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# THE EFFECT OF STATE FUNERAL REGULATIONS ON CREMATION RATES: TESTING FOR DEMAND INDUCEMENT IN FUNERAL MARKETS\*

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## ABSTRACT

This article presents evidence that state funeral regulations affect the choice of whether to cremate or bury dead bodies. States that require either funeral directors to be embalmers or funeral homes to have embalming preparation rooms have lower cremation rates, holding other factors such as income, age, educational attainment, nativity, religious adherence, race, and region constant. These embalming regulations reduce cremation rates by roughly 16 percent, which increases the amount spent on funerals by 2.6 percent. The article also presents evidence that funeral directors induce consumers to choose burial over cremation, which supports one of the fundamental premises underlying the Federal Trade Commission's Funeral Rule. However, the additional evidence that inducement is more prevalent in states with stringent funeral regulations suggests that repealing state regulations that impede competition might be more effective than the Funeral Rule in attacking the problem of demand inducement.

## I. INTRODUCTION

**T**HE funeral industry is subject to a dense patchwork of state and federal regulations that have been justified using plausible but untested theories about funeral market failures. The lack of evidence is astounding given the size of funeral markets—consumers spend over \$13 billion per year on funerals—and the changes that have occurred within them, such as the dramatic increase in the cremation rate from less than 4 percent in the mid-1960s to nearly 25 percent in the late 1990s.<sup>1</sup>

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<sup>1</sup> Total funeral expenditures reported in U.S. Department of Commerce, Bureau of the Census, U.S. Census of Service Industries, 1977 (1999), were updated to 1998 dollars using the funeral component of the consumer price index (CPI). For the cremation statistics, see David C. Sloane, *The Last Great Necessity: Cemeteries in American History* 228 (1991); and Cremation Association of North America, 1998 Cremation Data by State, 35 *Cremationist* N. Am. 18 (1999).

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The most extensive investigation of funeral markets was conducted by the Federal Trade Commission (FTC) prior to the 1984 enactment of the Funeral Industry Practices Rule, more commonly known as the Funeral Rule. According to former FTC economist Timothy Muris, the FTC “never conducted” systematic studies of the funeral industry during its 10-year investigation, relying instead on testimonial evidence.<sup>2</sup> As a result, most of the provisions of the Funeral Rule were justified “by no more than a score of anecdotes.”<sup>3</sup>

We begin to fill this void by estimating the impact of state funeral regulations on the choice of whether to cremate or bury dead bodies. These regulations include licensure requirements for both individuals and firms selling funeral services, prohibitions against cemeteries operating mortuaries, and restrictions on the location of crematories.

We also investigate whether state funeral regulations primarily serve the public interest or private interests within the funeral industry. A common complaint about funeral directors is that they induce consumers to spend more on funerals than they really want to. While the public interest view implies that state funeral regulations should impede this behavior, the private interest view implies they should facilitate it. Since one of the ways that funeral directors have been accused of inducing demand is by steering people away from cremations, we can test the validity of these two views using our data.

One of our tests involves estimating the determinants of county cremation rates on samples of counties from states with and without stringent licensing requirements. The differences in the estimated coefficients of the two regressions support the hypothesis that stringent licensing requirements change the nature of funeral markets in ways that encourage more demand inducement. Our second test involves estimating the impact of contracting funeral markets on county cremation rates. If funeral directors induce demand, we would expect them to react to the potential income losses from a declining number of deaths by steering more consumers away from cremation.<sup>4</sup> The regression results support the hypothesis that funeral directors induce demand in states with stringent funeral regulations.

The evidence that funeral directors induce demand supports one of the fundamental premises underlying the Funeral Rule. However, our evidence also suggests that state funeral regulations are more important in facilitating this behavior than the FTC realized. In formulating the Funeral Rule, the FTC left “to the states the task of correcting features of their regulations that

<sup>2</sup> Timothy J. Muris, *Rules without Reason: The Case of the FTC*, 6 Regulation 20, 24 (1982).

<sup>3</sup> *Id.* at 22.

<sup>4</sup> Jonathan Gruber & Maria Owings, *Physician Financial Incentives and Cesarean Section Delivery*, 27 *Rand J. Econ.* 99 (1996), developed this method of identifying the effect of demand inducement on discrete choices, such as whether to have a cesarean section or give birth naturally.

impose unnecessary costs and restrict consumer choice," a task that only a small handful of states have tackled over the last 25 years.<sup>5</sup>

In the next section, we discuss some of the salient characteristics of funeral markets and describe two competing views of the way that they operate. In Sections II and III, we describe the state and federal funeral regulations that may influence the choice between cremation and burial and develop some hypotheses about their economic effects. In the last four sections, we develop our empirical model, describe our data, present our empirical results, and discuss our conclusions.

## II. THE MARKET FOR FUNERAL SERVICES

Critics of the funeral industry characterize funeral consumers as less informed than consumers in typical markets.<sup>6</sup> Since most people have very little experience arranging funerals prior to a death, consumers often have very little knowledge about the variation in the price and quality of funeral services. This information is costly to acquire once a death occurs because consumers often have a limited amount of time and are emotionally unprepared to, or feel that it is disrespectful to, search for a low-cost provider. These characteristics, according to the FTC, "reduce the ability of consumers to make careful, informed purchase decisions."<sup>7</sup> The FTC also argues that the entry of new firms is "hindered by a number of obstacles," including state regulations and the difficulty of attracting customers given the lack of consumer information.<sup>8</sup> More than anything else, it is the lack of information that the FTC believes "impairs the efficient operation of funeral markets."<sup>9</sup>

Another view is that the funeral market "does not work at all like the FTC claims it does," because most consumers are better informed than the FTC thinks they are.<sup>10</sup> In support of this view, Fred McChesney presents evidence that many people make funeral arrangements prior to a death and that most of the others are assisted by family members and friends, some of whom are very likely to have had prior experience arranging funerals. He does not argue that funeral consumers are perfectly informed, only that they are about

<sup>5</sup> Federal Trade Commission, Bureau of Consumer Protection, *Funeral Industry Practices: Final Staff Report to the Federal Trade Commission and Proposed Trade Regulation Rule* (16 CFR Part 453) 207 (June 1978).

<sup>6</sup> *Id.*; Jessica Mitford, *The American Way of Death* (1963); and Consumer Reports, *Funerals—Consumers' Last Rights* (1977).

<sup>7</sup> Federal Trade Commission, *Funeral Rule Statement of Basis and Purpose and Regulatory Analysis*, 47 Fed. Reg. 42,261 (1982).

<sup>8</sup> Federal Trade Commission, *supra* note 5, at 87.

<sup>9</sup> *Funeral Rule Statement*, 47 Fed. Reg. at 42,275.

<sup>10</sup> Fred McChesney, *Consumer Ignorance and Consumer Protection Law: Empirical Evidence from the FTC Funeral Rule*, 7 J. L. & Pol. 1, 72 (1990).

as well informed as consumers of other professional services. Furthermore, McChesney characterizes entry into the industry as relatively easy, aside from licensure restrictions.

