how made helpful comments. example, see Hamis [7]. Lee [12]. Netwook [13], and Puyal nd Reiche [17]. The issue of inefficiency
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Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University. 11-6615, USA. privers@siu.edu	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. 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Lic Health, Florido International University. Rivers, Professor and Director, Health Care Management, d Arts, Southern Illinois University, 1365 Douglos Drive 11-6015, USA. privers@su.edu ght @ SAGE 2007 www.sagepublications.com	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. The traditional minimum cost function is a special case and thus sorifin, homas Knisner, Knos Loveli and a refere how made helpful comments. example, see Hamis [7]. Lee [12]. 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Email: momotzur.rahm 499 J'22 A Ibber e agency or Hill-Ba- the need for new ca ia la expenditure is de under generally acc is not properly cl expense and that changes the bed ca ic changes the service Inder Section 11 the designated stat hospital construction g the use of internal f hospital construction the stated: ⁴ fr Nevertheless, the will probably fa the oblight planning c to dovide more s penalty of withthe preciation compt	<text><section-header><text><text><text><text></text></text></text></text></section-header></text>	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial to control costs, then the feasibility of more com- plex complex control costs, then the feasibility of more than the complex control costs of the cost of a complex control costs, then the feasibility of more than complex control costs, then the feasibility of more feasibility of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of the cost of the cost of the cost of the cost of the cost of the cost of regulatory variables, the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost o	n i for t fusi s sect d tech h the d tion y redd d tion y redd d to in c in a f iso e effe a ulat s may y i d to ulat s a may y i d to in c in c in c in a in a	Received for publication After publication February IB - Vanderhilt University. 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THE REALITY OF CON LAWS Hospital Efficiency

Market Structure and Technical Efficiency in the Hospital Services Industry: A DEA Approach

> Laurie I. Bates Bryant College Kankana Mukherjee Worcester Polytechnic Institute Rexford E. Santerre University of Connecticut

This article uses data envelopment analysis and multiple regression analysis to exar Intermitted used task to exclopence in unangest a matrixple or genesision at may be caufine empirically the impact of oarious market-structure elements on the technical effi-ciency of the hospital services industry in various metropolitan areas of the United States. Market-structure elements include the degree of rioalry among hospitals, extent of HMO activity, and health insurer concentration. The DEA results show the typical hospital services industry experienced 11 percent inefficiency in 1999. Moreover, mul tiple regression analysis indicates the level of technical efficiency varied directly across tiple regression analysis induces in level of recriminal efficiency during arriving arrows metropolitan hospital services industries in response to greater HMO activity and pri-vate health insurer concentration in the state. The analysis suggests the degree of rivalry among hospitals had no marginal effect on technical efficiency at the industry level. Evidence also implies that the presence of a state Certificate of Need law was not associated with a greater degree of inefficiency in the typical metropolitan hospital ser vices industry.

Keywords: technical efficiency; hospital services; data envelopment analysis

Health care spending as a percentage of GDP has begun to rise once again in the United States, spurting upward from 13.3 percent in 2000 to 15.3 per-cent in 2003 (Smith et al. 2005). A large part of the growth spurt can be

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The Association of Hospital Cost-Inefficiency With Certificate-of-Need Regulation

Michael D. Rosko¹ and Ryan L. Mutter²

Certificate-of-need (CON) regulations can promote hospital efficiency by reducing luplication of services; however, there are practical and theoretical reasons why hey might be infective, and the empirical evidence generated has been mixed. This study compares the cost-inefficiency of urban, acute care hospitals in states with CON regulations against those in states without CON requirements. Stochastic ontier analysis was performed on pooled time-series, cross-sectional data from (552) hospitals in 37 states for the period 2005 to 2009 with controls for variations in hospital product mix, quality, and patient burden of illness. Average estimated st-inefficiency was less in CON states (8,10%) than in non-CON states (12,46%). Results suggest that CON regulation may be an effective policy instrument in an era of a new medical arms race. However, broader analysis of the effects of CON egulation on efficiency, quality, access, prices, and innovation is needed before a recommendation can be made.

