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INTRODUCTION

The recent wave of behavioral economics has led some theorists to advocate the possibility of "libertarian paternalism," where regulators designing institutions permit significant individual choice but nonetheless use default rules to "nudge" cognitively biased individuals toward particular salutary choices.[1] In this article, we add the possibility of a different kind of nudge: temporary law.

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[1] The term comes from Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism is not an Oxymoron*, 70 Chi. Law Rev. 1159 (2003) (advocating default rules and other types of "choice architecture" to overcome cognitive limitations without depriving individuals of choice) and Richard H. Thaler & Cass R. Sunstein, *Libertarian Paternalism*, 93 Am. Econ. Rev. 175 (2003) (same). For the comprehensive statement of their approach, with many policy examples, see CASS R. SUNSTEIN & RICHARD H. THALER, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS (2009). See also Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. LAW REV. 1165 (2003) (identifying the limited conditions under which behavioral psychology justifies paternalism); Colin Camerer, et al., *Regulation for Conservatives: Behavioral Economics and the Case for 'Asymmetric Paternalism,'* 151 U. Pa. L. Rev. 1211 (2003) (defending paternalism through mechanisms such as default rules and cooling off periods that benefit those subject to cognitive limitations without constraining others); J.D. Trout, *Paternalism and Cognitive Bias*, 24 LAW & PHIL. 393, 409-11 (2005) (justifying paternalism with cognitive biases, but arguing for the least intrusive intervention). The influence of the idea extends beyond legal scholarship See David C Wheeler, et al., *Applying Strategies from Libertarian Paternalism to Decision Making for Prostate*

The case for temporary law arises from a particular regulatory rationale. In some cases, the best normative defense of regulation against the libertarian critique, i.e., the best response to the claim that free market competition produces efficiency, is *path dependence*,[2] the idea that market institutions can become "trapped" or "locked in" to a suboptimal equilibrium, where some better equilibrium exists. For our purposes, it suffices to define an equilibrium as a behavioral outcome that is stable in this way because no one individual gains by changing behavior, given what the other individuals are doing.[3] Some situations allow for *multiple equilibria*, that is, multiple behavioral patterns that, once reached, are stable. When this is true, there is no reason to expect that the outcome that market

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Specific Antigen (PSA) Screening, 11 BMC CANCER 148, 149 (2011) (proposing default rules and information framing to nudge patients away from unnecessary PSA screening).

For criticisms, see Edward L. Glaeser, *Paternalism and Psychology*, 73 U. CHI. L. REV. 133 (2006) (arguing that bounded rationality undermines the case for paternalism where individuals have a stronger incentive to overcome bias and "choose well" when purchasing than when voting); Gregory Mitchell, *Libertarian Paternalism is an Oxymoron*, 99 Nw. U. L. Rev. 1245 (2005) (critiquing libertarian paternalism on multiple grounds).

[2] The literature on path dependence spans the social sciences. See, e.g., BRIAN ARTHUR, INCREASING RETURNS AND PATH DEPENDENCE IN THE ECONOMY (1994) (providing an economic theory of path dependence); Scott E. Page, *Path Dependence*, 1 Q.J. POL. SCI. 87 (2006) (reviewing the use of path dependence in political science theory); James Mahoney, *Path Dependence in Historical Sociology*, 29 THEORY AND SOCIETY 507 (2000) (reviewing path dependence in history and sociology). Not surprisingly, there is no single meaning of the term, but we follow a common usage in referring to the fact that the equilibrium that exists is not be the only one possible with the same parameters (individual preferences and wealth) but that trivial differences in starting points or exogenous events along the way produced the current equilibrium. For a criticism of the concept as applied to product markets, see S. J. Liebowitz & Stephen E. Margolis, *Path Dependence, Lock-In, and History*, 11 J.L. ECON. & ORG. 205 (1995).

[3] Put differently, an equilibrium is a pattern of individual behavior "that may be rationally sustained as unique best responses to each other." See Roger B. Myerson, *Justice, Institutions, and Multiple Equilibria*, 5 CHICAGO J. INT'L L. 92 (2004). More technically, in game theory, a "Nash equilibrium"

> is based on the principle that the combination of strategies that players are likely to choose is one in which no player could do better by choosing a different strategy given the ones the others choose. [In two-player games, a] pair of strategies will form a Nash equilibrium if each strategy is one that cannot be improved upon given the other strategy. We establish whether a particular strategy combination forms a Nash equilibrium by asking if either player has an incentive to deviate from it.

DOUGLAS G. BAIRD, ROBERT H. GERTNER, & RANDAL C. PICKER, GAME THEORY AND THE LAW, 310 (1996) (emphasis deleted).

competition produces will inevitably be the best one, the global social optimum. Instead, it may be merely a "local maximum." The outcome that occurs therefore depends arbitrarily on the behavioral starting point; different paths do not all lead to efficiency.[4]

A few legal scholars have explored the relevance of path dependent legal evolution,[5] particularly in corporate law.[6] The fields of intellectual property and antitrust are concerned with the path dependence of technological change.[7] But the general literature on regulation has, quite surprisingly, not appreciated the importance of the concept to discussions of market failure, a shortcoming we hope to correct. Most importantly for our purposes, the literature has failed to note this rather surprising implication: temporary law may have a significant advantage over permanent law. Where the rationale for regulation is to overcome path dependence, there is no need for a permanent restriction on liberty and there are several critical reasons to make the restriction temporary.

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[4] There are several technical matters of path dependence that need not detain us. For example, one might distinguish between path dependence that arises because of trivial differences in initial conditions from path dependence that arises because of identical initial conditions combined with random differences in intervening events. The analysis that follows will work under different assumptions about how path dependency arises.

[5] See Richard A. Posner, *Path-Dependency, Pragmatism, and a Critique of History in Adjudication and Legal Scholarship*, 67 U. CHI. L. REV. 573 (2000); Oona A. Hathaway, *Path Dependence in the Law: The Course and Patterns of Legal Change in a Common Law System*, 86 Iowa L. Rev. 601 (2001) (identifying three types of path dependency and finding examples of each in the common law); Alain Marciano & Elias L. Khalil, *Optimization, Path Dependence and the Law: Can Judges Promote Efficiency?*, 32 INT'L REV. L. & ECON. 72 (2012) (critiquing path dependency claims about the inefficiency of judge-made law). See also Clayton P. Gillette, *Lock-in Effects in Law and Norms*, 78 B.U. L. REV. 813 (1998) (claiming that path dependence affects the development of informal social norms as much as the development of formal law).

[6] See Marcel Kahan & Michael Klausner, *Path Dependence in Corporate Contracting*, 74 WASH. U. L.Q. 347 (1996); Lucian Arye Bebchuk & Mark J. Roe, *A Theory of Path Dependence in Corporate Ownership and Governance*, 52 STAN. L. REV. 127 (1999); Amir N. Licht, *The Mother of All Path Dependencies: Toward a Cross-Cultural Theory of Corporate Governance Systems*, 26 DEL. J. CORP. L. 147 (2001).

[7] See Mark Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 488-99 (1998). An early example of the economic literature is Brian W. Arthur, *Competing Technologies, Increasing Returns, and Lock-In by Historical Events*, 99 ECON. J. 116 (1989). For a recent review of that literature, see Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 1967 (2007) (surveying the economic literature).

We thus propose imagining regulations that include an expiration date. Our principal example for illustrating these points is the regulation of smoking in public places, a field that has seen substantial change in recent years. Libertarians and other market optimists assert that, in the absence of government regulation, competition among private suppliers produces the optimal number of non-smoking establishments – malls, restaurants, bars, apartment buildings.[8] Yet when the government did not regulate, non-smokers felt that there were an insufficient number of non-smoking options. In many jurisdictions, there were literally no non-smoking bars, meaning that there was no good option for non-smokers.

What does it mean for non-smokers to complain that, without government intervention, the market is underserving their needs? One possibility is that the only equilibrium consisted of a small number of non-smoking options because smokers cared much more about the issue than non-smokers. In other words, if the only choice is smoking, non-smokers patronize the establishment and grumble, but if the only choice is non-smoking, smokers stay home and withhold their patronage altogether. This is the intuition of the libertarian, who explains that non-smokers are being hypocritical because they are not willing to pay sufficiently to induce bars, restaurants, and other establishments to switch to non-smoking.

Yet there is a second possibility: path dependence. For reasons explored below, rational mechanisms and behavioral biases could have created a situation where the same set of preferences and levels of wealth permit at least two equilibrium outcomes, one with a high proportion of smoking establishments and the other with low proportion. In this context, an equilibrium means that no owner of an establishment has any incentive to change the smoking status of the establishment because they are making as much or more profits by the smoking policy they have. If there are multiple equilibria, then it is possible that the low smoking equilibrium is optimal, and we have reached the high smoking equilibrium only because of the happenstance that our starting point from decades ago, when preferences and beliefs about were different, involved high smoking rates and near-universal tolerance of smoking. Had history been different, the same preferences (the ones that existed before smoking bans) could have

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[8] See Thomas Lambert, *The Case Against Smoking Bans*, REGULATION, Winter 34 (2006-2007) (arguing against smoking bans); Eric A. Feldman and Ronald Bayer, *Introduction*, in UNFILTERED 6-7 (Eric A. Feldman and Ronald Bayer, eds., 2004) (describing the libertarian objections).

sustained a different and lower level of smoking establishments. If freedom of choice and market competition is consistent with two behavioral patterns, we should want to reach the efficient pattern, not the one that happens to first emerge.

Given path dependence, it is desirable to use law to shift society from the high-smoking to the low-smoking equilibrium. Across a large domain of issues besides smoking, the best argument that can be made for legal intervention and the most charitable interpretation of the arguments that are made is exactly this point: that the status quo is trapped in an inefficient equilibrium and that law will shift the system to a more desirable equilibrium, one that is also consistent with individual choice to satisfy existing preferences.

The possibility that multiple equilibria exist in a variety of regulatory contexts has never been thoroughly considered. Part of this article's contribution is to identify a list of mechanisms that can produce this situation. Our main point, however, is to explain why, when this argument applies, the best response is usually a *temporary* law. *If the problem is path dependence, a temporary law will often be both necessary and sufficient to move behavior to the more efficient outcome.* For example, suppose the status quo among a city's restaurants is a high-smoking equilibrium (95% permit smoking) and we believe there is a more efficient low-smoking equilibrium (10% permit smoking). If the temporary law bans smoking in all restaurants for a certain time period (say two years), it pushes toward a zero-smoking outcome. When the law is removed, restaurant owners will decide whether to allow smoking again; many will. But the implication of there being a low-smoking equilibrium is that the number of restaurants allowing smoking will rise from zero to the number the low-smoking equilibrium represents (10%) *and then stop*. In short, the concept of path dependence identifies the importance of arbitrary starting points; temporary law offers a new "starting" point, resetting the system to allow the emergence of the equilibrium with the lowest smoking levels.