The FTC and McChesney also disagree on the extent of demand inducement in the market for funeral services. Inducement can be defined as selling more funeral goods and services than the amount that equates marginal benefits and marginal costs to consumers. Michael Darby and Edi Karni show that sellers have an incentive to induce whenever they provide information that influences purchases, such as when funeral directors advise consumers on community customs and counsel them on the role of funerals in the grief process.<sup>11</sup>

According to the FTC, funeral consumers are “very susceptible” to the advice of funeral directors,<sup>12</sup> much of which is aimed at inducing them to purchase “traditional funerals” that make the “maximum use of funeral directors’ services, facilities and merchandise.”<sup>13</sup> This strategy includes steering people away from cremation—the “primary competitor” of a traditional funeral—because cremations are less likely to involve caskets, embalming, and other services, such as chapels, hearses, and limousines.<sup>14</sup> People who choose burial spend almost three times as much on funeral goods and services than do those who choose cremation: roughly \$6,073 versus \$2,325 (1998 dollars).<sup>15</sup> The FTC argues that these additional expenditures translate into greater profits because the cost of providing the additional services is very low, making burials much more lucrative than cremations. This conclusion rests on their claim that most funeral homes have substantial excess capacity because of the small number of funerals they handle each year.<sup>16</sup>

However, Darby and Karni show that the optimal level of inducement depends not only on the marginal benefits of inducing but also on the marginal costs. McChesney doubts that inducement is as widespread as the FTC suggests, primarily because he believes that the reputational costs of inducing

<sup>11</sup> Michael R. Darby & Edi Karni, *Free Competition and the Optimal Amount of Fraud*, 16 *J. Law & Econ.* 67 (1973).

<sup>12</sup> Funeral Rule Statement, 47 *Fed. Reg.* at 42,275.

<sup>13</sup> Federal Trade Commission, *supra* note 5, at 57, defines a traditional funeral as including embalming, a casket, a viewing, a service with the body present, and usually a procession to the grave site. Mitford, *supra* note 6, at 17, argues that calling this a traditional funeral is a misnomer created by the industry to induce consumers to spend more on funerals.

<sup>14</sup> Federal Trade Commission, *supra* note 5, at 57. A 1987 FTC survey found that 19 percent of consumers choosing cremation purchased caskets and 26 percent purchased embalming versus 96 and 90 percent, respectively, of those choosing burial. Timothy Daniels, Federal Trade Commission, Bureau of Economics, *An Analysis of the Funeral Rule Using Consumer Survey Data on the Purchase of Funeral Goods and Services 7–10* (February 1989).

<sup>15</sup> The funeral expenditures reported in Daniels, *supra* note 14, at 7–10, were updated using the funeral component of the CPI.

<sup>16</sup> Federal Trade Commission, *supra* note 5, at 85–90.

demand are likely to be large because of a decrease in the amount of repeat business and fewer referrals.<sup>17</sup>

Using county-level data, we test whether funeral directors induce demand by steering people away from cremation. In order to develop our empirical model, we need to discuss the regulations that may influence the choice between cremation and burial.

### III. STATE AND FEDERAL REGULATIONS

The earliest funeral regulations arose at the turn of the century when states began to license funeral homes and funeral directors. All states except Colorado now license funeral directors, and most states regulate the funeral industry in a variety of other ways. The state regulations examined in this paper are (1) licensure requirements for individuals selling funeral services, (2) facility requirements for firms selling funeral services, (3) prohibitions against firms combining cemeteries and mortuaries, and (4) restrictions that require that crematories be located in cemeteries. Table 1 presents the information on these regulations for all states in 1995.<sup>18</sup>

The requirements for a funeral director's license vary dramatically across the states, tending to be more extensive in the 28 states where funeral directors are required to be embalmers.<sup>19</sup> For example, New Jersey offers a single license for practitioners of mortuary science, which requires 2 years of college, 1 year of mortuary college, and 2 years as an apprentice.<sup>20</sup> In contrast, California offers a separate funeral director's license, which requires only taking an exam.<sup>21</sup> Florida, New Mexico, and Oregon offer special licenses for "direct disposers," which require a minimal amount of training and are acquired mostly by individuals specializing in the provision of direct cre-

<sup>17</sup> McChesney also argues that demand inducement is not widespread for the following reasons. First, many surveys find that funeral consumers are overwhelmingly satisfied with the services provided by funeral directors. Second, the Funeral Rule has not reduced funeral expenditures. For the reasons that the FTC dismissed the first type of evidence, see Federal Trade Commission, *supra* note 5, at 455. For an alternative interpretation of the impact of the Funeral Rule, see Federal Trade Commission, Bureau of Consumer Protection, *Funeral Industry Practices: Mandatory Review, Final Staff Report to the Federal Trade Commission with Proposed Amended Trade Regulation Rule* (16 CFR Part 453) (June 1990).

<sup>18</sup> These regulations, which emanate from state statutes and from rules promulgated by funeral boards and health departments, were obtained by examining state statutes, surveying regulators in all 50 states, and questioning officers of state funeral and cemetery associations.

<sup>19</sup> Some of these states offer separate licenses for funeral directors and embalmers but impose identical educational and apprenticeship requirements, which leads most practitioners to obtain both. In these states, we assume that funeral directors are effectively required to be embalmers.

<sup>20</sup> N.J. Stat. § 45:7-49 (2001).

<sup>21</sup> Cal. Bus. & Prof. Code § 7622 (2001).

TABLE 1  
STATE FUNERAL REGULATIONS, 1995

STATE	FUNERAL DIRECTORS		DIRECT DISPOSITION LICENSE	FUNERAL HOMES		PROHIBITION OF CEMETERY/ MORTUARY COMBINATIONS	CREMATORIES MUST BE LOCATED IN CEMETERIES
	Required Training (years)	Must Be Embalmers		Must Have Embalming Rooms			
Alabama	2	No	No	Yes	No	No	No
Alaska	2	No	No	No	No	No	No
Arizona	4	Yes	No	Yes	No	No	No
Arkansas	2	No	No	No	No	No	No
California	0	No	No	No	No	No	No
Colorado	0	No	No	No	No	No	No
Connecticut	3	Yes	No	Yes	Yes	Yes	Yes
Delaware	4	Yes	No	Yes	Yes	Yes	No
Florida	3	No	Yes	No	No	No	No
Georgia	3	Yes	No	Yes	No	No	No
Hawaii	2	No	No	No	No	No	No
Idaho	4	Yes	No	Yes	Yes	Yes	No
Illinois	3	Yes	No	Yes	Yes	Yes	No
Indiana	3	Yes	No	Yes	No	No	No
Iowa	4	Yes	No	No	No	No	No
Kansas	3	No	No	Yes	No	No	No
Kentucky	3	No	No	No	No	No	No
Louisiana	2	No	No	Yes	No	No	No
Maine	3	Yes	No	Yes	Yes	Yes	Yes
Maryland	3	Yes	No	Yes	Yes	Yes	Yes
Massachusetts	3	Yes	No	Yes	Yes	Yes	Yes
Michigan	4	Yes	No	Yes	Yes	Yes	Yes
Minnesota	4	Yes	No	Yes	No	No	No