ertificate-of-need, efficiency, hospitals, stochastic frontier analysis

is article, submitted to Medical Care Research and Review on April 30, 2013, was revised and accepted or publication on December 5, 2013. Videner University, Chester, PA, USA tance Abuse and Mental Health Servi uality, Rockville, MD, USA Corresponding Author: lichael D. Rosko, School of Bus Chester, PA 19013, USA. ndrosko@widener.e

2 studies: CON increases some measures of efficiency 1 study: CON has no effect on efficiency study: CON reduces efficiency



Allocative Inefficiency in the Production of Hospital Services*

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1edical Care Research and Review 2014, Vol. 71(3) 280–298 © The Author(s) 2014 Reprints and permissions: agepub.com/journals/Permissions.na DOI: 10.1177/10775871351916 mcr.sagepub.com

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I. Introduction

Researchers have offered numerous theoretical models of hospital behavior that ency in the provision of hospital services.1 Explanations of inefficiency are tie ration and regulation of the industry, principal-agent problems, and the dominar reimbursement. Eakin and Kniesner [3] use a non-minimum cost function to obtain estimates of allocative inefficiency for 331 U.S. short-term hospitals. In this paper, I fill a void in the hospital cost literature by investigating variations in allocative inefficiency in the short-term hospital in-dustry. This is done by regressing the allocative inefficiency estimates from Eakin and Kniesner against hospital characteristics predicted by theory as determinants of inefficiency. I define allocative inefficiency at the firm level, but from a social point of view. Specifically, allocative inefficiency results from the technically efficient employment of inputs in a combination which is not cost-minimizing. A hospital may choose a non-cost-minimizing set of inputs if it evaluates the shadow prices of inputs as being different from the actual prices. A shadow price is the boxinal's internal encerention of the unit cost of an input. This servention may differ from the ement. Eakin and Kniesner [3] use a non-minimum cost function to ob

e hospital's internal perception of the unit cost of an input. This perception may differ from the ctual input price if, for example, the input enters directly into the hospital's objective function. e hospital is assumed to minimize shadow cost by equating the marginal rate of technical sub itution and the ratio of input shadow prices. Thus, it is the shadow cost function that is dual to e underlying technology.

The hospital is modelled as a multiproduct firm. A modified translog cost function is used to evelop a system of observed cost and share equations which is estimated via seemingly unrelated develop a system of observed cost and share equations which is estimated via seemingly unrelated non-linear regressions. Empirical results indicate that overcapitalization and underemployment of physicians increase short-term hospital costs by about 5 percent. Hospital care expenditures are about 4.5 percent of the gross national product, which is almost three times the percentage in 1960. Thus, 5 percent represents a large amount in actual oblans. Further investigation identi-fies hospital size, market share, regulations and geographic region as the hospital characteristics related to the measure of allocative inefficiency. This paper is organized as follows. In section 11, 1 develop the empirical model based on a non-minimum cost function. The traditional minimum cost function is a special case and thus

s Griffin, Thomas Kniesner, Knox Lovell and a referee have made helpful comments. example, see Harris [7], Lee [12], Newhouse [13], and Pauly and Redisch [17]. The issue of inefficienc ofit medical firm is addressed in Pauly [16].

	Gary D. Ferrier • Hervé Leleu • Vivian G. Valdmanis	
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ed to the organi- nce of third-party btain estimates of rid in the hospital	Abstract In this paper we propose an empirically imple- mentable measure of aggregate-level efficiency along the lines of Debru's (1951) coefficient of resource utilization but restricted to the production side. The efficiency measure	reform wa tration. M implement administra

empirically imple-ficiency along the sensore utilization. More recent health care reform, such as the ensore utilization of Medicare Part D during the Bush administration, has been more focused. Reforms have been initiated at the state level as well [-1-4]. The main impetus decomposed into ficiency. The latter state level as well and a work are unrently an industry, is further and mix efficiency. The res developed in the paper are illustrated using U.S. al data. The illustration sheds light on the efficacy of