It should be immediately apparent that the temporary law cannot be a first best solution. The first best solution would be to move directly to the more efficient equilibrium. In the smoking example, part of the cost of the temporary ban is the inefficiency of having too few restaurants – zero – that allow smoking during the period the law is in effect. If the efficient low-smoking equilibrium is that 10% of restaurants allow smoking, then the state could just create licenses equal to 10% of the restaurants and

allocate them by auction or lottery, enforcing a ban only against unlicensed restaurants. If this is the situation, there is no great advantage to making the law temporary, as a permanent law merely requires people to do what they already want to do in equilibrium.

The problem, however, is that this first best, direct solution demands costly or unobtainable information. We might have no good way of estimating the exact location of the low-smoking equilibrium. And here we see the possible advantage of a temporary law. If we are uncertain where the low-smoking equilibrium is -- perhaps it is 10% of restaurants, but it could be as high as 35% or as low as 5% -- we will likely grant too many or too few licenses, thereby forcing an inefficient level of smoking indefinitely. With the temporary law, the short-term inefficiency is likely greater – requiring 0% smoking restaurants is too low – but lasts for only a limited period, after which voluntary exchange produces the low smoking equilibrium.

This revelation – what might be called *equilibrium location* – is only the first informational advantage of temporary law. For the second, assume there is also uncertainty or ambiguity about the entire situation just described. There *may* be multiple equilibria, but there is also some chance that there is really only one behavioral pattern consistent with existing preferences and free exchange. If so, the libertarian has a good reason to assert that the status quo already represents the efficient outcome. The licensing scheme then imposes a severe inefficiency (10% of restaurants are smoking when 95% is efficient) for an indefinite time. It also offers no mechanism for revealing whether the licensing scheme represents a suboptimal outcome. But when the temporary law expires, if the premise on which it was based were false, and there is only one equilibrium, then restaurants will return to their initial level of permitting smoking (95%). We will then learn that there was no market failure to be solved. Thus, temporary law works like an experiment. The information it reveals is both equilibrium location and what might be called *equilibrium verification.*.

We identify a number of other advantages to temporary law. By verifying and locating the other equilibrium, one saves on enforcement costs, as by definition there is no need to enforce an equilibrium. There is also the promise of greater intellectual honesty: once temporary law is a salient part of the regulatory toolkit, those who claim that path dependence justifies regulation will only propose temporary law, while those who propose permanent law will be forced to claim some justification other

than path dependence. Finally, temporary law is a form of political compromise that might decrease the costs of political struggles..[9] Proponents of regulation will accomplish their goal but will but by accepting an expiration date bear the costs of extension. Opponents of regulation will be less opposed to temporary rules than permanent ones. Furthermore, if the proponents and opponents of regulation have genuine uncertainty about the consequences of a particular intervention, they might welcome the information revealed by the temporary law.

Situations of multiple equilibria are common, and we offer a number of examples to demonstrate the phenomenon. In rational choice theory, there are various kinds of coordination games that have multiple equilibria.[10] We discuss these situations, but we also emphasize the role of bounded rationality and cognitive biases. Cognitive limitations often produce an important asymmetry: the operation of various biases *favor the status quo* and are therefore capable of stabilizing more than one behavioral outcome, should it become the status quo. Consider, for example, the availability heuristic, by which people tend to overestimate the occurrence of things readily called to mind.[11] In a world where restaurant smoking is permitted, it may be easier for restaurant owners to call to mind those smoking customers they will lose by prohibiting smoking than to imagine non-smoking customers whom they haven't met whose patronage they will gain from a smoking ban. After living with a smoking ban, however, the reverse is true: the *actual* non-smoking customers they will lose from permitting smoking are more salient than *potential* smoking customers they will gain. By shifting the composition of the baseline set of customers, a temporary ban can change the beliefs of the restaurant owners in a way that makes their behavior sticky.

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[9] Jacob Gersen, *Temporary Legislation*, 74 U. CHICAGO L. REV. 247 (2007) (offering a positive political theory explaining when legislation is made temporary).

[10] See RUSSELL W. COOPER, COORDINATION GAMES 9 (1999) (describing coordination games and noting that "history matters in these games and uncovering the influence of the past on the selection of an equilibrium is important."); Richard H. McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory, and Law*, 82 SOUTH. CAL. L. REV. 173 (2009) (arguing that legal scholarship overuses the prisoners' dilemma and fails to exploit the insights of coordination games with multiple equilibria); Richard H. McAdams, *Conventions and Norms: Philosophical Aspects*, in 4 INT'L ENCYCLOPEDIA OF THE SOCIAL AND BEHAVIORAL SCIENCES, 2735, 2736-38 (N.J. Smelser & P.B. Baltes, eds., 2001) (explaining conventions as solutions to recurrent coordination games).

[11] See infra text accompanying notes 41-42.

Another example is the problem of forecasting one's affect. The happiness literature shows that people adapt to new situations more quickly than they expect.[12] Thus, smokers who have no experience at non-smoking restaurants may expect to be miserable at them and to take a long time to adjust to being unable to smoke; they therefore avoid all the no-smoking restaurants when there are only a few of them. After living with a complete ban, however, they adjust to the experience (by not smoking for a period or stepping outside) more quickly than they predicted and are therefore willing occasionally to patronize non-smoking restaurants. Although they still prefer smoking restaurants, their occasional patronage of non-smoking restaurants means that more restaurants will stay non-smoking. We explore these points more systematically below.

Thus, the domain we identify for temporary law, where it is presumptively superior to permanent law, is when (1) it appears there are multiple equilibria and the status quo is trapped in an inefficient one; and (2) there are informational barriers to identifying the superior equilibrium. We also consider some costs of temporary law that renders it unsuitable in certain contexts.

This article sits at the intersection of two different legal literatures. First, there are a handful of articles on temporary legislation. Jacob Gersen has offered a positive political theory of temporary legislation, arguing that it advantages the legislature over the executive. As a normative matter, Gersen speculates that temporality might desirably spread decision costs over time in a way which might lead to better informed regulation, particularly for newly recognized risks.[13] Yair Listokin identifies the advantages of experimenting with legal policy.[14] If there is uncertainty over the effects of a proposed law, one might adopt a law temporarily, assess the results, and then decide whether to renew the law, with or without modification. Policymakers should therefore choose highly variable

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[12] See infra text accompanying notes 48.

[13] Gersen, *supra* note 9.

[14] Yair Listokin, *Learning Through Policy Variation*, 118 YALE L.J. 480 (2008) (advocating the value of policy reversibility in cost-benefit analysis; facing uncertainty, reversibility allows the policymaker to learn, retaining new policies that produce net benefits and abandoning those that produce net costs). See also Michael Abramowicz, Ian Ayres, & Yair Listokin, *Randomizing Law*, 159 U. PENN. LAW REV. 929 (2011) (recommending the use of legal experiments by changing law for limited and randomly selected subpopulations and observing the results).

policies when they can be easily reversed or altered and lower-variance policies when it will be more difficult to make changes after the fact.[15]

These theories do not discuss the problem of path dependence; as a result, the rationales they provide for temporary law are more contingent. For Gersen and Listokin, there is always the alternative of enacting a permanent law and later repealing it if the results show the law to be a failure. So the choice between a formally permanent and temporary law is merely a matter of allocating the burden of future change either on the law's opponents who must secure repeal or the law's proponents who must secure renewal. That is an interesting normative trade-off, but it is entirely distinct from the rationale we explore.

When the argument for regulating is the existence of multiple equilibria and path dependence, the case for temporary law is less contingent. In this setting, one wants the law to lapse after a time *not* because it has failed, but in order to allow it to succeed. The law's success cannot be judged while it is in effect, but only after it expires, when a new equilibrium does or does not emerge. If the new equilibrium is the same as the status quo ante, the rationale for regulation is rejected. If the new equilibrium is something different and better, the rationale is affirmed but the regulation is no longer necessary. If we are committed incrementalists and the costs of overcoming legislative inertia are sufficiently low, it might make sense for almost all laws to be temporary. But even if we reject incrementalism[16] and the costs of overcoming legislative inertia are high, we would still argue for temporary law to address the problem of path dependence.

This article engages and extends a second literature: the project of behavioral economics to identify important policy implications of cognitive limitations and behavioral biases. Of course, rational choice mechanisms can also create path dependence, as some of our examples will show. For that reason, the normative case for temporary law need not depend on the findings of behavioral research. But we find that the most easily generalized reason for multiple equilibria and path dependence is the asymmetric effects of cognitive biases. Those biases will often push in favor of the status quo, so that two arbitrarily different starting points can

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[15] *Id.*

[16] For a shrewd analysis of its costs, see Saul Levmore, *Interest Groups and the Problem with Incrementalism*, 158 U. PA. L REV. 815 (2010).

produce two different equilibria. Only by accident will the bias favor the selection of the efficient equilibrium.

This article fits broadly within the debate Sunstein and Thaler started with their defense of "libertarian paternalism."[17] In many (though not all) of the examples, the temporary law we explore is unquestionably paternalistic. Yet temporary paternalism is better for the libertarian than the permanent kind. It may even ultimately be less intrusive on liberty than some of the "nudges" Sunstein and Thaler defend. Beyond a simple temporal compromise, the possibility of temporary legislation forces greater intellectual honesty on those who advocate some restriction on liberty. If the advocate of regulation relies on the claim of multiple equilibria and path dependence, then she should presumptively favor merely temporary legislation. If, over time, temporary legislation exposes the general falsity of claims of path dependence, then it will strengthen the hand of the libertarian to resist even temporary paternalism. The final advantage of temporary law is that it may serve the value of liberty in this manner. A primary implication of our analysis is that many laws, including many anti-smoking laws, should be repealed (after which we suspect there would remain far fewer smoking establishments than existed prior to the ban).

The paper proceeds as follows. In Part I we explain the behavioral forces that can lead to multiple equilibria and path dependence with a particular case study: bans on smoking in public places. In Part II we generalize from this example and describe the advantages and disadvantages of temporary legislation, focusing on its role in exposing situations of path dependence. Part III offers a suggestive empirical study of a temporary smoking ban, using the example of an actual (albeit unintended) temporary ban that governed Champaign, Illinois. Part IV extends the analysis to other examples, including seat belt regulation, affirmative action, traffic regulation, curfews, and bank holidays and trading circuit-breakers . Part V concludes.