Mississippi	2	No	No	Yes	No	No	No
Missouri	0	No	No	No	No	No	No
Montana	4	Yes	No	Yes	No	No	No
Nebraska	4	Yes	No	No	Yes	No	No
Nevada	0	No	No	No	No	No	No
New Hampshire	3	Yes	No	Yes	Yes	Yes	No
New Jersey	5	Yes	No	Yes	Yes	Yes	Yes
New Mexico	3	No	Yes	No	No	No	No
New York	3	Yes	No	Yes	Yes	Yes	No
North Carolina	2	No	No	Yes	No	No	No
North Dakota	4	Yes	No	Yes	*	*	*
Ohio	6	No	No	Yes	Yes	Yes	No
Oklahoma	4	Yes	No	No	No	No	No
Oregon	2	No	Yes	No	No	No	No
Pennsylvania	4	Yes	No	Yes	Yes	Yes	No
Rhode Island	4	Yes	No	Yes	Yes	Yes	No
South Carolina	4	No	No	Yes	No	No	No
South Dakota	4	Yes	No	Yes	Yes	Yes	No
Tennessee	2	No	No	No	No	No	No
Texas	2	Yes	No	Yes	No	No	Yes
Utah	3	Yes	No	No	Yes	No	No
Vermont	1	No	No	Yes	Yes	Yes	No
Virginia	3.5	Yes	No	Yes	Yes	No	No
Washington	3	No	No	No	No	No	No
West Virginia	4	Yes	No	Yes	No	No	No
Wisconsin	4	Yes	No	Yes	Yes	Yes	No
Wyoming	0	No	No	Yes	Yes	No	No

\* Funeral board officials were unable to give us an answer on whether these regulations exist.

mations.<sup>22</sup> In the other states, individuals selling only direct cremations must be licensed as funeral directors.

Most states also require that firms selling funeral services be licensed. More stringent states require that firms selling any type of funeral service have extensive facilities, such as embalming preparation rooms, chapels, casket display rooms, and hearses. The most prevalent requirement—existing in 33 states—is that firms have embalming preparation rooms, often with a specified set of instruments and supplies.<sup>23</sup>

Seventeen states effectively prohibit firms from operating mortuaries within cemeteries. Some states, like Wisconsin, directly prohibit these combinations by statute;<sup>24</sup> others accomplish nearly the same result through their systems of licensing funeral homes.<sup>25</sup> For example, Pennsylvania operates a “complex and restrictive” system of ownership licenses for funeral homes that includes only a small number of licenses that can be used by cemeteries to own and operate funeral homes.<sup>26</sup> Six states also require that crematories be located in cemeteries.

Another layer of regulations was added in 1984 when the FTC implemented the Funeral Rule.<sup>27</sup> The first provision of the rule requires that firms give customers an itemized price list containing all of the goods and services that are offered for sale, such as direct cremations. This provision also requires that firms give prices over the phone when someone requests them. The second provision prohibits firms from misrepresenting legal requirements or other rules about funeral goods or services. For example, they may not imply that embalming is always required as a public health measure. The third provision prohibits firms from requiring customers to purchase unnecessary goods and services, such as caskets for bodies that are to be cremated. The fourth provision prohibits firms from charging for goods and services, such as embalming, without prior approval.

<sup>22</sup> A direct cremation includes picking up the body from the place of death, transporting it to a crematory, providing a container for cremation, obtaining all the necessary authorizations, carrying out the cremation itself, and returning the remains to the family.

<sup>23</sup> Federal Trade Commission, *supra* note 5, at 113.

<sup>24</sup> Wis. Stat. § 445.12(6) (2000).

<sup>25</sup> They are prohibited by statute in Delaware, Maine, Massachusetts, Michigan, Nebraska, New Hampshire, New Jersey, Rhode Island, Vermont, and Wisconsin. They rarely exist because cemeteries are restricted to be nonprofit corporations in Connecticut, New York, Ohio, and South Dakota; because of complicated licensing restrictions in Maryland and Pennsylvania; and because they were prohibited in Illinois until 1986.

<sup>26</sup> 1 Pennsylvania General Assembly, Legislative Budget and Finance Committee, Performance Audit: State Board of Funeral Directors 156 (January 1994).

<sup>27</sup> Funeral Industries Practice Rule, 16 C.F.R. pt. 453 (1999).

#### IV. THE ECONOMIC EFFECTS OF STATE FUNERAL REGULATIONS

##### A. *Licensure Requirements*

One of the original rationales for regulating funeral markets was to prevent the spread of communicable diseases.<sup>28</sup> Late-nineteenth-century proponents of licensing embalmers and funeral homes argued that dead bodies were infectious and could be safely disinfected by proper embalming. Their arguments convinced many states to enact licensure requirements to ensure that embalmers were properly trained and that funeral homes had adequate facilities to embalm bodies. However, more recent scientific evidence does not support their claims about the public health benefits of embalming.<sup>29</sup>

Proponents of state funeral regulations now stress consumer protection issues over public health concerns.<sup>30</sup> Many of the regulations, such as those requiring all funeral service firms to have an extensive set of facilities, are designed to promote the establishment of full-service funeral homes. Since most consumers contact only a single funeral home, proponents argue that inexperienced consumers will make better choices if they are offered the full range of options. Requiring funeral directors to be trained as embalmers also protects consumers, according to proponents, by raising the quality of funeral services. Even if funeral directors do not plan to embalm bodies themselves, this training allows them to better monitor the quality of the embalming done for them and to make any adjustments needed prior to open-casket funerals. Many of the other educational requirements are justified as being necessary to train funeral directors to be grief counselors. As experts in grief counseling, funeral directors can help consumers select funerals that will best serve their needs, thereby avoiding decisions they would later regret.

Proponents also argue that stringent licensure requirements reduce the number of unscrupulous or incompetent funeral service providers for three reasons. First, more extensive training of individuals selling funeral services leads to greater professionalism in the treatment of the dead and in the advice given to the living. Second, licensing boards guard against unethical and deceptive practices via the monitoring of consumer complaints and the inspection of funeral homes. Finally, extensive facility and training requirements increase the incentive to maintain a good reputation since revelations of unprofessional practices could lead to large losses.

<sup>28</sup> Pennsylvania General Assembly, *supra* note 26, at 14; and Robert B. Ekelund, Jr., & George S. Ford, Nineteenth Century Urban Market Failure? Chadwick on Funeral Industry Regulation, 12 J. Reg. Econ. 27 (1997).

<sup>29</sup> Pennsylvania General Assembly, *supra* note 26, at 14–18.

<sup>30</sup> See Arizona Auditor General, A Performance Audit of the Board of Funeral Directors and Embalmers (August 1983); Pennsylvania General Assembly, *supra* note 26; and Terence J. Sacks, Opportunities in Funeral Services Careers (1997).

Critics argue that the real purpose of state funeral regulations is to benefit private interests within the industry, often at the expense of the public interest. According to the critics, funeral directors led the campaign for state licensing of embalmers and funeral homes because they wanted to shed their image as undertakers and be recast as professionals.<sup>31</sup> Furthermore, they argue that stringent licensure requirements strategically benefit some members of the funeral industry over others. For example, the principal regulatory body in most states is a funeral board or commission, which typically issues licenses, monitors professional behavior, inspects funeral homes, and adopts rules and regulations for the practice of funeral service providers. A majority of the members are required to be license holders in all but a few states.<sup>32</sup> Furthermore, the appointment process has “tended to produce boards that are rather homogeneous in their makeup and strongly oriented toward preserving the status quo.”<sup>33</sup> This suggests that in states where small, independent funeral homes dominate the industry, the board is likely to defend regulations that favor this type of firm.<sup>34</sup>

Viewed from the private interest perspective, the embalming regulations that require all funeral service providers to be trained as embalmers and all funeral service firms to have embalming preparation rooms protect small, independent funeral homes from two types of potential competitors: funeral home chains and firms specializing in cremation services. While these requirements raise the cost of providing funeral services for all firms, the increases are likely to be larger for cremation firms, which rarely embalm bodies, and chains, which could otherwise exploit economies from the specialization of labor and from centralized embalming facilities.