Introduction

Health care reform has long been a political issue in the United States. The last federal push for comprehensive epartment of Econor ayetteville, AR, USA

counted for by health care spending have been concern or some time now; hospital costs are an important part of use issues. Prior to the implementation of the Medicare prospective payment system (PPS) in 1983, hospitals were reimbursed on a fee-for-service (FFS) basis.¹ Under a 'FS model, hospitals ¹ Over time other payers followed Medicare's lead in shifting fro FFS to PPS in an effort to contain costs. The Balanced Budget Act 1007 furthered the transition from FFS to PPS

one that involves a "fair" di out the state. While health i

in health care reform, it is a premise based on mark approaches. We take a slightly different tact and a efficiency of resource utilization within each a regulation. The direct relationship between regul

aggregation of hospital productivity, but the second implication is that for any state based reform to a successful, efficient operation is a necessary condition. Rising health care costs and the term

The impact of CON regulation on hospital efficiency





This article, submitted to Medical Care Research and Review on A for publication on December 5, 2013. 'Widener University, Chester, PA, USA Substance Abuse and Mental Health Services Administration, Ce Quality, Rockville, MD, USA **Corresponding Author:** Michael D. Rosko, School of Business Administration, Widener Chester, PA, 19013, USA. Email: mérosko@widener.edu **Kevwords** Heasthal efficiency: Certification for a service of this state with a submitty of service, implying that the proper allocation of resources to this for the efficiency of service in the Corresponding for the state with a submitty of services in the state with a submitty of services in the formation of the formation of production of the efficiency of the services in the services administration, Ce certificate of the efficiency of the formation of the formation of production of production of production of the efficiency of the services in the state with a submitted to the formation of the formatio mail: mdrosko@widener.edu

The Impact of Certificate-of Nee on Hospital Invest

> DAVID S. SALKEV THOMAS W. BICE

Certificate-of-Need (CON) controls over hospital inv umber of states in recent years and the National Health Planni

trolling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for exvansion. Finally, we caution against the conclusion that CON controls should be parason, rinaity, we contron against the conclusion that CON controls Should be broadened and tightened, though our results might be so interpreted, because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Introduction

In the wake of rapid post-Medicare cost inflation, investment controls have emerged as important regulatory mechanisms for moderating the rise in health services expenditures. These controls take two forms: (1) legal prohibitions of unnecessary capital investment, and (2) financial controls, whereby a health care institution's eligibility to receive capital or operating funds relating to an investment project is dependent upon the approval of designated planning agencies. Presently, both types are widespread. Legal prohibitions are in effect through certificate-of-need (CON) laws in twenty-four states, and similar legislation has been proposed in seven other states (Lewin and Associates, Inc., 1974). Moreover, with the passage of P.L. 93-641, the National Health Planning and Resources Development Act of 1974, CON was slated for adoption by all participating states.

Several types of financial controls have been applied. Under 185

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MERCATUS CENTER George Mason University

Keywords Hospital efficiency · Certificate of need · Directional distance function · Structural efficiency

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> Rexford E. Santer University of Connect

This article uses data envelopment analysis and mul ine empirically the impact of various market-structu ciency of the hospital services industry in various States. Market-structure elements include the degree og of HMO activity, and health insurer concentration. Th hospital services industry experienced 11 percent ineff tiple regression analysis indicates the level of technical metropolitan hospital services industries in response vate health insurer concentration in the state. The rivalry among hospitals had no marginal effect on tee level. Evidence also implies that the presence of a stat associated with a greater degree of inefficiency in the

Health care spending as a percentage of GDF in the United States, spurting upward from 13