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[17] Sunstein and Thaler, supra note 1; see other citations supra note 1.

I. MULTIPLE EQUILIBRIA AND THE EXAMPLE OF SMOKING BEHAVIOR

Markets produce equilibria, and naïve free market advocates tend to assume that these equilibria are always efficient. But the fact that a competitive market has generated a particular equilibrium does not mean that the equilibrium is socially optimal, even if the equilibrium is the product of voluntary exchange with low transaction costs. Rather, both behavioral biases and rational choice mechanisms can create situations in which multiple equilibria are possible. The choice of equilibrium in such situations is then path dependent: different starting points and histories generate different behavioral patterns, even when other underlying parameters are constant. When the status quo is trapped in an inferior equilibrium, temporary regulation may work to move the population to a better equilibrium.

We develop these points using the controversy surrounding smoking regulation. We have in mind the laws that have increasingly prohibited smoking in various public and now private spaces: hospitals, airports, shopping malls, stadia, theatres, restaurants, bars, hotels, cars carrying child passengers, and apartments.[18] Despite their popularity, there is in most cases a reasonable libertarian/free market argument against the regulation.[19]

In this Part, we use only the example of smoking bans, though we shall later generalize the analysis.

A.   The Libertarian/Economic Argument Against Smoking Bans

Smoking bans have become increasingly popular in the United States and around the world in the years since California enacted the first ban in 1994. At this writing, twenty one states have now enacted statewide

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[18] Secondhand Smoke and Cardiovascular Effects: Making Sense of the Evidence 109-24 (2010) (reviewing history of smoking bans); Charles Shipan and Craig Volden, *The Mechanisms of Policy Diffusion*, 52 AM. J. POL. SCI. 840 (2008) (describing diffusion of smoking bans in the United States).

[19] See Lambert, *supra* note 8. These specific arguments are applications of the analysis of market libertarians stated in classic works such as MILTON FRIEDMAN & ROSE FRIEDMAN, FREE TO CHOOSE (1980); and FRIEDRICH A. HAYEK, THE CONSTITUTION OF LIBERTY (1960).

smoke-free laws governing workplaces, restaurants, and/or bars.[20] A growing number of cities and counties across the country have also taken action, and one source reports that 2300 municipalities have bans in some form, up from 89 in 1985.[21]

The spread of smoking bans has resulted from a number of factors. One is the growing awareness of the health dangers associated with smoking.[22] The Center for Disease Control reports that 19.3% of Americans smoke as of 2010, down from 33.2 in 1980.[23] As the percentage of voters who are smokers has declined, it has become easier for smoking bans to pass.[24] Finally, the spread of smoking bans is also an example of what political scientists call "policy diffusion," in which jurisdictions copy the policies of other jurisdictions.[25]

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[20] See Ronald Bayer and James Colgrove, *Children and Bystanders First: The Ethics and Politics of Tobacco Control in the United States*, in UNFILTERED 22 (Eric A. Feldman and Ronald Bayer, eds., 2004).

[21] *Id*.

[22] The 1964 Surgeon General's report on smoking is widely cited as a turning point. The Health Consequences of Smoking: A Report of the Surgeon General, May 27, 2004. See Theodore R. Marmor and Evan S. Lieberman, *Tobacco Control in Comparative Perspective*, in UNFILTERED 275, 276 (Eric A. Feldman and Ronald Bayer, eds., 2004).

[23] Centers for Disease Control; Surveillance for Selected Tobacco-Use Behaviors -- United States, 1900-1994 available at http://www.cdc.gov/mmwr/preview/mmwrhtml/00033881.htm#00000794.htm (Table 2 has 1980 data); Adult Cigarette Smoking in the United States: Current Estimate, available at http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm [2010 data]. Nevertheless, some believe that legal regulation has been a failure in that levels of smoking remain higher than they ought to be, a fact they attribute to cognitive biases that distort analysis of risk. Jon D. Hanson and Douglas A. Kysar, *The Joint Failure of Economic Theory and Legal Regulation*, in SMOKING: RISK, PERCEPTION AND POLICY (Paul Slovic, ed., 2001).

[24] Furthermore, there are a non-trivial number of smokers who support smoking bans, most likely as a commitment device to help them quit. See Joni Hersch, *Smoking Restrictions as a Self-Control Mechanism*, 31 J. RISK & UNCERTAINTY 5 (2005) (finding that smokers who plan to quit and especially those failed to quit on a previous occasion support public smoking bans as an aid to quitting). See also Silke Anger, Michael Kvasnicka, & Thomas Siedler, *One Last Puff? Public Smoking Bans and Smoking Behavior*, 30 J. HEALTH ECON. 591 (2011) (finding that public smoking bans reduce the incidence of the smoking habit among some subpopulations in Germany).

[25] See Shipan & Volden, *supra* n. 18. More specifically, diffusion refers to the idea that the probability of a jurisdiction adopting a given policy increases as other jurisdictions adopt the policy. See Allan M. Brandt, *Difference and Diffusion: Cross-Cultural Perspectives on the Rise of Anti-Tobacco Policies*, in UNFILTERED 255-74 (Eric A. Feldman and Ronald Bayer, eds., 2004); Theodore R. Marmor and Evan S. Lieberman, *Tobacco Control in Comparative*

As smoking bans have spread, there has been increased debate over their consequences. Proponents of bans believe that they contribute to the declining rates of smoking, and point to evidence that bans have been associated with health improvement.[26] While some of the evidence is contested, it is safe to say that the vast majority of public health analysts support smoking bans.

Opponents, on the other hand, argue that bans interfere with individual liberty and dispute the underlying science. Libertarians and some smokers tend to view smoking bans as paternalistic regulations interfering with liberty and market processes.[27], A key issue has been the nature and extent of the externalities associated with smoking. Ban proponents have had great success in exploiting the issue of second-hand smoke. They have framed the issue using the language of rights, arguing that smokers' rights end at the nose of non-smokers. Smoking bans are needed, it is argued, to protect the employees of restaurants and bars who have no choice but to be exposed. The argument has had a powerful effect in changing public attitudes toward smoking bans,[28] though it has some weaknesses as we explain below.

Libertarians counter that the vast majority of negative health effects associated with smoking are felt by the smoker herself, and the science on

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Perspective, in UNFILTERED 275, 285-86 (Eric A. Feldman and Ronald Bayer, eds., 2004). The effect has been observed in a wide variety of domestic and international settings. It may be attributable to learning across jurisdictions, or changes in costs and benefits associated with particular policies (for example, losing business to a neighboring jurisdiction that has adopted a more desirable policy). See Zachary Elkins and Beth Simmons, *On Waves, Clusters and Diffusion: A Conceptual Framework*, 598 ANNALS AM. ACAD. POL. SOC. SCI. 133 (2005) (describing various channels of policy diffusion). In the case of smoking bans there also appear to be direct international pressures as work as well. Brandt, id., at 270 (international enforcement).

[26] For example, a study in Pueblo, Colorado, showed that incidence of acute myocardial infraction declined after a smoking ban was adopted within the city limits. Carl Bartecchi, et al. *Reduction in the Incidence of Acute Myocardial Infarction Associated With a Citywide Smoking Ordinance*, 114 CIRCULATION 1490 (2006).

[27] See Lambert, *supra* note 8, (arguing against smoking bans); Eric A. Feldman and Ronald Bayer, *Introduction*, in UNFILTERED 6-7 (Eric A. Feldman and Ronald Bayer, eds., 2004) (describing the libertarian objections).

[28] Eric A. Feldman and Ronald Bayer, *Conclusion*, in UNFILTERED 292, 292 (Eric A. Feldman and Ronald Bayer, eds., 2004) ("The identification of vulnerable third parties held to be in need of protection has been a crucial justification for anti-tobacco-policy and advocacy.")

second-hand effects is much weaker.[29] Their view is that the "regulation of cigarette use has far outstripped scientific concerns about risk to others."[30] They also raise the idea of a slippery slope. If one can justify paternalistic policies by the simple fact that they may save lives, then government can prohibit any risky activity that people freely choose – mountain climbing, playing football, eating fatty foods, working in an underground mine, or being a couch potato – all at the expense of liberty.

More relevant for our purposes is a second point. Even assuming second-hand smoke is dangerous, if people are fully informed, they will efficiently sort themselves by their preferences. In the absence of transactions costs, of course, the Coase Theorem implies that voluntary exchange produces an efficient outcome.[31] There always are transactions costs, but if they are low, the standard argument is that voluntary exchange allows an outcome closer to efficiency than an outcome imposed by government. First, employees who dislike smoking will demand a wage premium to work in a smoking establishment, as the economic evidence shows they do in other industries.[32] Working in a smoking establishment is like working in high rise construction or a nuclear power plant; one must be paid extra in return for the health risks one accepts. Second, consumers who dislike smoking will patronize non-smoking bars or other establishments. Smoking-averse consumers will presumably require some

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[29] JOSEPH L. BEST, *Why Defend Smokers? in* PLEASE DON'T POOP IN MY SALAD AND OTHER ESSAYS 3, 5-6 (The Heartland Inst., 2006); JOSEPH L. BEST, *Leave Those Poor Smokers Alone!, in* PLEASE DON'T POOP IN MY SALAD AND OTHER ESSAYS 11, 12-13 (The Heartland Inst., 2006).

[30] Brandt *supra* note 25, at 261.

[31] See Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & Econ. 1 (1960). The article states no formal theorem but the modern understanding is that it proposes that, "when transaction costs are zero, an efficient result will be reached, regardless of the initial assignment of legal entitlements." Lee Anne Fennell, *Resource Access Costs*, forthcoming 126 HARV. L. REV. (2013).

[32] See Lambert, *supra* note 8, at 35-36 ("[E]mployers do in fact pay a premium for exposing their workers to risks [such as secondhand smoking] . . . ."); Robert D. Tollison & Richard E. Wagner, *The Economics of Smoking* 138 (Kluwer Academic Publishers, 1992) (describing the process by which nonsmokers demand wage premiums). See generally W. Kip Viscusi, *Risk by Choice: Regulating Health and Safety in the Workplace* 37-58 (1983) (discussing compensating wage differentials by which employees in riskier jobs are paid more); W. Kip Viscusi & Joseph E. Aldy, *The Value of a Statistical Life: A Critical Review of Market Estimates throughout the World*, 27 J. RISK & UNCERTAINTY 5 (2003) (reviewing the accumulated literature on compensating wage differentials for risk).

compensation for patronizing a smoking establishment, such as better prices or superior service.