However, the alternative public interest explanation also implies that the embalming regulations could reduce the quantity and increase the relative price of cremation services. Without the regulations, cremation firms having few facilities and operated by minimally trained funeral service providers would sell low-quality cremation services to uninformed consumers at very low prices.<sup>35</sup> Under this scenario, the embalming regulations would increase both the quality of cremation services and the cost of providing them. Since

<sup>31</sup> Federal Trade Commission, *supra* note 5, at 102.

<sup>32</sup> The only exceptions in 1995 were Colorado and Florida, which did not have funeral boards, and California, Minnesota, and Texas, which had a majority of public members.

<sup>33</sup> Benjamin Shimberg, *Occupational Licensing: A Public Perspective* 163 (1982).

<sup>34</sup> For articles on the strategic use of regulations by subgroups of firms within an industry, see Michael T. Maloney & Robert E. McCormick, *A Positive Theory of Environmental Quality Regulation*, 25 *J. Law & Econ.* 99 (1982); Sharon Oster, *The Strategic Use of Regulatory Investment by Industry Sub-groups*, 20 *Econ. Inquiry* 604 (1982); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 *Am. Econ. Rev.* 267 (1983); and Deborah Haas-Wilson, *Strategic Regulatory Entry Deterrence: An Empirical Test in the Ophthalmic Market*, 8 *J. Health Econ.* 339 (1989).

<sup>35</sup> For more on “curb-stoners,” see Robert W. Habenstein & William M. Lamers, *The History of American Funeral Directing* 550 (1955).

many consumers would not perceive the improvement in quality, they might react to the higher price of cremations by choosing cremation less frequently. Therefore, the two views of funeral regulations cannot be distinguished solely by price and quantity effects.

They can, however, be distinguished by their sharply different predictions concerning the effect of embalming regulations on demand inducement. The private interest view suggests that embalming regulations should lead to more demand inducement. For example, requiring all funeral service providers to have similar facilities and training may lead to greater uniformity in their recommendations, making it more difficult for consumers to detect demand inducement. In contrast, the public interest view suggests that regulations should mitigate this behavior by increasing the professionalism of funeral providers. Finding greater demand inducement in more stringently regulated states would imply that these regulations serve private interests within the funeral industry and not the public interest.

### *B. Prohibitions of Mortuary-Cemetery Combinations*

Cemetery owners and funeral directors are often at odds over state funeral regulations, particularly prohibitions against mortuaries being located within cemeteries. For example, cemetery interests have recently launched attacks—both legal and legislative—on the 60-year-old Wisconsin statute that explicitly prohibits these combinations.<sup>36</sup> Calling it “classic fence-me-in legislation designed to protect funeral directors’ turf,” a lobbyist for the cemetery industry argues that it harms consumers by preventing the “economies of running a combined cemetery and funeral home.” A lobbyist for funeral directors disagrees, arguing that it benefits consumers by “minimizing the chances for a single big operator to monopolize a market.” Both of these effects are possible; hence, whether the prohibition harms or benefits consumers depends on the net effect on funeral prices of lost economies of scope and reductions in market power.

Under certain conditions, repealing the prohibition against cemetery-mortuary combinations would raise the price of cremations relative to traditional funerals. If most of the economies of scope are associated with traditional funerals, allowing combination firms lowers the relative cost of producing them. Furthermore, the broader range of funeral and burial services sold by combination firms may give them an even stronger incentive than stand-alone funeral homes to raise the relative price of cremations.<sup>37</sup> Under

<sup>36</sup> Rick Romell, *Change Sought in Death Care Law: Bill Seeks Repeal of Ban on Cemeteries Owning Funeral Homes*, Milwaukee J. Sentinel, May 2, 1999, at D1.

<sup>37</sup> Jean Tirole, *The Theory of Industrial Organization* 70 (1988), shows that the relative price of substitute goods sold by profit-maximizing, multiproduct monopolists is inversely related to their marginal producer surpluses.

these conditions, prohibiting cemetery-mortuary combinations would lower the relative price of cremations, leading to higher cremation rates.

### C. *Crematories Must Be Located in Cemeteries*

At the turn of the century, cemetery owners and advocates of cremation formed an unlikely alliance that led most early crematories to be located in cemeteries. Cemetery owners thought it would allow them to more easily persuade people choosing cremation to memorialize their dead in "stone," while advocates of cremation hoped it would create greater acceptance of cremation by the public.<sup>38</sup> This uniquely American pattern was codified in a few states with regulations that crematories must be located in cemeteries.<sup>39</sup> Since modern cremation retorts are very compact and have sophisticated emission controls, there is little reason to require them to be located in cemeteries. Doing so may discourage the sale of cremation services because it increases both the cost of establishing new crematories and the cost of transporting bodies. Cemeteries may also be less likely to promote cremation services than independent crematories because earth burials are more lucrative for them and because they rely on the recommendations of funeral directors, some of whom are hostile to cremation.

## V. EMPIRICAL MODEL

The quantity of cremation services sold by a funeral home is assumed to be determined simultaneously with the prices it charges for cremation and burial services, the quantity of burial services it sells, and the number of funeral homes in the market. The corresponding reduced form is a function of the set of factor prices it faces, other variables that affect its costs, and variables that shift demand. Since we have county-level data, we further assume that the reduced form for the total quantity of cremation services in a county is a function of the corresponding county-level variables.<sup>40</sup> In this case, the cremation rate for each county is also a function of these same factors under the reasonable assumption that the number of deaths in each county is exogenously determined.

Our simplest empirical specification is

$$\text{cremate}_{ij} = \alpha + \beta' \mathbf{reg} + \gamma' \mathbf{x}_{ij} + \varepsilon_{ij},$$

where *cremate* is the cremation rate per 100 resident deaths of county *i* in state *j*; *reg* is a vector of state funeral regulations; *x* is a vector of explanatory

<sup>38</sup> Sloane, *supra* note 1, at 151–52.

<sup>39</sup> *Id.* at 152.

<sup>40</sup> This specification is commonly used by empirical studies that lack firm-specific data. For its derivation and a discussion of the aggregation assumption, see Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, in 2 *Handbook of Industrial Organization* 1011, 1017–18 (R. Schmalensee & R. D. Willig eds. 1989).

variables including regional dummy variables and variables describing the demographic characteristics of the county, county factor prices, and changes in the size of county funeral markets; and  $\varepsilon$  is a random error term. All of our regressions are estimated using weighted least squares with weights equal to the number of resident deaths in the county.<sup>41</sup>

The estimated coefficients on the funeral regulations will be unbiased only if the funeral regulations are uncorrelated with the error term. There are several ways that such a correlation might arise. First, state funeral regulations might be correlated with unobserved factors that also influence the cremation rate. For example, stronger unobserved preferences for traditional funerals might lead some states to require funeral service providers to have embalming preparation rooms and to be trained as embalmers. Since these states would have lower cremation rates even without the embalming regulations, the regression coefficients would overestimate the impact of these regulations on the cremation rate.

Simply replacing the regional dummy variables with state dummy variables would not solve this problem since the coefficients on the regulations would no longer be identified. However, a specification with state dummy variables can be estimated on samples of counties from states with and without stringent funeral regulations. This specification allows us to exploit the county-level variation in our data in order to investigate the effects of state funeral regulations while at the same time controlling for state-specific fixed effects.