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	arch	CHARLENE HARRINGTON, PhD University of California, San Francisco				Fred J. Hellinger, PhD				
	eregulation	Medical Care Research and F 70(2) 18 © The Author(s	5-205 Health C	ETH GOLDSTEIN, PhD are Financing Administration						
ttes as rever,	dicare Costs te Cardiac Care	Reprints and perm sagepub.com/journalsPermissio DOI: 10.1177/10775587124 mcr.sagepu	ns.nav 59681	te variation in expenditures for Medicaid community-		tion of unnecessar	programs attempt to curtail the construc- ry healthcare facilities and to limit the dy equipment that provides little benefit	Objective: To estimate the effect of certificate- of-need legislation on hospital bed supply and healthcare expenditures.		
at 1998,	e Cardiac Care	\$S/	GE based care services for the perio model is used to explore the rela	d 1990 to 1997. Method: A random effects panel tionship between state demographic, supply, eco-		by compelling hospitals and approval from a government	other healthcare entities to acquire prior tal entity. ¹⁻³ Indeed, efforts to control the	Study Design: This study uses state data on several variables, including healthcare expendi- tures, hospital bed supply, and the existence of a certificate-of-need program, from 4 periods (1985,		
In the ovides	^{1,2} and		care expenditures. Results: Althe	cal factors and states' Medicaid community-based ough states increased provision of services over the rel variation was evident. Expenditures were posi-		have been ongoing for more The 1946 federal Hill-Bur	ton program provided funds for new hospi-	1990, 1995, and 2000). Methods: We estimate 2 multivariate regression equations. In the first equation, hospital bed supply is the dependent variable, and certificate		
ith the	ng Ku-Goto'		tively associated with state per ca and the number of Medicard	with state per capita income, regulation of nursing home bed supply, Medicar / Conclus es of most		detailed the process by which The Hill-Burton program er	on-the adoption of a state health plan that h proposed projects would be evaluated. ⁵⁶ neouraged local planning to facilitate the	of need is included as an independent variable. In the second equation, healthcare expenditures is the dependent variable, and hospital bed supply and certificate of need are included as indepen-	Journal of Regulatory Economics; 3:137-154 (1991) ©1991 Kluwer Academic Publishers	
ays. First, it			home bed supply. Conclus strated preferences of most cies to foster the expansion				of local needs. ensive Health Planning agencies (so-called ted by the 1966 amendments to the Public	dent variables. Results: Certificate-of-need laws have reduced the number of hospital beds by about 10% and have		
n Medicaid he 1981 to	suggests that Certificate of Need (CON) re in improving quality, but less is known a	about the effect of CON	on and long-term care supply i	COSTS AND IN		Health Service Act. These a plan for healthcare facilities power to implement their in	agencies were obligated to produce a state growth, but they were given no statutory dements and were incapable of mandating	reduced healthcare expenditures by almost 2%. Cartificate-of-need programs did not have a direct effect on healthcare expenditures. Conclusion: Certificate-of-need programs have limited the growth in the supply of hospital	Iospital Regulation and Its Effects on	
6 states re- vs for some ria on new	We analyzed Medicare data for 1991-2002 experienced changes in costs or reimburs (ABG) surgery or percutaneous coronary	sements for coronary ar	tery	FRANK A. SLOAN and BR Vanderbilt Univ		9 the submittal of capital budg limited. Nevertheless, many the internet and depreciation	ets. Consequently, their effectiveness was Blue Cross plans refused to reimburse for expenses associated with unapproved capi-	beds, and this has led to a slight reduction in the growth of healthcare expenditures. (Am J Manag Care. 2009;15(10):737-744)	spital and Non-hospital Expenditures	
ealed their moratorium. N programs	opped CON experienced lower costs per bus coronary intervention.Average Medicar	r patient for CABG but re reimbursement was lo	not ing long-term care for j	I. INTRODU	CTION	to projects	is enacted in 1966 and adopted a cost-based hort-term hospital services. Following the		JOYCE A. LANNING	
care expen- ting nursing	edures in states that dropped CON. The ons slightly exceed the total fixed costs of denergiation. Assuming continued costs of	of new CABG facilities	that AUTHORS' NOTE: An ea	N the first half of this century, most re designed to promote quality assurance through the second s	ough accreditation	reimbursement method for s enactment of Medicare, large created an intense interest an	hort-term hospital services. Following the e increases in hospital and healthcare costs iong third-party payers, lawmakers, and the e of short-term hospitals. me the first state to enact a certificate-of-		MICHAEL A. MORRISEY ROBERT L. OHSFELDT University of Alabama at Birmingham	