The argument works best in competitive markets such as motels, restaurants, and bars. It works less well for less competitive facilities such as airports and stadia, which often form local monopolies. With competition, the standard prediction is that the market will eventually produce a range of smoking policies to reflect consumer tastes. Left alone, establishments might eventually innovate by using sophisticated filtering technology to create separate spaces for each type or by charging customers for smoking (passing savings on to non-smokers by charging less for other goods and services). Non-smokers who care strongly about avoiding exposure to second-hand smoke will find restaurants and bars that cater to their preferences. Smokers who care strongly about smoking in a particular establishment will find the same. We observe this kind of differentiation in hotel rooms, where hotels reserve some rooms for non-smokers and some hotels choose to be entirely smoke free.[33] There was not much evidence of non-smoking bars or restaurants before the bans went into effect, but arguably that kind of specialization would have occurred on its own, in response to changing preferences, had the law not intervened.

Thus, the libertarian argument against a smoking ban is that, if establishments are free to decide whether to permit smoking, competitive markets supply the one and only distribution of smoking and non-smoking establishments that is consistent with consumer preferences and budgets. Note that this efficiency argument is abstract and *structural*. There is no effort to estimate each of the many costs and benefits of the pre-ban smoking equilibrium and then to compare them to the costs and benefits of a different outcome the law imposes. Instead, the claim is that the pre-ban outcome is most likely to be efficient, given that the *structure* of competitive markets and free exchange produces the optimal outcome.[34]

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[33] *See, e.g, Millennium Knickerbocker Hotel Chicago*, MILLENNIUM HOTELS & RESORTS, http://www.millenniumhotels.com/millenniumchicago/hotel-amenities/guest-services.html (100% non-smoking hotel).

[34] Cf. Robert D. Cooter, *Decentralized Law for a Complex Economy: The Structural Approach to Adjudicating the New Law Merchant*, 144 U. PA. L. REV. 1643 (1996) (describing a structural argument for courts to use in identifying whether business customs are likely to be efficient and worthy of enforcement).

The libertarian critic can go one step further. The argument so far has been about simple efficiency – the maximization of wealth. Yet, in this context, it is plausible that free market exchange not only maximizes wealth, but also welfare. A social welfare function can be sensitive to distribution,[35] yet non-smokers in the United States (at least) tend to be more affluent than smokers.[36] The implications are significant and easily overlooked. One cannot explain the fact that establishments overwhelmingly permit smoking (before a ban) by the relative wealth of smokers. Instead, the fact that many establishments chose to permit smoking implies that the poorer smokers outbid the wealthier non-smokers only because the former's preferences for smoking are more intense than the latter's aversion to smoking (even considering the latter's concern about their own health). Distributional concerns are ordinarily thought to justify laws that promote the welfare of the less-well-off at the expense of the more-well-off, not the other way around. There are, of course, paternalistic arguments that the smokers are making an error about their own interests (or that satisfaction of uninformed preferences do not count in the social welfare function[37]), but the goal of this article is to illustrate a different critique, one that avoids this maximally paternalistic move.

Figure 1 illustrates the libertarian analysis. In this context, an equilibrium refers to a percentage of smoking and non-smoking establishments (restaurants, bars, motels, etc.) that is stable because no establishment gains by switching by itself from its current state (smoking or non-smoking) to the opposite state. The *x*-axis is the percentage of establishments of this type (restaurants, bars, casinos, etc.) that permit smoking. The *y*-axis is the net revenue of an establishment. The gray line

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[35] See, e.g., MATTHEW D. ADLER, WELL-BEING AND FAIR DISTRIBUTION: BEYOND COST-BENEFIT ANALYSIS (2012) (arguing for a continuous prioritarianism that gives additional weight to the welfare of the least well off); LEWIS KAPLOW & STEVEN SHAVELL, FAIRNESS VERSUS WELFARE (2006) (noting that a social welfare function need not be utilitarian but can give weight to equality of welfare).

[36] Phillip B. Levine et. al., *More Bad News for Smokers? The Effects of Cigarette Smoking on Wages*, 50 INDUS. & LAB. REL. REV. 493, 495, 508 (1997) (noting educational level disparities between smokers and nonsmokers; showing smoker and nonsmoker wage differences).

[37] See, e.g., Matthew D. Adler & Eric A. Posner, *Implementing Cost-Benefit Analysis When Preferences Are Distorted*, 29 J. LEGAL STUD. 1105 (2000) (defending a welfarist cost-benefit analysis that values the satisfaction of undistorted rather than actual preferences, as by imagining what preferences would be if individuals were fully informed).

shows the revenue from operating an establishment that permits smoking, which varies with the percentage of all establishments of the same type that permit smoking. At the left, there are no other smoking establishments, so the revenue for being the one smoking establishment is high. At the far right, with the maximum number of smoking competitors, revenue is at its lowest. The curve might be drawn to decline continuously or, as here, to have a flat middle segment where the revenues for one smoking establishment are insensitive to the number of other smoking establishments.

The black curve shows the revenues for non-smoking establishments of the same sort. The shape and relative location of the curve reveals two assumptions. One is that, in this community, smokers are willing to pay more for the opportunity to smoke in such establishments that non-smokers are willing to pay for the opportunity to be in a smoke-free establishment. That is why the non-smoking revenue curve is *usually* lower than the smoking revenue curve. Yet, second, there comes a point where the percentage of smoking establishments is so high, that there is a niche non-smoking market where the remaining establishments earn more net revenue by attracting a large percentage of the non-smokers.

Figure 1: A Single Equilibrium of Smoking Establishments
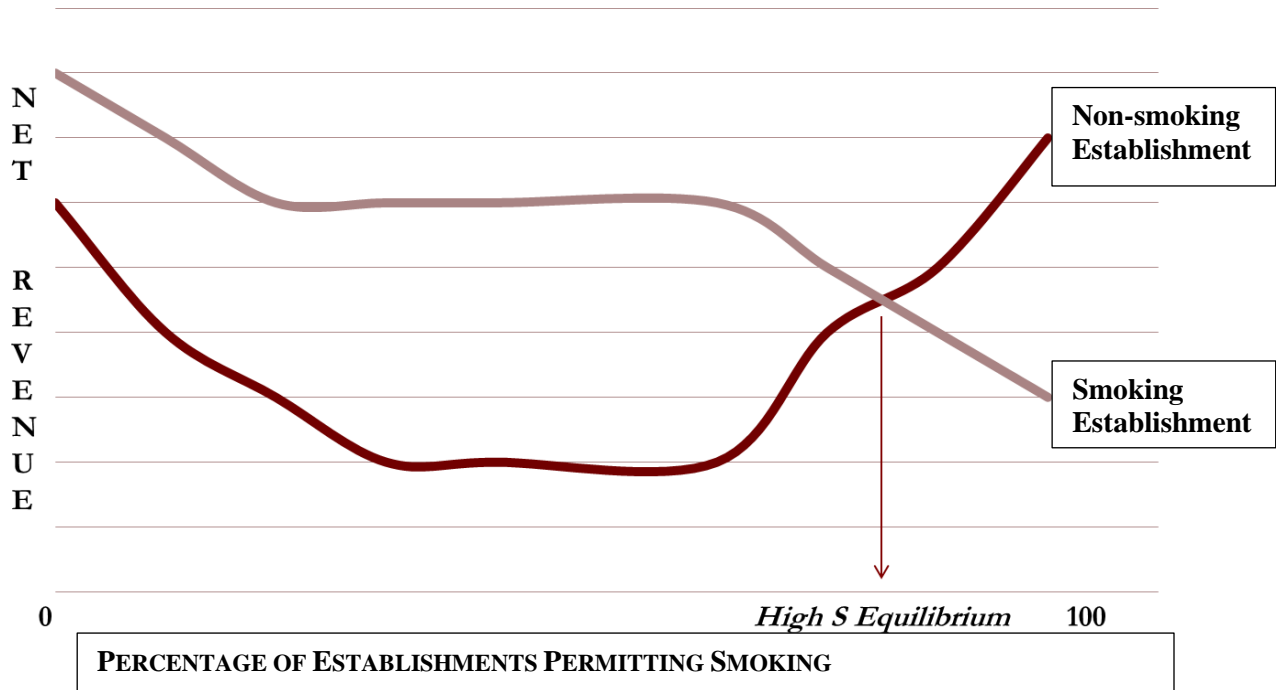
Where these curves intersect, the revenue from operating a smoking establishment is equal to the revenue from operating a non-smoking establishment. This point is an equilibrium because, from there, no smoking establishment can gain by switching to non-smoking and no non-smoking bar can gain by switching to smoking. From this point, if a smoking establishment became non-smoking, its choice would cause a decline in the percentage of establishments permitting smoking and therefore its revenue is represented by a point to the left of the intersection along the black line. That part of the line is below the intersection, meaning the establishment would lose money by switching to non-smoking. A similar point is true of a non-smoking establishment that changes to smoking: the increase in the percentage of smoking establishments means that its revenue is represented by a point to the right of the intersection along the gray curve. That too is a move downward from the intersection, representing a loss in revenues.

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The intersection is the *only* equilibrium because, at every other point along the *x*-axis, some establishment wants to switch its smoking policy. To the left of the equilibrium, there is always room for some establishment to increase revenue by switching from non-smoking to smoking. To the right of the equilibrium, there is always room for some establishment to increase revenue by switching from smoking to non-smoking. As drawn, Figure 1 shows an equilibrium with a relatively high percentage of smoking establishments (more than 80%). The structural argument for the efficiency of this outcome is that it is the only possible product of free exchange.

B.   The Path Dependence Critique of the Libertarian Argument

From an economic perspective, the libertarian is almost certainly correct in saying that the optimal amount of smoking establishments in any community is greater than zero. We might say the same about any risky activity that adults choose to engage in. There are health costs to skydiving, boxing, driving in bad weather, eating cheeseburgers, and working high rise construction, but for some individuals the benefits outweigh those costs.

Yet it is quite possible that the libertarian is wrong about the status quo representing the only equilibrium. Instead, there are many reasons to expect path dependence, which complicates the case for efficiency. The multiple equilibrium argument says that the equilibrium we observed *before smoking bans went into effect* was not unique to that legal regime. Instead, it was influenced by the starting point: high rates of smoking, little concern about the health hazards of second-hand smoke, and a social norm of deferring to smokers. Had we instead started from a low rate of smoking, strong concerns about passive smoking health hazards, and a norm of deferring to non-smokers, we might have reached a different equilibrium, with more non-smoking establishments. Importantly, the argument assumes we are holding constant preferences about smoking. The multiple equilibrium argument is that those preferences can produce different equilibrium behaviors. There is therefore no reason to assume that the one we observe is efficient.