The funeral regulations would also be correlated with the error term if they were simultaneously determined with the cremation rate. Since the “structure and focus” of current state regulations can be traced back to a time when the cremation rate was much less than 1 percent, these regulations were implemented originally for reasons unrelated to the prevalence of cremation.<sup>42</sup> However, a few states have changed their regulations over the last 20 years. For example, the number of states that require funeral firms to have embalming preparation rooms decreased from 37 states in 1976 to 33 in 1995.<sup>43</sup> If these four states, which include Florida and New Mexico, changed their laws in response to having higher than average cremation rates, then our estimated coefficients would be biased. We control for this potential endogeneity in our tests of demand inducement by replacing the regulations with state fixed effects.

<sup>41</sup> We also estimated the model using ordinary least squares as well as semilog and logit specifications, all of which produced very similar results.

<sup>42</sup> Federal Trade Commission, *supra* note 5, at 102; and Sloane, *supra* note 1, at 150.

<sup>43</sup> Federal Trade Commission, *supra* note 5, at 113, does not identify the 37 states, and the FTC was unable to find the underlying documentation for us.

## VI. DATA DESCRIPTION

Our dependent variable is the percentage of deaths of county residents in 1990 whose bodies were cremated. These county-level cremation rates were obtained from state agencies responsible for collecting vital statistics from death certificates.<sup>44</sup> While information on the disposition of the body appears on all death certificates, 14 states did not enter this information into their computer data bases for 1990. Alaska and North Dakota were also dropped because of missing explanatory variables, resulting in a final sample of 2,011 counties from 34 states.<sup>45</sup>

Our simplest specification includes seven explanatory variables for state funeral regulations. The embalming regulations are summarized using three dummy variables: whether the state (1) only requires funeral firms to have embalming preparation rooms, (2) only requires funeral directors to be embalmers, or (3) requires both. The next variable is the number of years of training required for a funeral director's license. The last three are dummy variables for whether the state (1) offers a direct disposer license, (2) prohibits cemetery-mortuary combinations, and (3) requires crematories to be located in cemeteries.

Since our sample does not include all 50 states, our estimates could be biased if the availability of the cremation data is systematically related to state funeral regulations. A direct relationship is unlikely since the databases were created by state agencies that are primarily concerned with calculating vital statistics on the number and causes of deaths, not with enforcing or evaluating funeral regulations. Table 2 presents descriptive statistics on the characteristics of funeral regulations for three samples: all states, our sample of states, and states that could not give us cremation rates by county. The states in our sample appear to regulate funeral markets a little less stringently than the omitted states, which tend to be larger and are more likely to be located in the South and Northeast. The small size of most of these differences, however, suggests that it is unlikely that the availability of the cre-

<sup>44</sup> County cremation rates can be calculated using the county where the person resided, where the person died, or where the cremation occurred. We asked states to give us cremation rates by county of residence because we thought funeral decisions are most frequently made there and because most of our explanatory variables are measured in this way. However, the relevant funeral market may sometimes more closely coincide with the county where the death occurred, leading to measurement error in our dependent variable. This would arise, for example, whenever residents of rural counties die in metropolitan hospitals and have their bodies handled by nearby funeral homes.

<sup>45</sup> From a potential sample of 3,099 counties, we lost 822 counties from the 14 states—California, Delaware, Illinois, Louisiana, Mississippi, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Rhode Island, Tennessee, Virginia, and West Virginia—that could not provide us with cremation data. For confidentiality reasons, Colorado, South Dakota, and Georgia would not provide data for 108 counties with less than either four or five cremations. Another 158 counties—including all of Alaska's and North Dakota's—were lost owing to missing values for particular variables.

TABLE 2

## STATE FUNERAL REGULATIONS AND THE AVAILABILITY OF CREMATION DATA

	All States	Sample States	States without Cremation Data
Number of states	50	34	14
Funeral homes must have embalming rooms only (%)	18.0	17.7	21.4
Funeral directors must be embalmers only (%)	8.0	8.8	7.1
Both embalming regulations are required (%)	48.0	44.1	57.1
Required training for funeral directors (years)	2.9	2.7	3.3
Direct disposition license (%)	6.0	8.8	.0
Prohibition of cemetery/mortuary combinations (%)	32.7 <sup>a</sup>	26.5	50.0
Crematories must be in cemeteries (%)	12.2 <sup>a</sup>	14.7	7.1

<sup>a</sup> Excludes North Dakota, which could not provide us with information on these regulations.

mation data is related to the stringency of state funeral regulations in any significant way.

Our simplest specification also includes income and a set of taste variables comprising age, educational attainment, nativity, religious adherence, and race. Income is measured by each county's median household income in 1989, age by the proportion of each county's population over age 65 in 1990, educational attainment by the proportion over age 25 who had completed college in 1990, and nativity by the proportion who were born in the state.<sup>46</sup> Many people familiar with funeral markets argue that older, better-educated, and higher-income people are more likely to choose cremation, while natives are less likely to do so.<sup>47</sup> Religious adherence is measured by the proportions of each county's population that were Catholic, Jewish, and adherents of conservative, moderate, and liberal Protestant denominations in 1990.<sup>48</sup> Catholics, Jews, and conservative Protestants are thought to be much less likely to choose cremation than people who do not regularly attend a church or synagogue.<sup>49</sup> Finally, race and ethnicity are measured by the proportions of each county's population that were black, Asian, and Hispanic in 1990.<sup>50</sup>

<sup>46</sup> U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population and Housing, 1990 (1993).

<sup>47</sup> Alana Baranick, *Paying Simpler Respect: Cremation Grows in Popularity as More Modest, Less Expensive Way to Remember the Departed*, *Cleveland Plain Dealer*, August 3, 1997, at 1B; Paul E. Irion, *Cremation 62* (1968); and Thomas Lynch, *The Undertaking: Life Studies from the Dismal Trade 184* (1997).

<sup>48</sup> Martin Bradley, *Churches and Church Membership in the United States 1990* (1992), estimate the number of regular church participants, or adherents, for 133 different Judeo-Christian churches and also categorize Protestant denominations as being conservative, moderate, or liberal.

<sup>49</sup> Irion, *supra* note 47, at 73–91; Sloane, *supra* note 1, at 145, 227; and Kenneth V. Iserson, *Death to Dust: What Happens to Dead Bodies?* 273–76 (1994).

<sup>50</sup> U.S. Department of Commerce, *supra* note 46.

Our specification also includes a set of variables that measure input prices for both cremation and burial services. The input prices that are most likely to vary geographically are labor, land, and energy prices; all other inputs are likely to be purchased in national markets. Labor costs are measured using the average annual earnings of retail trade workers in each county in 1990.<sup>51</sup> Our proxy for land prices is the proportion of the population that resides in urban areas in each county in 1990.<sup>52</sup> While the most commonly used energy source is natural gas, we chose not to include a proxy for its price because only state averages were available. This omission is unlikely to have much effect since energy costs are only a small component of the total cost of cremations.<sup>53</sup>

Finally, our empirical specification also includes several variables to test whether cremation rates depend on changes in the size of funeral markets. Jonathan Gruber and Maria Owings include similar variables to test whether obstetricians react to income losses from declining fertility rates by substituting more lucrative cesarean sections for normal childbirths.<sup>54</sup> In our case, the corresponding hypothesis is that funeral directors react to income losses from declining death rates by persuading more consumers to choose traditional funerals over less-profitable cremations. If so, we expect this effect to be more pronounced in states where funeral directors have more market power.