id to greater people eligi- argued that	deregulation. Assuming continued cost sa ting CABG surgery outweigh the fixed cost r CABG may not be justified in terms of	sts of new entry. Thus, C	ON Policy Analysis and Managem	facilities and personnel. Then health plant and subsequently made compulsory, arose ing access to health services and for corre	from a dual co	 public in the size and expense In 1967, New York becar need program. Shortly therea 	e of short-term hospitals." me the first state to enact a certificate-of- after, Rhode Island, Maryland, and Califor-		Pickwick Place, Room 118, UAB Station, Birmingham, AL 35294	
ursing home The study d Medicaid	st growth.		© 2002 Sage Publications	health care marketplace. During the pas expenditures has led to more targeted effe	t decade, the g	Section 1122 of the 1972	legislation. amendments to the Public Health Service capital expansion by healthcare facilities			
	Need, (CON) coronary artery bypass g	graft (CABG), percutan	138 eous	cost increases. At present, hospitals in th wide variety, and still growing number,	of controls dev	through the withholding of M and depreciation expenses as	fedicare and Medicaid funds for the interest ssociated with unapproved projects. States ther their state health planning agency or		g regulation conclude that mature programs have been effective in . However, if rate regulation is influenced by higher hospital expen- xpenditures and rate setting is confounded. This study assesses the	
licy, Lister Hill the Department Department of Ilabama at Bir-	vention (PCI), panel data methods			state, and local governmental agencies ar including Blue Cross. The case for hospital regulation is buttr			Hill-Burton agency to determine the need for new capital expenditures. The National Health Planning and		ind non-hospital expenditures using a simultaneous-equation model spital expenditures on the decision to regulate from the effects of simultaneous-equation results indicate that mature rate setting is	ve Inefficiency in the Production of
licy, University	itted to Medical Care Research and Review on June 29,	2011 was revised and arrent	d for	the hospital market is far from the com hospitals are nonprofit and therefore may	not be as subje	Take-Away Points / p738 www.ajmc.com Full text and PDF	B Resources Development Act of 1974 required states to enact certificate-of-	For author information and disclosures, see end of text.	ealth care expenditures, including hospital and non-hospital expendi-	l Services*
146	gust 7, 2012. Houston, TX, USA	2011, Was forsed and accept	vid C. Grabowski ³ ,	efficient production as are profit-maximizi Overinsurance also undermines incentives vations and has probably led to overuse of	to implement c	VOL. 15, NO. 10	 THE AMERICAN JOURNAL OF MANAGE 	ED CARE • 737		KIN
Baylor College	of Medicine, Houston, TX, USA			are local monopolists and perhaps monop characteristics of the industry, including m	osonists as well	. Other structural	ew of Economics		and political pressure to limit their spending on Medicaid	1
	Rice University, Baker Institute for Public Policy-MS 4	40, 6100 Main St., Houston,		limit patient and physician choice of ho want" aspect of health and hospital care, s	ociety may not	be satisfied with a	NOVEMBER 1981 AND THE RISING COST	NUMBER 4	are in ourtailing health care over increasese for private health	
	xford E. Santerre	influenced by severa	sing homes and home health I Medicare and Medicaid policy change	market solution, even if the above imped Regulation offers the appeal of directly			Frank A. Sloan*			
Unive	ersity of Connecticut	term home and com	nent for Medicare-paid postacute care munity-based care reforms. This article	¹ General discussions of these issues include Stuart H. Altman & San tion as Second Best, in Competition in the Health Care Sector: Past, Pro (Warren Greenberg ed 1978; Alain C. Extheman, Concurrent Cherry (State) and State State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and State (State) and		Holdb Blog (atc. 1.8. 2) in 1965 and 1978, expen-		of need really contain	ve offered numerous theoretical models of hospital behavior that suggest ineffi- rovision of hospital services. ¹ Explanations of inefficiency are tied to the organi-	
ta envelopmen	it analysis and multiple regression analy	were designed to li	ors was affected by state certificate-of- nit the growth of providers and have mpared with states without CON laws	iders and have 298 New England J. Medicine 650, 709 (1978); Clark C. Havighui Costs: Strengthening the Private Sector's Hand, 1 J. Health Politic		s, Policy, & Law 471 (1977); y hospitals grew at an- of data availat 1967. All d		the United States?	lation of the industry, principal-agent problems, and the dominance of third-party . Eakin and Kniesner [3] use a non-minimum cost function to obtain estimates of ciency for 331 U.S. short-term hospitals. In this paper, I fill a void in the hospital	
tal services in	ious market-structure elements on the te dustry in various metropolitan areas of s include the degree of rivalry among hosp	spending in states wi for home health car	th CON laws grew faster for nursing ho e. In particular, we observed the slower	faster for nursing ho Sector, supra, at 149-62.		Excess Health Insurance, 81 c indication of the second data and th		Patrick A Rivers ^a , Myron	D Fottler ^b and Mustafa Zeedan Younis ^c	by investigating variations in allocative inefficiency in the short-term hospital in- done by regressing the allocative inefficiency estimates from Eakin and Kniesner