Figure 2 illustrates. As before, the curves represent the net revenue from operating a smoking or non-smoking establishment, which varies by

the percentage of other establishments that are smoking. The revenue curves here, however, cross not once but three times. The intersection on the left is a low-smoking equilibrium (LSE); the intersection on the right is a high-smoking equilibrium (HSE); the middle intersection is *not* an equilibrium.

Figure 2: Multiple Equilibria of Smoking Establishments
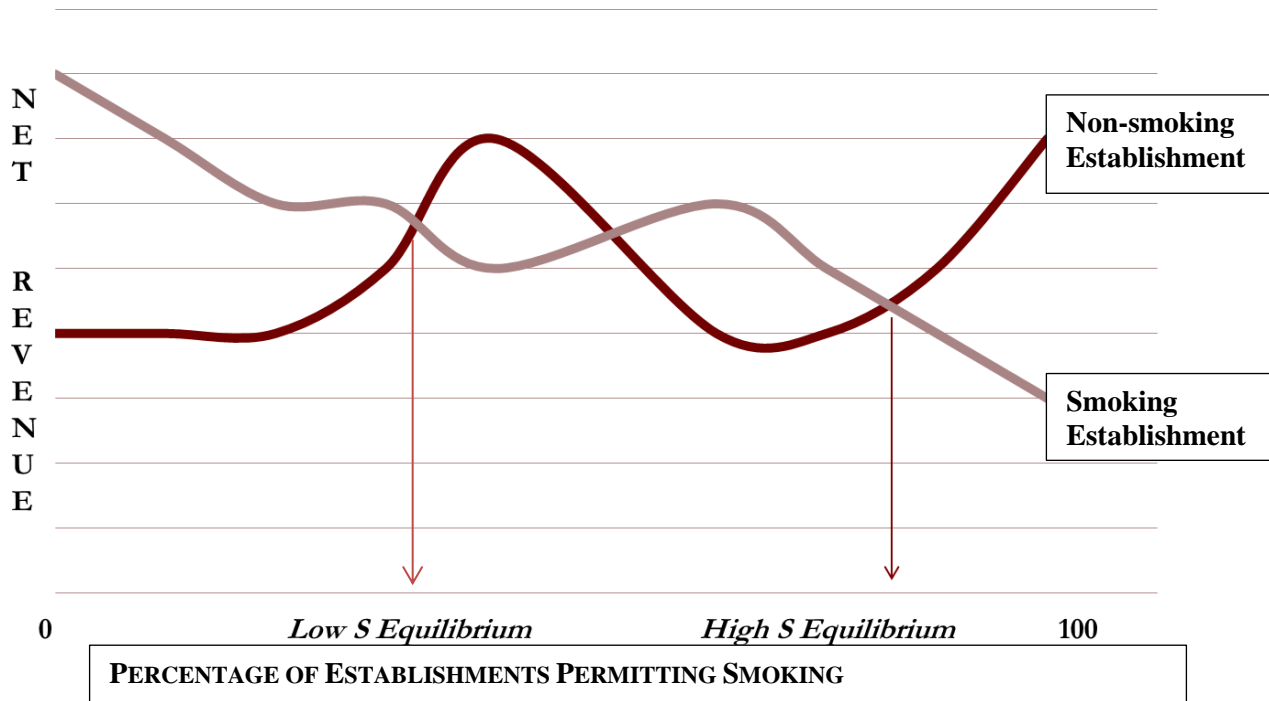
First, let us verify that the intersections on the left and right are in fact equilibria. The LSE on the left is an equilibrium because, at this point, no smoking establishment can gain by switching to non-smoking and no non-smoking bar can gain by switching to smoking. If a smoking establishment became non-smoking, its choice would cause a decline in the percentage of establishments permitting smoking and therefore its revenue is represented by a point to the left of the intersection along the black line. The line is falling at that point, so the switch causes revenue to decline. If a non-smoking establishment switched to smoking, it would move to the right on the gray line, which also lowers revenue. For the same reason, the HSE on the right is an equilibrium.

Now consider why *no other point* on the graph is an equilibrium. At any point on the *x*-axis where one revenue curve is higher than the other, firms on the lower curve want to switch their smoking policy in order to increase their revenues. To the left of the LSE, the revenue of smoking establishments is higher, so some establishments want to shift to smoking. To the right of the HSE, the opposite is true – non-smoking revenue is higher and some establishments want to shift to non-smoking.

What about that third intersection, the one in the middle? For convenience, we will refer to this intersection as an "inflection point" (even though there is more than one inflection point in Figure 2).[38] This point lacks the stability of an equilibrium because *any* move away from it increases revenue: a switch to smoking moves to the right on the gray curve, which is an upward move; a switch to non-smoking moves to the left and up on the black curve. The significance of the inflection point is that it represents the border between the attractive forces of the two equilibria. If the initial distribution of establishments is to the left of the inflection point, firms gain from switching to non-smoking and the establishment owners will switch smoking policies until they reach the LSE. If the initial distribution is to the right of the inflection point, the establishments move to the HSE. (At the inflection point, either move is equally possible).

Note the resulting path dependency. If the distribution of establishments begins just slightly to the left of the inflection point, the result is the LSE. If the initial distribution is just slightly to the right of the inflection point, the result is the HSE. *Where we end up depends on arbitrary differences in where we start.* Yet if free exchange produces both the LSE and HSE, then we can no longer rely on the structural argument for efficiency. That the status quo is the product of free exchange is no longer evidence of its efficiency, given that there is a very different outcome that free exchange could just as easily produce, given an arbitrarily different starting point.

The fact that the LSE exists *also* does not prove it is efficient. To choose between the two equilibria requires some independent normative evaluation. But note that the existence of multiple equilibria invalidates the *structural* argument for the efficiency of the current outcome because we

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[38] This is not necessarily the precise mathematical usage, but it captures the idea. One might also call this intersection the "tipping point."

cannot say the current level of smoking-permitted establishments is the necessary outcome of individuals freely pursuing their own ends. Instead, those preferences and opportunities are consistent with more than one behavioral outcome. Because we happened to start out at a high smoking rate and higher tolerance rate for smoking, we end up with something close to that.

Once there is no structural reason to favor the HSE, it is easy to imagine a series of normative arguments for the LSE. Perhaps the internalization of smoking externalities is never perfect, as some smoke escapes the confines of one space into an adjoining "no-smoking" place, where people have not consented to being exposed. If so, there is less such "leakage" with a LSE than a HSE. Perhaps the LSE causes more smokers to voluntarily quit,[39] which desirably reduces externalities a competitive market doesn't address, such as the littering of discarded butts, the spread of fires caused by smoking, or the choice of parents to smoke around their children. There might be no economic efficiency or welfare basis for choosing between the two equilibria, in which case it is difficult to object to using some other criteria at least as a tie-breaker, and that non-economic criteria might favor the LSE. Maybe Aristotelian virtue ethics or the capabilities approach opposes any consumption that approaches or constitutes an addiction, regardless of other consequences.[40] This article is not attempting to contribute to any such normative analysis, but only to note that once there are multiple equilibria, there could be good normative reasons to prefer some outcome other than the status quo.

Thus, if the LSE is superior to the HSE, note the implications for law. First, as observed in the introduction, if we had enough information to identify the location of the LSE, we could use law to reach it directing by licensing the number of smoking establishments the LSE represents. We can now add a similar observation about the inflection point. If we have enough information to identify the location of this dividing line, we would not need to know where the LSE is in order to ensure its emergence. As long as the law drives the percentage of smoking establishments down to a

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[39] See Hersch, *supra* note 24; Anger, Kvasnicka, & Siedler, *supra* note 24.

[40] See, e.g., VIRTUE JURISPRUDENCE (Colin Farrelly & Lawrence Solum, eds., 2008) (a collection of essays on aretaic theories of law); MARTHA C. NUSSBAUM, WOMEN AND HUMAN DEVELOPMENT: THE CAPABILITIES APPROACH (Cambridge 2000) (articulating and defending the promotion of human capabilities as a theory of distributive justice).

level below (to the left of) the inflection point, more establishments will choose to disallow smoking until the percentage reaches the LSE.

Yet if we do not know with confidence where the LSE *or* the inflection point is, then a permanent law may misfire. One risk is that the government licenses too many smoking establishments, at some level to the right of the inflection point (but to the left of the HSE). The law thus seeks to impose a non-equilibrium number of smoking establishments by prohibiting smoking in establishments that lack a license. There are two costs. First, we never reach the LSE.. We permanently enshrine a number of smoking establishments that is higher (or lower) than optimal. Second, to impose a non-equilibrium outcome requires enforcement and incurs the associated costs. At any point to the right of the inflection point, but left of the HSE, there are non-smoking establishments that would gain revenue by allowing smoking, so those without licenses will have a constant incentive to violate the smoking ban. The costs of constant enforcement might make this scheme worse than simply allowing the HSE, which involves no enforcement costs.

The parallel risk to permanent law is that the government licenses too few smoking establishments, at some level to the left of the LSE. Again, by permanently enforcing a below optimal smoking level, society must incur two costs. One is inefficiency of frustrating stronger preferences for smoking (as well as the distribution of wealth away from poorer smokers). The other cost is enforcement, since at any point to the left of the LSE, there are non-smoking establishments that would gain by allowing smoking, so those without licenses have a constant incentive to violate the ban.

As a result, there are key advantages to giving a smoking law an expiration date. One is equilibrium location. Once the law expires, establishments will switch to smoking up to the LSE but not beyond it. A second advantage is reduced enforcement costs because the LSE is self-sustaining; at this point, no establishment owner gains from switching to a policy allowing smoking.. So we save on enforcement costs and we gain whatever normative advantage the LSE might have over the HSE.

Temporality also offers equilibrium verification. There is always some chance that we have made a fundamental mistake because our information is erroneous and *there is no LSE*. If the economic libertarian is correct and the HSE is the only and efficient equilibrium, then when the law expires the establishments will switch back to smoking up to the level of the HSE. We have then avoided the costs of erroneously using law to

impose an inefficient outcome. Indeed, when we said above that we might not know where the LSE or inflection point is, this includes the case where we are confident where the LSE or inflection point would be *if they exist*, but there is some possibility that they do not exist. The expiration of the law completes the experiment that reveals whether the LSE exists and, if so, where it is located.

Now we turn to the question we have postponed: why would there ever be path dependency and multiple smoking equilibria?