Changes in the size of funeral markets are measured using the average annual percentage change in the number of deaths within each county between 1980 and 1989.<sup>55</sup> The interaction of market growth with a dummy variable for whether the market is contracting is used to test whether changes in market size have different effects on the cremation rate in contracting markets.

## VII. EMPIRICAL RESULTS

Descriptive statistics for the variables used in our analysis are presented in Table 3. The first column presents the means and standard deviations, weighted by the number of resident deaths, for the full sample of 2,011 counties for which we have complete data. The mean of the cremation rate

<sup>51</sup> U.S. Department of Commerce, Bureau of the Census, 1990 County Business Patterns (1994). While not ideal, this measure is available for almost all of our counties and should capture differences in labor market conditions rather than differences in the industrial composition of the workforce.

<sup>52</sup> U.S. Department of Commerce, *supra* note 46.

<sup>53</sup> Using state averages of natural gas prices, we estimate that the energy cost of a cremation ranges from roughly \$8 to \$15 in the continental United States.

<sup>54</sup> Gruber & Owings, *supra* note 4.

<sup>55</sup> U.S. Department of Health and Human Services, National Center for Health Statistics, 2 Vital Statistics of the United States, Mortality, pt. B (1994).

tells us that 16.5 percent of the 1.2 million residents of these counties who died in 1990 were cremated.<sup>56</sup>

The full sample was split into two subsamples: one containing counties from states that had one or both of the embalming regulations and another from states that had neither. The latter states were much less likely to regulate funeral markets in other ways as well. None of them required that crematories be located in cemeteries or that funeral homes and cemeteries be operated independently. They also required 1 less year of training, on average, for funeral directors, and three of these states offered special licenses for direct disposers. Therefore, separating states by whether or not they had embalming regulations captures two distinct approaches to regulating funeral markets: they are either strictly regulated, often in a variety of ways, or relatively unregulated beyond a set of generally less stringent training requirements.

Descriptive statistics for the samples of counties from unregulated and regulated states are presented in the last two columns of Table 3. Residents of regulated states were much less likely to be cremated (12.1 percent of deaths in 1990) than residents of unregulated states (27.2 percent). This comparison, of course, does not hold other factors constant, such as the higher proportion of Catholics and natives in regulated states.

Table 4 presents our regression results that use regional dummy variables to control for any region-specific unobserved differences in tastes or costs that are not already accounted for by our other explanatory variables. The advantage of using regional dummies is that they allow us to produce estimates of the direct effect of state funeral regulations on county cremation rates. Since the regulations are not county specific—varying only by state—the *t*-statistics are based on heteroskedasticity-robust standard errors that have been corrected for the grouped nature of the data.<sup>57</sup>

The first regression is based on our full sample of 2,011 counties from 34 states. Most of the explanatory variables are statistically significant and have plausible signs. In particular, the results imply that cremation rates are 3.9 percentage points lower in the 14 states that require both funeral directors to be embalmers and funeral homes to have embalming preparation rooms, holding the other explanatory variables constant. Imposing only one of these two requirements also appears to reduce the cremation rate, although only one of these coefficients is statistically significant. The three embalming

<sup>56</sup> The national cremation rate in 1990 was 17.0 percent, according to the Cremation Association of North America, 1988, 1989, 1990 North American Cremation Statistics, 27 *Cremationist N. Am.* 12 (1991).

<sup>57</sup> See Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach* 455 (2000), for a discussion of this issue.

TABLE 3  
DESCRIPTIVE STATISTICS: MEANS AND STANDARD DEVIATIONS

Explanatory Variables	All Sample States	Unregulated States	Regulated States
Cremation rate (%)	16.47 (13.82)	27.23 (17.48)	12.14 (8.912)
Funeral homes must have embalming rooms only (1 = yes)	.128 (.334)	.000 (.000)	.180 (.384)
Funeral directors must be embalmers only (1 = yes)	.034 (.182)	.000 (.000)	.048 (.214)
Both embalming regulations are required (1 = yes)	.551 (.497)	.000 (.000)	.772 (.420)
Required training for funeral directors (years)	2.875 (1.080)	2.143 (1.230)	3.170 (.851)
Direct disposition license (1 = yes)	.136 (.342)	.473 (.499)	.000 (.000)
Prohibition of cemetery/mortuary combinations (1 = yes)	.317 (.465)	.000 (.000)	.444 (.497)
Crematories must be in cemeteries (1 = yes)	.243 (.429)	.000 (.000)	.341 (.474)
Median household income (\$thousands)	28.42 (6.850)	26.88 (5.878)	29.04 (7.111)
% college graduates	18.48 (7.620)	17.99 (7.021)	18.67 (7.839)
% native (born in state)	63.51 (18.83)	48.00 (20.58)	69.75 (13.82)
% over age 65	13.88 (4.511)	15.71 (5.954)	13.14 (3.518)
% conservative Protestant	20.60 (17.62)	21.68 (13.99)	20.16 (18.87)
% moderate Protestant	11.03 (9.023)	7.083 (4.110)	12.61 (9.930)
% liberal Protestant	3.802 (2.492)	2.824 (1.605)	4.195 (2.671)
% Catholic	18.51 (15.76)	12.48 (8.385)	20.94 (17.31)
% Jewish	1.614 (2.710)	2.085 (3.841)	1.424 (2.059)
% black	11.59 (13.44)	9.345 (9.733)	12.50 (14.57)
% Asian	1.625 (4.689)	2.622 (8.475)	1.224 (1.176)
% Hispanic	6.342 (11.81)	7.742 (12.55)	5.779 (11.45)
% urban	69.648 (28.87)	73.72 (28.23)	68.01 (28.96)
Price of labor (\$thousands)	11.38 (1.784)	11.61 (1.804)	11.28 (1.767)

TABLE 3 (Continued)

Explanatory Variables	All Sample States	Unregulated States	Regulated States
Market growth (average annual %Δ deaths, 1980–89)	1.140 (1.576)	1.754 (1.808)	.894 (1.398)
Market growth × whether contracting	-.163 (.451)	-.126 (.469)	-.177 (.443)
Northeast (1 = yes)	.179 (.383)	.000 (.000)	.251 (.433)
Midwest (1 = yes)	.260 (.438)	.144 (.351)	.306 (.461)
West (1 = yes)	.135 (.342)	.314 (.464)	.063 (.243)
South (1 = yes)	.426 (.495)	.541 (.498)	.380 (.485)
Sample size	2,011	547	1,464

NOTE.—All statistics are weighted by the number of resident deaths in the county. Standard deviations are in parentheses.

coefficients are jointly significant at the 1 percent level.<sup>58</sup> Using the embalming regulations of all 50 states, we estimate that Americans spend \$252 million—or 2.6 percent—more per year on funerals because the embalming regulations induce fewer of them to choose the less expensive option of cremation.<sup>59</sup>

The estimated coefficient on the number of years of required training for funeral directors implies that each additional year raises the cremation rate by 1.8 percentage points. This is intriguing because it is inconsistent with the common argument made by critics of the industry that much of this training is focused on ways to sell traditional funerals.<sup>60</sup> However, there is a way to explain this result on the basis of changes in relative prices. Re-

<sup>58</sup> We informally tested for endogeneity bias by replacing the 1995 regulations with an index of the stringency of state funeral regulations in 1966. Since cremation was much less common then, this index is almost certainly exogenous to the current cremation rate. Roger Dale Blackwell, *Price Levels of Funerals: An Analysis of the Effects of Entry Regulation in a Differentiated Oligopoly* 170 (unpublished Ph.D. dissertation, Northwestern Univ. 1966), created his index by simply counting the number of regulations in the 30 states that responded to his survey. The estimated coefficient on his index is negative but not statistically significant in our regression, a result that is not surprising given the crude nature of his index and the fact that it is available only for a subsample of our states.