dustry experie	rer concentration. The DEA results shou nced 11 percent inefficiency in 1999. Mo	Thus, controlling for	with CON for both the nursing home an other factors, public postacute and long	81			ct qualitative changes in rell as inflation, there are ssures to curb hospital regulatory approaches to-			I characteristics predicted by theory as determinants of inefficiency. locative inefficiency at the firm level, but from a social point of view. Specifically, ciency results from the technically efficient employment of inputs in a combination
al services ind	the level of technical efficiency varied di lustries in response to greater HMO action in the state. The analysis suggests the		become dominated by nursing homes.	This study examines the impact of Certificat ondary data from multiple sources were use general, nonfederal US hospitals operating d	d for the	governments over ma	fortunately without much fortunately without much facilities and	Abstract Objective This study e regulation on hospital c	examines the impact of certificate of need (CON)	ost-minimizing. A hospital may choose a non-cost-minimizing set of inputs if it hadow prices of inputs as being different from the actual prices. A shadow price is
vitals had no n implies that t	narginal effect on technical efficiency at t he presence of a state Certificate of Need	Keywords certificate of need, care spending	STATE REGULATION	AND HOSPITAL COSTS	ogram tly relat f or exp words:	empirical evidence on This study's objectiv two major forms of ho	regulation's effects. ve is to gauge impacts of Regulation ospital regulation: controls compasses co	Design A modified st	osts. rructure-conduct-performance paradigm was mple of US hospitals in order to investigate the	Iternal perception of the unit cost of an input. This perception may differ from the t price if, for example, the input enters directly into the hospital's objective function. It is assumed to minimize shadow cost by equating the marginal rate of technical sub-
reater degree o	f inefficiency in the typical metropolitan l	This article, submitted to	John J. Antel, Robert L. Ohst		al com	allowable revenues-co- effects, behavioral red	ities and services and on expansion, gr sts. To analyze regulatory fixed equipment state form cost and profit vices (such as	impact of CON regulation		d the ratio of input shadow prices. Thus, it is the shadow cost function that is dual to ing technology.
hnical efficies	ncy; hospital services; data envelopm	accepted for publication	Abstract—The effects of various regulations on hospital costs are estimated using a two decade long panel data set which spans the initiation, and in some instances the repeal, of various forms of hospital regulation. The long panel fosters have immements our previous research. First as state hos-	last twenty years' diverse set of regulations, and also facilitates estimation of regulation interac- tions or complementarities. Although many states	n)s ts	supplemented by equa cost, output, and bed	I and estimated. These are for such regul ations with growth rate of complete insu s as dependent variables. hospitals have		tical areas (SMSAs) from the American Hospital	spital is modelled as a multiproduct firm. A modified translog cost function is used to ystem of observed cost and share equations which is estimated via seemingly unrelated
nding as a p	ercentage of GDP has begun to ris	² Temple University, Phil ³ Harvard Medical Schoo	pital cost levels may affect states' incentive to regulate, fixed	uons or complementarities. Autoogn many states					rvey of Hospitals in 1991 were used. The depend-	regressions. Empirical results indicate that overcapitalization and underemployment of
s, spurting	s, spurting upward from 13.3 percent in 200(RI, USA		effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per-	adopted multiple regulations, it is unknown whether regulations acting in concert are more	1- 1- 12	Received for publication At	ime series of state cross- supported by planners have	Association's Annual Su ent variable was hospita		egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in
	upward from 13.3 percent in 2000 05). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth	effect estimators alleviate omitted variable bias derived from the states' regulatory discretion. Second, the long panel per- mits the estimation of many different regulatory program effects, but also facilitates the analysis of potential regulatory program interaction. The empirical results suggest that previ- ous studies have coxgerented regulatory cost savings: although	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ⁷ The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail	1- 12- 12- 11- 11-	Received for publication Ag for publication February 10 * Vanderbilt University. This research was support Health Care Financing Ad	me series of state cross- supported by pril 30, 1980. Revision accepted t, 1981. red in part by a grant from the ministration (#18-P97978044) to	Association's Annual Su ent variable was hospita variables were the existe dollar limit (if any) req environmental, market,	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics te measure of allocative inefficiency.