C.   Rational and Behavioral Mechanisms Creating Path Dependence

We do not claim to offer all the reasons for multiple equilibria in the number of smoking/non-smoking establishment. We only wish to illustrate the plausibility of the argument so we can then show the virtue of a merely temporary law. We divide our discussion into rational choice explanations and behavioral explanations for path dependence. We focus on the example of bars, but most of the points we make could apply to apartments, restaurants, theatres, or other venues. Smoking bans are an obvious example because, until recently, nearly every legal jurisdiction allowed smoking in bars,[41] and more importantly none had previously banned smoking.[42]

1. Rational Choice Mechanisms for Path Dependence in the Number of Smoking Establishments

If individuals are rational, why would path dependency occur? A mundane story is the transition cost involved in switching smoking policies. When a bar goes from smoking to non-smoking, the owner must put up signs, create an outdoor space for smokers, and train the staff while replacing staff members who quit on account of the new rules. The owner might also have to spend money advertising for new customers. The immediate costs of switching might exceed the discounted stream of higher

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[41] Patrick Kabat, *"Till Naught but Ash Is Left to See": Statewide Smoking Bans, Ballot Initiatives, and the Public Sphere*, 9 YALE J. HEALTH POL'Y, L. & ETHICS 128, 133-36 (2009) (describing the emergence and proliferation of smoking bans).

[42] *Id.* at 133 ("Arizona passed the first statewide [secondhand smoking] legislation in 1973, banning smoking in all indoor theaters, art museums, libraries, elevators, and buses used by the public.").

revenue from switching. For that reason, the switch is not efficient, even if, absent switching costs, the bar would generate more social welfare by being non-smoking. For the rest of our examples, a switch might be efficient.

Of greater interest are network effects.[43] The story here has to be that for one establishment, adopting a non-smoking policy alone will cause it to lose more customers than it gains, even though if a group of establishments adopted the policy at the same time they would gain more customers than they lost. But why might it be true that the marginal smoking bar would not gain from going non-smoking if there is an equilibrium with many more non-smoking bars?

There are two kinds of social interdependencies that render this outcome plausible. First is the lumpiness of consumption represented by bar-hopping.[44] Suppose there is a 20-something crowd that craves variety and therefore enjoys starting at one bar and moving through three or four more over the course of night. Suppose also that there is currently only one non-smoking bar in the geographic area with twenty bars. Finally, let us suppose that one of the primary costs the non-smokers *perceive* from patronizing the smoking bar is that the smoke exposure, by the end of the night, causes their clothes and hair to smell badly.[45] This is no small matter if one's coat or clothing requires dry cleaning. But imagine that the cost of tobacco smoke exposure is not linear, but subject to a strong threshold effect: after the first thirty minutes of exposure in a smoking bar, additional minutes of exposure add almost nothing to the bad smell.

Now consider the effect of the Marginal Bar (the economist's favorite drinking establishment[46]) switching from smoking to non-smoking. If a night of bar-hopping involves going to four or five bars, then it will make no difference to non-smokers that the Marginal Bar becomes

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[43] For a review of the economic literature, see Farrell & Klemperer, *supra* note 7.

[44] It is difficult to estimate how common bar-hopping or pub crawling is. There is a Guinness World Record for it. See http://www.guinnessworldrecords.com/records-3000/most-people-on-a-pub-crawl/

[45] See David B. Ezra, *Smoker Battery: An Antidote to Second-Hand Smoke*, 63 S. CAL. L. REV. 1061, 1067-1068 (1990) ("The clothing of a person who is exposed to tobacco smoke for even relatively short periods of time can absorb chemicals that produce a foul odor that will accompany that person for the remainder of the day. The only cure is to launder the clothing, shower, and wash the hair.").

[46] There is in fact a bar with this name located in Portugal. See https://www.facebook.com/MarginalBar.

non-smoking. Even if they patronize both of the two non-smoking bars, they will go to two or three smoking bars and still come home with the bad smell. Thus, the non-smoking feature attracts no more non-smoking bar-hoppers, but it does drive away all the smoking bar-hoppers. The Marginal Bar would not want to make that switch by itself.

Nevertheless, there could *also* be a low-smoking equilibrium, one with, say, ten (of the twenty) bars being non-smoking. With that many non-smoking bars, the non-smokers could at the same time satisfy their desire for bar- hopping *and* their desire to avoid the bad smell of smoke exposure. Suppose the Marginal Bar is one of the ten non-smoking bars. If it switches from non-smoking to smoking, it will gain just a few of the smoking bar hoppers (now spread out over 11 bars), but lose all the non-smoking bar hoppers. The Marginal Bar would not want to make that switch by itself.[47]

Now consider a second network effects story: social sorting. Imagine that people go to only one bar per night, but that they go with or meet up with a group of friends and acquaintances, perhaps from work. When nineteen of the twenty bars are smoking, the groups that form contain smokers and non-smokers. There being so few options for non-smoking bars, the non-smokers feel it would be too demanding to ask everyone to meet at that one non-smoking bar and therefore the smokers always select a smoking bar. The Marginal Bar realizes that nothing significant will change if it becomes the second non-smoking bar. The non-smokers will still feel that there are so few choices of non-smoking bars that it would be unreasonable to insist on going to one of them. The Marginal Bar will therefore not make the change by itself.

Nonetheless, there could be a low-smoking equilibrium where ten of the twenty bars are non-smoking. With half the bars non-smoking, requesting to meet at a non-smoking bar is no more restraining than requesting to meet at a smoking bar. Thus, the non-smokers will speak up.

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[47] If transactions costs were sufficiently low, a group of bars might contract with each other to jointly switch to non-smoking. But various transactions costs might block this solution. First, there are costs of coordinating among the different owners and each owner might seek to avoid these costs by waiting for another owner to take the lead in coordinating them. Second, the bar owners might themselves lack the information to know the location of the other equilibrium, that is, how many bars need to jointly switch to achieve the joint gains. Third, there could be concerns about antitrust liability from competitors agreeing jointly to the terms offered to customers.

There are three ways the low-smoking equilibrium might then be stable. One is that the group bargains over what kind of bar to patronize and the non-smoking bar wins a substantial fraction of the time. Perhaps the group alternates evenly between the smoking and non-smoking bars. We have said nothing up to this point about what proportion of the group is non-smoking. But we might think that if the majority of the group is non-smoking, then it will patronize non-smoking bars most or all of the time. A second possibility is that the group breaks up. Now that there is substantial choice, the difference between smokers and non-smokers is sufficient to cause the work groups to form around that choice. The non-smokers now always patronize non-smoking bars. If we allow even more endogeneity, we arrive at a third possibility: some of the smokers find that the inconvenience of exiting the group or suffering in a non-smoking bar is sufficient to cause them to quit smoking.[48] This point reinforces the first two – increasing the bargaining power of the non-smokers to either spend more time in the non-smoking bar or to stop inviting smokers to join them.

There might be other network effect mechanisms as well, such as the effects of such policies on the labor supply of bartenders and other bar employees. A non-smoking policy is costly for employees who smoke. Most obviously, some non-smoking policies require employees to exit the building to smoke rather than to smoke in a designated room (out of fear that air circulation will then drive away non-smoking customers). Requiring employees to smoke outside imposes costs when the weather is unpleasant or when the nearest smoking spot is next to the garbage bin or in a poorly lit alley. Even if the non-smoking establishment allows smoking employees to smoke inside, they may impose limits on where the smoking may occur, perhaps limited to time in the break room, rather than allowing a waiter or bartender to keep a lit cigarette in an ashtray accessible to the workspace.

Now consider how employees will sort themselves. If we start with all bars allowing smoking, then employee smokers will have no reason to avoid working at bars. By contrast, nonsmoker workers will disproportionately sort themselves into jobs other than bars. The non-smoker who works in his own home need not be exposed to smoke. One who works outside as a gardener, door-to-door salesperson, or sidewalk vendor will not have to worry about intense exposure. One who drives a

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[48] See Hersch, *supra* note 24; Anger, Kvasnicka, & Siedler, *supra* note 24.

cab can usually decide to forbid smoking in the cab. And almost any factory or office building will have less intense buildup of smoke than a bar, pool hall, or dance club. The point is that, when all establishments permit smoking, the non-smokers will not be spread evenly but will be concentrated in those industries with less intense smoke exposure.

Suppose also that the labor supply is "sticky" in the short run because those who are already have a job working in a bar have lower search costs for other bar jobs than those who are currently working in another occupation. That is not to say that the labor market for bar workers is fixed; some people might move from non-bar jobs to bar jobs. But given two workers of equal marginal productivity at serving alcohol, the one already employed in this occupation is more likely to apply for desirable positions in the occupation. This might be true for various reasons, the simplest being information: those working in other occupations are less likely to have the information about the best available bar jobs, so that they are less likely to apply. Another is human capital investments: when all or most bars are smoking, the people who take bar-tending classes (learning to mix drinks) are more likely to be smokers.

Finally, assume that a bar experiences lower wage costs the larger the pool of potential applicants for an offered job. If there are five applicants for every job, instead of two, the employer will either be able to pay a lower wage or to hire a more productive worker.

Given these points, there will be network effects. If almost all bars are smoking, employee selection means that the average bar will have lots of smoking employees and, when there is turnover, will be able to draw on a labor pool that has many smokers (in both cases, compared to the percentage of smokers in the general working population). If all the bars are non-smoking, selection works the opposite way so that the average bar will have relatively more non-smoking employees and job applicants. In either case, the effect in the short run is to raise the labor costs of operating against the industry standard. With all smoking bars, if the Marginal Bar switches to non-smoking, it will not only incur switching costs, it will draw on a smaller pool of potential employees than its competitors, which will raise its labor costs. With all non-smoking bars, if the Marginal Bar switches to smoking, it will incur higher employee costs than its competitors.

In short, it is not difficult to imagine network effects affect the decisions of bar owners regarding smoking policies. The result is multiple

equilibria, with path dependency affecting the equilibrium that actually emerges.

2. Behavioral Mechanisms for Path Dependence in the Number of Smoking Establishments

Now we turn from network externalities to behavioral biases. We consider biases that might affect three different groups: bar owners, employees, and customers.

When a bar owner is considering whether to switch from allowing smoking to prohibiting it (or the reverse), that owner will necessarily weigh the current customers she will lose if she switches against the hypothetical future customers she might gain. However, as noted above, the bar owner will likely suffer from the availability heuristic.[49] The customers that will be lost are psychologically available because they are being current customers—the bar owner sees them and may even know them personally. The customers who might be gained from the switch are not available; by definition, they never (or rarely) set foot in the bar. The availability heuristic is the tendency to overestimate the numbers of things (or people) that are psychologically available and underestimate the numbers of things that are not.[50] So bar owners will likely overestimate the number of customers they will lose from switching and underestimate the number of customers they might gain. As with most biases, changing the status quo would reverse the direction of the bias. If a bar were already non-smoking, current (non-smoking) customers would be more available than potential smoking customers, and bar owners would overestimate the costs of switching to allow smoking.