<sup>59</sup> This increase was estimated by multiplying the sum of the products of the estimated embalming coefficients and the number of deaths in the states with the corresponding regulations by the difference in the average funeral expenditures on burials and cremations. Seventy-four percent of these deaths occurred in states that had both regulations, 21 percent in states that only required funeral homes to have embalming rooms, and 5 percent in states that only required funeral directors to be embalmers. Hence, the estimated increase in funeral expenditures is not being driven by the unusually large coefficient on the dummy variable for whether the state only required funeral directors to be embalmers.

<sup>60</sup> Federal Trade Commission, *supra* note 5, at 44–52; and Mitford, *supra* note 6, at 23.

TABLE 4

## DETERMINANTS OF THE CREMATION RATE CONTROLLING FOR REGIONAL FIXED EFFECTS

Explanatory Variables	Full Sample	Unregulated States	Regulated States	Difference
Funeral homes must have embalming rooms only (1 = yes)	-2.182 (1.04)		1.553 (.82)	
Funeral directors must be embalmers only (1 = yes)	-8.068 (4.01)		-5.216 (2.75)	
Both embalming regulations are required (1 = yes)	-3.918 (1.99)			
Required training for funeral directors (years)	1.797 (3.11)	1.144 (2.44)	2.359 (1.82)	-1.214 (.88)
Direct disposition license (1 = yes)	1.459 (.62)	-.923 (.61)		
Prohibition of cemetery/mortuary combinations (1 = yes)	.819 (.38)		1.378 (.79)	
Crematories must be in cemeteries (1 = yes)	2.113 (1.43)		2.011 (1.70)	
Median household income (\$thousands)	.146 (1.78)	.487 (3.31)	-.003 (.04)	.490 (3.00)
% college graduates	.183 (3.63)	.217 (1.97)	.312 (5.00)	-.095 (.75)
% native (born in state)	-.233 (5.66)	-.353 (5.42)	-.141 (3.95)	-.211 (2.85)
% over age 65	.957 (9.19)	1.045 (5.75)	.479 (2.79)	.566 (2.27)
% conservative Protestant	-.261 (6.23)	-.319 (3.49)	-.191 (4.60)	-.128 (1.28)
% moderate Protestant	-.194 (4.36)	-.346 (3.06)	-.150 (4.02)	-.196 (1.65)
% liberal Protestant	-.102 (.72)	-.406 (1.28)	-.005 (.03)	-.401 (1.15)
% Catholic	-.094 (2.50)	-.213 (3.15)	-.075 (2.37)	-.139 (1.90)
% Jewish	-.657 (3.80)	-.958 (5.12)	-.171 (.78)	-.787 (2.72)
% black	-.004 (.13)	-.027 (.40)	.002 (.11)	-.030 (.42)
% Asian	.202 (8.19)	.168 (4.61)	-.394 (.85)	.561 (1.20)
% Hispanic	-.036 (.67)	-.087 (2.04)	.051 (1.34)	-.138 (2.41)
% urban	.015 (.94)	.012 (.43)	-.020 (1.59)	.032 (1.05)
Price of labor (\$thousands)	.457 (2.40)	.402 (.95)	.521 (2.56)	-.118 (.25)
Market growth (average annual %Δ deaths, 1980-89)	.774 (1.83)	.009 (.01)	.747 (1.96)	-.738 (.91)

TABLE 4 (Continued)

Explanatory Variables	Full Sample	Unregulated States	Regulated States	Difference
Market growth × whether contracting	.497 (.93)	-.045 (.05)	.655 (1.79)	-.699 (.69)
Northeast (1 = yes)	-2.440 (.82)		-.980 (.46)	
Midwest (1 = yes)	-.076 (.04)	-1.231 (.61)	1.726 (.73)	-2.957 (.95)
West (1 = yes)	13.882 (6.21)	10.522 (3.33)	17.000 (6.15)	-6.478 (1.54)
Intercept	9.232 (1.55)	15.681 (1.35)	2.430 (.37)	13.251 (.99)
R <sup>2</sup>	.872	.923	.777	
Sample size	2,011	547	1,464	

NOTE.—The dependent variable is the percentage of deaths of county residents in 1990 whose bodies were cremated. Absolute *t*-statistics calculated using standard errors that are robust to heteroskedasticity and adjusted for the grouped nature of the data are in parentheses. All regressions are weighted by the number of resident deaths in the county. The standard error of the difference is estimated by taking the square root of the sum of the squared standard errors for each subsample.

quiring funeral directors to have additional training reduces their supply and raises their equilibrium wage. If traditional funerals take more time for funeral directors to produce than cremations, then additional training should increase the relative price of traditional funerals, leading more people to choose cremations.<sup>61</sup>

Since the other three regulations—licenses for direct disposers, prohibitions against cemetery-mortuary combinations, and requirements that crematories be located in cemeteries—are found only in either unregulated or regulated states, their impacts are best estimated using the regressions estimated on the subsamples of counties from states with the corresponding regulatory environment. These regressions are presented in the third and fourth columns of Table 4. While direct disposition licenses do not have a statistically significant effect on cremation rates in unregulated states, this result tells us little or nothing about what effect they would have if regulated states offered them. Prohibiting cemetery-mortuary combinations also has a statistically insignificant effect on the cremation rate in regulated states. One surprising result is that requiring crematories to be located in cemeteries leads to higher cremation rates in regulated states. Finally, the results for the embalming regulations and training requirements for funeral directors mirror the results from the regressions on the full sample.

Table 5 presents our regression results for the specification that replaces the regulation and regional dummy variables with a set of state dummy

<sup>61</sup> We thank an anonymous referee for this explanation. For more on the supply-side effects of occupational licensing, see Morris M. Kleiner, *Occupational Licensing*, 14 *J. Econ. Persp.* 189 (2000).