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leview, Vol. 63 No 88842)5). A large part of the growth s	⁴ Providence Veterans A RI, USA Corresponding Auth Momotazur Rahman, De	effect estimators alleviate omitted variable bia derived from the states' regulatory discretions. Second the long panel per- mits the estimation of many different regulatory pergam- program interaction. The empirical results suggest that provi- ous studies have exagerated regulatory out swipe: albough unresponsive to most regulatory programs. Introduction Over the last two decades state and federal governments have adopted hospital rate regula-	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ² The analysis of regulatory interactions may be crucial to policy design: if single regulation schemes fail to control costs, then the feasibility of more com- plex multifacted regulatory schemes is of vital	n for 1- fusi	Received for publication Af for publication February 10 * manderbill: Inverses- Health Care Financing Ad Vanderbill: University. In a huse preparation care from Health Flaming and Resou- Health Flaming and Resource Bayester Measurement and Roberts Walter for research Roberts Walter for research Roberts Walter for research Clark, Paul Gindbyrg, Wa anonemous references for blam of the anonemous references for blam.	me series of state cross- prof 30, 1980. Revision accepted 1, 1981. read in part by a gata from the acyenditic forces to are: baddities, nome unperforded as addities, nome unperforded as addities, nome unperforded as addities, nome unperforded and addities, nome unperforded addities, nome unperforded addities	Association's Annual Su ent variables was hospita variables were the exist dollar limit (if any) req environmental, market, between predictor and multiple regression ana <i>Results</i> The results inc significant relationship	rvey of Hospitals in 1991 were used. The depend- l costs per adjusted admission in 1991. Predictor ence of a CON law in each hospital's state and the ujured for CON approval. Control variables were and institutional characteristics. Associations dependent variables were investigated using lyses. licate that CON laws had a positive, statistically to hospital costs per adjusted admission.	egressions. Empirical results indicate that overcapitalization and underemployment of increase short-term hospital costs by about 5 percent. Hospital care expenditures are ercent of the gross national product, which is almost three times the percentage in , 5 percent represents a large amount in actual dollars. Further investigation identi- l size, market share, regulations and geographic region as the hospital characteristics is measure of allocative inefficiency. uper is organized as follows. In section II. I develop the empirical model based on mum cost function. The traditional minimum cost function is a special case and thus sorifin, homas Knisner, Knos Loveli and a refere how made helpful comments. example, see Hamis [7]. Lee [12]. Netwook [13], and Puidu and Redish [17]. The issue of inefficiency
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Email: momotzur.rahm 499 J'22 A Ibber e agency or Hill-Ba- the need for new ca ia la expenditure is de under generally ace is not properly cl expense and that changes the bed ca ic changes the service Inder Section 11 the designated stat hospital construction g the use of internal f hospital construction the stated: ' f Nevertheless, the will probably fa the oblight planning c to dovide more s penalty of withthe previation compty	<text><section-header><text><text><text><text></text></text></text></text></section-header></text>	adopted multiple regulations, it is unknown whether regulations acting in concert are more effective than regulations acting alone. ³ The analysis of regulatory interactions may be crucial to control costs, then the feasibility of more com- plex complex control costs, then the feasibility of more than the complex control costs of the cost of a complex control costs, then the feasibility of more than complex control costs, then the feasibility of more feasibility of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of multiple regulatory cost of host of the cost of the cost of regulatory cost of host of the cost of the cost of regulatory cost of host of the cost of multiple regulatory cost of host of the cost of the cost of multiple regulatory cost of host of the cost of the cost of the cost of multiple regulatory cost of host of the cost of th	n i for t fusi s sect d tech h the d tion y redd d tion y redd d to in c in a f iso e effe a ulat s may y i d to ulat s a may y i d to in c in c in c in a in a	Received for publication After publication February IB - Vanderhilt University. 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THE REALITY OF CON LAWS Investment