The same effect might be triggered by risk aversion or loss aversion, which is the tendency to fear losses more than one values gains.[51] Switching from permitting to prohibiting smoking would involve possible gains and losses of customers, and a typical bar owner would likely fear losing current customers more than she would value the prospect of

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[49] *See* Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207, 230 (1973) (describing the availability heuristic).

[50] *Id.* (explaining how the availability heuristic can arise)

[51] Daniel Kahneman, Jack L. Knetsch, and Richard H. Thaler, *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193, 193 (1991) (describing the endowment effect and loss aversion).

gaining additional ones. But once a bar has become non-smoking, the owner would view a switch back to allowing smoking as bringing possible losses to which she is again averse.[52]

Present bias or hyperbolic discounting on the part of a bar owner could equally cause a stable but suboptimal equilibrium to develop. Recall that there are immediate costs in switching from smoking to non-smoking, even if there are eventual net gains. A bar owner might want to put up signs, create an outdoor space for smokers, spend money advertising for new non-smoking customers, and retrain new employees as smoking employees quit in anticipation of the new rule. A large economic literature shows that, when faced with decisions of this structure, with immediate costs and future benefits, many people procrastinate.[53] That is, even though the benefits discounted by their ordinary discount rate (the one they use when comparing the costs or benefits of two future events) exceed the costs, the immediate costs loom larger, as the future was discounted at an inconsistently high rate when compared to an immediate cost. As a result, bar owners keep delaying the costly investment, even though they will not regret the investment if they make it. If an owner is "present biased" in this sense, he or she may for a fail to invest in a profitable switch to non-smoking status, but will not switch back once the investment is made.

Finally, a bar owner might also fall prey to the sunk cost fallacy: the desire not to "waste" resources that have already been spent even if it

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[52] Deborah A. Kermer et al., *Loss Aversion Is an Affective Forecasting Error*, 17 PSYCH. SCI. 649, 652 (2006) (positing a mechanism for loss aversion).

[53] See, e.g., Shane Frederick et al., *Time Discounting and Time Preference: A Critical Review*, 40 J. ECON. LIT. 351 (2002) (reviewing the economic literature on self-control problems); David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q.J. ECON. 443 (1997) (modeling time-inconsistent preferences and imperfect financial self-control technologies); Ted O'Donoghue & Matthew Rabin, *Doing It Now or Later*, 89 AM. ECON. REV. 103 (1999) (modeling time-inconsistent, present-biased preferences, with people who are aware or unaware of their bias). For discussions of how bounded self-control matters to law, see Lee Anne Fennell, *Willpower and Legal Policy*, 5 ANN. REV. LAW & SOC. SCI. 91 (2009) (reviewing the economic literature and its significance for law); Richard H. McAdams, *Present Bias and Criminal Law*, 2011 ILL. LAW REV. 1607 (examining the relevance of present-bias to the structure of criminal law and sanctions); Manuel A. Utset, *Procrastination and the Law*, *in* The THIEF OF TIME: PHILOSOPHICAL ESSAYS ON PROCRASTINATION 253 (Chrisoula Andreou & Mark D. White eds., 2010) (identifying how law can aid or impede the self-control efforts of present-biased individuals).

would be in the individual's interests to do so.[54] For instance, a bar owner might have made smoking-specific investments, such as installing a high-quality ventilation system or purchasing ashtrays or a cigarette vending machine. Going smoke-free would mean wasting these resources. This is yet another mechanism by which a bar owner can become tied to the status quo long past the point at which it ceases to be to her advantage.

Employees might also suffer from relevant cognitive biases. Perhaps most important is the endowment effect, which is the human tendency to overvalue the things (including rights and privileges) that one already possesses.[55]   When an employee can smoke at work, the entitlement to smoke seems more valuable than it would if the employee were not allowed to smoke at work. This will cause smokers to care a great deal if their workplaces transition from smoking to smoke-free—more than they would care about transitions in the opposite direction, in which non-smoking workplaces (where workers are not already "endowed" with the right to smoke) begin to allow smoking. The reverse is also true. Non-smokers would place a higher value on holding onto a smoke-free workplace than transitioning from a smoking workplace to a smoke-free one. This means that workers will fight harder to hold onto whatever arrangement is currently in place. Employers who switch from smoking to non-smoking or the reverse will incur significant costs, either losing employees or being forced to compensate them for the change. The result will be to entrench the status quo.

Lastly, customers might also be subject to cognitive biases that would serve to entrench a suboptimal equilibrium. Consider first the problem of affective forecasting. Humans have notorious difficulty at predicting how they much they will enjoy a given experience or circumstance.[56] Imagine then that we are in a high-smoking equilibrium,

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[54] *See* Susan Block-Lieb & Edward J. Janger, *The Myth of the Rational Borrower: Rationality, Behavioralism, and the Misguided "Reform" of Bankruptcy Law*, 84 TEX. L. REV. 1481, 1534 (2006) ("Cognitive research also finds that individuals are reluctant to walk away from sunk costs, irrationally ignoring the marginal costs and benefits of additional action.").

[55] *See* Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias* , 5 J. ECON. PERSP. 193, 197-99 (1991) (describing and identifying the endowment effect).

[56] *See* Timothy D. Wilson & Daniel T. Gilbert, *Affective Forecasting: Knowing What to Want*, 14 CURRENT DIRECTIONS PSYCHOL. SCI. 131, 131 (2005) ("Research on affective forecasting has shown that people routinely mispredict how much pleasure or displeasure future events will bring and, as a result, sometimes work to bring about events that do not

with nearly 100% of bars permitting smoking. Non-smokers might not realize how much they would enjoy going to smoke-free bars. As a result, they might not agitate for non-smoking bars either publicly—by asking bar owners to ban smoking—or privately, by urging their friends to join them at the few non-smoking bars. Bar owners will thus perceive the benefits of switching to be lower than they actually are.

Similarly, humans have a remarkable capacity to adapt to new circumstances and conditions, even highly unpleasant ones. Exposing an individual to new circumstances might initially make her quite unhappy, but over time new she might learn to accept or even prefer those circumstances. Psychologists describe the process as "hedonic adaptation."[57] The power of these psychological mechanisms to produce multiple equilibria should be clear. In a high-smoking equilibrium, non-smoking customers and employees could adapt to the presence of smoke. This would dull or eliminate their desire to seek out non-smoking alternatives, which would in turn diminish the incentives of business owners to prohibit smoking. And the reverse is possible as well—smokers in a low-smoking equilibrium might adapt to being unable to smoke.[58]

Adaptation could then serve to entrench whatever status quo is generated by a temporary ban as well. If a jurisdiction enacts a temporary smoking ban, non-smokers will have the opportunity to experience non-smoking bars and might realize how much nicer it is to spend time in a non-smoking establishment. Their adaptation to smokiness might dissipate. The costs of accompanying their smoking friends to a smoking bar would seem higher. Importantly, people often do not remember how

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maximize their happiness."); David A. Schkade & Daniel Kahneman, *Does Living in California Make People Happy? A Focusing Illusion in Judgments of Life Satisfaction*, 9 PSYCHOL. SCI. 340, 344–45 (1998) (discussing affective forecasting errors).

[57] For an excellent summary of the initial research on hedonic adaptation, see Shane Frederick & George Loewenstein, *Hedonic Adaptation*, *in* WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY (Daniel Kahneman et al. eds., 1999).

[58] We hasten to add that if an equilibrium becomes entrenched because of hedonic adaptation, this does not necessarily mean that the equilibrium is suboptimal. Adaptation may represent a real welfare gain. *See* John Bronsteen, Christopher Buccafusco, and Jonathan S. Masur, *Welfare as Happiness*, 98 GEO. L.J. 1583 (2010). Accordingly, a low-smoking equilibrium to which smokers have adapted may be no worse off for the smokers than a high-smoking equilibrium.

quickly they were able to adapt in the past.[59] Thus, the non-smokers might not realize that they will again adapt to a smoke-filled environment. Once the temporary ban lapses, these non-smokers might continue to prefer bars that remain non-smoking, creating additional business for those bars and incentives for them to continue to prohibit smoking. This could lead to a new low-smoking equilibrium.

The final mechanism is the simplest: the ban reduces the number of smokers. Over the long term, smoking rates in the United States are declining. Smoking bans may accelerate that trend because the inconvenience of not being able to smoke in a bar (or other establishment) may cause individuals to quit smoking (or to quit more quickly). Indeed, some smokers apparently support bans for this very reason, as a self-commitment device for quitting (which makes sense if smokers are subject to present-bias and otherwise procrastinate quitting). So if the ban lowers the number of smokers, it may change the profit margins for being a non-smoking establishment in a way that supports an equilibrium with more such establishments after the ban lapses.

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In sum, there are a great many reasons to expect multiple equilibria in the proportion of establishments permitting smoking. Once they exist, the conventional libertarian argument against smoking bans no longer exists and there are plausible reasons to prefer a low-smoking over a high-smoking equilibrium. Yet this rationale supports only a temporary law, which, given uncertainty, has certain informational advantages over a permanent law. We now turn to a generalization of this analysis.

II. THE ADVANTAGES (AND DISADVANTAGES) OF TEMPORARY LAW

Now we generalize the smoking policy example. Temporary law is a useful mechanism for discovering and unsettling suboptimal equilibria. Temporary law provides a number of advantages over the alternative of permanent law, which we now address: (1) possible efficiency gains based on superior information; (2) greater accommodation of the demands for

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[59] Timothy D. Wilson, et al, *Focalism: A Source of Durability Bias in Affective Forecasting*, 78 J. PERSONALITY & SOC. PSYCH. 821, 833 (2000) (describing adaptation and the human response to it).

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liberty; and (3) a new space for political compromise of competing claims. We also consider the potential costs associated with temporary law.

A.   Advantages

1. Efficiency (and Information)

The main advantage of temporary law is the discovery of a more efficient equilibrium, if there is one. After the law expires, if the behavioral equilibrium remains the same or substantially different than the status quo ante, we have confirmed the existence of multiple equilibria. This is the process we have termed equilibrium verification and location. Better information allows efficiency gains when the new equilibrium is welfare-enhancing. Alternatively, after the law expires, if the behavior reverts to the original equilibrium, the legislative experiment reveals the case against path dependence and any normative claim predicated on path dependence.

Information. At the most basic level, any type of law can be information-revealing.[60] Before the law is enacted, there is uncertainty as to what the effects of such a law would be.[61] After the law has been passed, policymakers can observe the new state of the world and determine the law's effects.[62] In theory, after legalizing prostitution or the sale of heroin, one can observe whether it causes the social ills associated with those

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[60] *See* Listokin, *supra* note 14, at 483 n.1(describing the information-revealing process of policymaking as "learning").