TABLE 5  
DETERMINANTS OF THE CREMATION RATE CONTROLLING FOR STATE FIXED EFFECTS

Explanatory Variables	Full Sample	Unregulated States	Regulated States	Difference
Median household income (\$thousands)	.293 (5.50)	.415 (3.34)	.154 (3.23)	.261 (1.96)
% college graduates	.226 (5.91)	.319 (3.60)	.271 (7.32)	.047 (.49)
% native (born in state)	-.194 (8.32)	-.227 (4.77)	-.146 (7.84)	-.081 (1.58)
% over age 65	.986 (11.38)	1.128 (9.71)	.540 (5.94)	.588 (3.99)
% conservative Protestant	-.219 (9.61)	-.276 (8.16)	-.134 (7.79)	-.142 (3.73)
% moderate Protestant	-.249 (11.48)	-.341 (4.70)	-.203 (9.27)	-.139 (1.83)
% liberal Protestant	-.153 (1.81)	-.508 (2.14)	.011 (.16)	-.519 (2.10)
% Catholic	-.085 (3.05)	-.183 (2.68)	-.085 (4.36)	-.098 (1.38)
% Jewish	-.742 (4.78)	-.937 (5.24)	-.073 (.43)	-.864 (3.50)
% black	.001 (.06)	-.087 (2.47)	.006 (.42)	-.092 (2.46)
% Asian	.173 (.68)	.246 (.75)	-.344 (1.39)	.589 (1.44)
% Hispanic	-.008 (.17)	-.080 (1.91)	.079 (3.06)	-.159 (3.23)
% urban	.006 (.62)	.023 (1.29)	-.014 (1.79)	.037 (1.90)
Price of labor (\$thousands)	.247 (2.10)	.339 (1.41)	.239 (1.80)	.100 (.37)
Market growth (average annual %Δ deaths, 1980-89)	.219 (.70)	-.077 (.19)	.391 (2.09)	-.468 (1.04)
Market growth × whether contracting	.714 (1.35)	-.053 (.07)	.674 (1.81)	-.726 (.82)
Sample size	2,011	547	1,464	

NOTE.—The dependent variable is the percentage of deaths of county residents in 1990 whose bodies were cremated. Absolute *t*-statistics calculated using heteroskedasticity-robust standard errors are in parentheses. All regressions are weighted by the number of resident deaths in the county. The standard error of the difference is estimated by taking the square root of the sum of the squared standard errors for each subsample.

variables. The advantage of this specification is that it controls for state-specific unobserved differences in tastes or costs and also eliminates any possible bias resulting from the endogeneity of funeral regulations. As a result, it provides us with better estimates of the coefficients on the socio-economic variables. As expected, people with higher incomes, college graduates, and the elderly are more likely to choose cremation, while natives and people who regularly attend Judeo-Christian churches are less likely to.

If funeral regulations enhance the ability of funeral directors to induce

demand, then they should affect not only the intercept of the regressions but also the relationship between county cremation rates and the other explanatory variables. According to the FTC, funeral directors use a variety of techniques, such as grief counseling, “to substitute [their] judgment for that of consumer[s]” in the selection of funeral arrangements.<sup>62</sup> This implies that the characteristics of county residents should be less important in explaining cremation rates in regulated states. If so, the estimated effects of the demand shifters should move toward zero in regulated states.<sup>63</sup> Many funeral representatives disagree, arguing that funeral directors cannot easily substitute their preferences for those of consumers since the “funeral chosen [is] virtually a conditioned response within the community served by the funeral home.”<sup>64</sup>

The second and third columns of Table 5 present our regression results from estimating the model with state dummy variables on the subsamples of counties from unregulated and regulated states. The two regressions are statistically different using a Wald test.<sup>65</sup> The differences in the estimated coefficients for the unregulated and regulated samples imply that the effects of most of the characteristics of county residents are dampened in regulated states. In particular, the estimated effects of nine of the 12 demand shifters are significantly closer to zero in the regulated states, using a one-tailed test at the 10 percent level. The probability of this pattern occurring randomly is less than 8 percent.<sup>66</sup> This evidence implies that older, higher-income, and less traditional funeral consumers are less likely to choose cremation in regulated states, a pattern that is consistent with funeral directors’ being more successful at inducing demand in these states.<sup>67</sup>

<sup>62</sup> Federal Trade Commission, *supra* note 5, at 59–60.

<sup>63</sup> For example, people who do not regularly attend a church or synagogue may have less well-defined preferences concerning funeral arrangements. If funeral directors induce more of them to choose traditional funerals in regulated states, then their funeral arrangements will more closely resemble those of their churchgoing neighbors, causing the religion coefficients—measured relative to the excluded category of nonregular church participants—to be less negative.

<sup>64</sup> Federal Trade Commission, *supra* note 5, at 517.

<sup>65</sup> William H. Greene, *Econometric Analysis* 354–55 (3d ed. 1997).

<sup>66</sup> If each coefficient has a 50 percent probability of moving closer to zero, then the probability of nine or more “successes” in 12 Bernoulli trials is .073. The actual probability is much smaller because we are evaluating the changes in terms of statistical significance, which is a much stricter standard of success.

<sup>67</sup> We had planned to compare the cremation rates in the regulated counties with the predicted rates under deregulation using the explanatory variables from the regulated counties and our estimated equation for the unregulated sample. However, the estimated fixed effects for the regulated states are found only in the regression for the regulated sample. Assuming that they would have been the same—and, hence, cancel out in the comparison of the change in cremation rates from deregulating—leads to the problem that separating the effects of intercepts and slope coefficients in this way is entirely arbitrary, and therefore uninterpretable. See F. L. Jones, *On Decomposing the Wage Gap: A Critical Comment on Blinder’s Method*, 18 *J. Hum. Resources* 126 (1983).

The estimated coefficients on market growth and the interaction between market growth and whether the market is contracting are both statistically significant in the regression for the regulated sample. While a 1 percent expansion in the size of funeral markets raises the cremation rate by roughly .4 percentage points, an equally large decrease lowers it by 1.1 percentage points. This large reduction in cremation rates is consistent with funeral directors' reacting to income losses from declining death rates by persuading more consumers to choose traditional funerals over less-profitable cremations. In contrast, the estimated coefficients on these variables are statistically insignificant for the unregulated sample. This evidence suggests that changes in the size of funeral markets have little or no impact on the choice of whether bodies are cremated or buried in unregulated markets. Finding a stronger effect of contracting funeral markets in regulated states, where funeral directors have greater market power, supports our interpretation that this effect is due to demand inducement.

### VIII. CONCLUSIONS AND POLICY IMPLICATIONS

This study presents evidence that state funeral regulations affect the choice of whether to cremate or bury dead bodies. In particular, state embalming regulations—requiring either funeral directors to be embalmers or funeral homes to have embalming preparation rooms—reduce cremation rates by roughly 16 percent. Since burials are more expensive than cremations, the decrease in the cremation rate increases funeral expenditures in these states by roughly 2.6 percent per year, an increase that does not reflect any of the other ways in which embalming regulations may lead to higher funeral expenditures.

We also present evidence that some funeral directors advise consumers against choosing cremation because cremations are less lucrative than traditional funerals. Our evidence that older, higher-income, and less traditional funeral consumers are less likely to choose cremation in regulated states suggests that funeral directors have more influence in these states and are using that influence to induce demand. We also find that cremation rates are lower in regulated states where funeral markets are contracting, which suggests that some funeral directors react to the potential income losses from a declining number of deaths by steering consumers more strenuously away from cremations. Since steering consumers away from cremations is only one of the ways that funeral directors have been accused of inducing demand, our evidence raises the likelihood that funeral directors are inducing demand in other ways as well.

The Funeral Rule attacks demand inducement by carefully prescribing the information that funeral firms must provide to consumers and by prohibiting some specific practices that are thought to be deceptive. However, there may be a better way to attack demand inducement. One of our most intriguing

results is that the relationship between contracting funeral markets and county cremation rates is not only weaker in unregulated states but disappears entirely. This raises the possibility that very little demand inducement occurs in unregulated states, which reinforces our general conclusion that state funeral regulations play a pivotal role in determining the amount of demand inducement. Therefore, repealing state regulations that impede competition may be a better way to attack demand inducement than the approach taken by the Funeral Rule. At the very least, the two policies would complement one another in fostering competition.

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