The Impact of Certificate-of Need Controls on Hospital Investment

> DAVID S. SALKEVER THOMAS W. BICE

Certificate-of-Need (CON) controls over hospital investment have been enacted by a number of states in recent years and the National Health Planning and Resources Development Act of 1974 provides strong incentives for adoption of CON in additional states. In this study, we review the questions that have been raised about the effectiveness of CON controls and then we develop quantitative estimates of the imegiccurveness of CON controls and a then we even op quantitative estimates of the im-pact of CON on investment. These estimates show that CON did not reduce the total dollar volume of investment but altered its composition, retarding expansion in bed supplies but increasing investment in new services and equipment. We suggest that this finding may be due to (1) the emphasis in CON laws and programs on controlling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for exantional beas in response to financial factors and organizational presents for ex-pansion. Finally, we cattion against the conclusion that CON controls should be broadened and tightened, though our results might be so interpreted, because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Introduction

In the wake of rapid post-Medicare cost inflation, investment controls have emerged as important regulatory mechanisms for moderating the rise in health services expenditures. These controls take two forms: (1) legal prohibitions of unnecessary capital investment, and (2) financial controls, whereby a health care institution's eligibility to receive capital or operating funds relating to an investment project is dependent upon the approval of designated planning agencies. Presently, both types are widespread. Legal prohibitions are in effect through certificate-of-need (CON) laws in twenty-four states, and similar legislation has been proposed in seven other states (Lewin and Associates, Inc., 1974). Moreover, with the passage of P.L. 93-641, the National Health Planning and Resources Development Act of 1974, CON was slated for adoption by all participating states.

Several types of financial controls have been applied. Under MMFO / Health and Society / Spring 1976

1 study: CON fails to reduce investment but changes its composition 1 study: CON backfires, increasing investment



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Fred J. Hellinger

Certificate-of-Need Legislation on Hospital Investment

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Matthew Mitchell, PhD Senior Research Fellow



FLORIDA'S CON LAW LESSONS FROM THREE DECADES OF RESEARCH

Florida House of Representative Health Market Reform Subcommittee

February 6, 2019