[61] *Id.* ("Before implementing a policy, policymakers may have only a dim idea about the effects of the policy.").

[62] *Id.* ("After implementing the policy and observing its effects, policymakers will often have a much better sense of the outcomes associated with the policy in current and future periods.").

activities to rise or fall.[63] One can observe whether a minimum wage increases unemployment, as some theory predicts.[64]

What is unique about temporary law, however, is the information revealed not (or not only) by the laws enactment – its consequences when the law is in effect – but the information revealed after the law lapses. Policymakers and scholars generally assume that there is only one possible equilibrium for each legal rule (with a given level of enforcement). When this is the case, the expiration of a temporary law tends to return behavior to the status quo ante, so that the expiration itself reveals no useful information. Of course, Listokin directs our attention to the fact that some of the law's effects are irreversible, as the legalization of heroin might create a new glut of addicts who do not immediately disappear when the prohibition on heroin is reinstated.[65] But even here, the purpose of repeal is to stop the ill effects caused by the new law, which means to respond to information produced by the enactment of the new law, not its expiration.

Yet things are different when there are multiple equilibria. If this is the case, temporary law can allow the policymaker to observe the different equilibria that applies to a single legal regime. If the legal rule allows smoking in bars, there may be one equilibrium in which 100% of bars allow smoking and another equilibrium in which only 50% of bars allow

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[63] *See* Catharine A. MacKinnon, *Trafficking, Prostitution, and Inequality*, 46 HARV. C.R.-C.L. L. REV. 271 (2011) (expounding on the social ills associated with prostitution); *see also* Catharine A. MacKinnon, *Prostitution and Civil Rights*, 1 MICH. J. GENDER & L. 13 (1993) ("Women in prostitution are denied every imaginable civil right in every imaginable and unimaginable way . . . ."). *See generally* John Kaplan, *A Primer on Heroin*, 27 STAN. L. REV. 801, 806-13 (1975) (describing heroin use and its effects).

[64] Debra Burke et. al., *Minimum Wage and Unemployment Rates: A Study of Contiguous Counties*, 46 GONZ. L. REV. 661, 675-76 (2011) (explaining the general theory that the minimum wage may adversely affect employment); *see also* David Neumark & William Wascher, *Minimum Wages, Labor Market Institutions, and Youth Employment: A Cross-National Analysis*, 57 INDUS. & LAB. REL. REV. 223 (2004) (providing evidence that the minimum wage reduces employment rates among the youth population).

[65] Listokin, *supra* note 14. *Compare* William Rhodes et. al., *Illicit Drugs: Price Elasticity of Demand and Supply* 12-25, 89-92(Abt. Associates Inc., 2000) (collecting studies on price elasticity of demand for illegal drugs; finding weak negative price elasticity for heroin), *and* Michael Grossman et. al., *The Demand for Cocaine by Young Adults: A Rational Addiction Approach* 1, 3-5 (NBER Working Paper Ser., Working Paper 5713, 1996) (collecting studies reporting negative price elasticity of demand for illegal drugs, including heroin), *with* Mark A. Deininger, *The Economics of Heroin: Key to Optimizing the Legal Response*, 10 GA. L. REV. 565, 586 ("Because the addict is willing to pay higher and higher prices for heroin, heroin enterprise remains profitable despite increased criminalization.").

smoking. If the choice of equilibrium is path dependent, the equilibrium that develops in response to a particular rule might depend not only upon that legal rule, but in addition on the rule *that preceded it*. The unique information temporary law reveals is what behavior results from the same regulation with different initial states.

Temporary law could effectively reveal situations of multiple equilibria caused by any of the mechanisms we described in Part I. Consider first the rational choice mechanisms we describe. If an equilibrium exists purely because of switching costs, temporary law will reveal a different equilibrium by forcing individuals to bear those switching costs (though as we noted, if the costs of switching exceed the benefits, it is inefficient to switch). This is similarly true if the equilibrium exists because of network effects. If, for instance, it is unprofitable for a single bar to switch from smoking to non-smoking while other bars continue to allow smoking, it may nonetheless be profitable for the bar to remain non-smoking if all the other bars around it are similarly made non-smoking by law.[66]

The same conclusion also applies to all of the behavioral mechanisms we described. If an equilibrium holds because existing customers are more available and salient than potential future customers, temporarily changing the legal rule will bring these potential (now actual) customers to the fore. They will become at least as salient, if not more salient, than the customers who existed under the old legal regime. If the equilibrium is being driven by loss aversion or risk aversion, temporary law will simply force individuals and firms to accept the possibility of loss or risk. They will then learn whether their aversion was justified. Temporary law will overcome the sunk cost fallacy in similar fashion, forcing individuals to make changes that the sunk cost fallacy might have deterred. Temporary law also alters the status quo, disrupting biases that depend on that status quo. If an equilibrium has become entrenched because of the endowment effect, temporary law will adjust the entitlement to which individuals (both consumers and producers) have become accustomed. Finally, if a particular equilibrium is due to adaptation or affective forecasting errors, temporary law will disrupt these mechanisms as well. Individuals who have adapted to one state of the world will find

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[66] *Cf.* John H. Miller and Scott E. Page, COMPLEX ADAPTIVE SYSTEMS: AN INTRODUCTION TO COMPUTATIONAL MODELS OF SOCIAL LIFE 17-20 (2007) (explaining how the choice of a new status quo can reorganize individuals who are engaging in sorting).

that status quo disrupted and be forced to adapt (or not) to another. And individuals who feared moving from the status quo because they incorrectly forecast that they will be less well off under a different set of rules will be forced to experience that new set of rules. They will then learn whether their forecast was correct and can adjust their beliefs if they were mistaken.

We hasten to add that temporary law will not allow us to distinguish between these network and behavioral mechanisms. If a temporary smoking ban causes the vast majority of bars in a jurisdiction to continue to prohibit smoking even after the ban is lifted, we cannot know which of the equilibrium-entrenching mechanisms we describe was at work. It is possible that many of them were operating in combination. This information would certainly be valuable were it available, but it is not essential before we can draw policy conclusions. If temporary law creates a new (post-repeal) equilibrium that differs greatly from the status quo ante, that indicates that the prior equilibrium was due to forces other than pure market supply and demand. The case against regulation is thus weakened.[67]

Before we proceed, it is important to distinguish the informational benefits of temporary law from those of federalism. Federalism is often described as information-producing because it allows a policymaker to test one or more policies in smaller jurisdictions.[68] State or local "laboratories" allow experiments at lower risks than does national legislation.[69] Temporary law also constrains risk, but by parceling the new regulation across a sub-unit of time rather than a sub-unit of space. Yet these two

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[67] *See, e.g.*, Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism is Not an Oxymoron* 3 (AEI-Brookings Joint Ctr. for Regulatory Studies, Working Paper No. 03-02, 2003) ("[T]he design features of both legal and organizational rules have surprisingly powerful influences on the choices made by those affected.").

[68] Ann Althouse, *Vanguard States, Laggard States: Federalism and Constitutional Rights*, 152 U. PA. L. REV. 1745, 1745-52 (2004) ("The most appealing reason for courts . . . to preserve the role of autonomous states is the prediction that states will . . . experiment with new policies . . . and produc[e] evidence about the effectiveness and workability of new programs, to be followed . . . by the rest of the states, who can look upon one state's experiment and learn.").

[69] *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) ("It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country."); *see also* Yair Listokin, *Learning Through Policy Variation*, 118 YALE L.J. 480, 514 (2008) (describing how jurisdictions can observe others' policy outcomes while avoiding the negative effects of failure).

modes of diversifying regulatory risks are not substitutes. Federalism is not a solution to problems of multiple equilibria. Local experiments with *permanent* smoking bans do not reveal whether there was a low-smoking equilibrium consistent with the rule permitting smoking. But federalism and temporary law may be complementary. If a temporary law produces a new equilibrium, it will always be possible that some exogenous factor—for instance, the revelation of new information about the dangers of smoking—were responsible, and the temporary law had little to do with it.

One way of disambiguating these possible effects is to experiment (via Federalism) with temporary law in some jurisdictions but not others. The proof of multiple equilibria in one jurisdiction may make it more plausible (but not certain) that multiple equilibria exist in another jurisdiction and that temporary law can be used to arrive at a different equilibrium. By contrast, if the expiration of temporary law in one jurisdiction results in restoration of the original equilibrium, the proof of a single equilibrium in one jurisdiction may make it less plausible (but not rule out with certainty) the presence of multiple equilibria in another jurisdiction, decreasing the case for even temporary regulation.

Efficiency. Given more information, the efficiency advantage of a temporary law is error correction. The rationale for the ban—multiple equilibria—may be based on an error. If the law is effectively enforced, a powerful type of evidence is the re-emergence of the original equilibrium after the law expires. Temporary law thus allows error correction of poor regulations, providing efficiency advantages.

If expiration of the law does not cause behavior to revert to the old equilibrium, the move to the newly discovered equilibrium may be an efficiency gain. As noted above, whether it is a gain depends on some independent analysis, but the existence of the new equilibrium undermines the structural argument for the efficiency of the original equilibrium.[70]

How might we determine which equilibrium, low-smoking or high-smoking, is superior? Some alternative mechanism, such as a version of cost-benefit analysis, will be necessary.[71] It is beyond the scope of this paper to lay out an approach in full detail, but we will offer some prudential guidance. First, we could measure the net revenues of bars and

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[70] *See supra* note 2-5 and accompanying text.

[71] *See generally* John Bronsteen, Christopher Buccafusco, & Jonathan Masur, *Well-Being Analysis vs. Cost-Benefit Analysis*, DUKE L.J. (forthcoming 2013).

restaurants at the old and new equilibria. If net revenues have increased after the switch to the new equilibrium, this is evidence that both bar owners and customers prefer the new equilibrium. Another means of getting at the same question would be to measure the number of person-hours spent in bars at the new and old equilibria. If bar customers were, collectively, spending more time in bars at the new equilibrium, or if more people were patronizing bars at that equilibrium, that too would be evidence that the switch to the new equilibrium has increased welfare by providing greater opportunities for bar-goers.

These may be difficult quantities to measure, but there is also a potential shortcut. The goal in searching out a new equilibrium is to provide a greater range of options to customers—that is, to better align supply with demand. If customers have more options, it is more likely that they will find a bar that meets their preferences and will patronize it. Generally speaking, the more extreme the equilibrium, the fewer the options available to customers. If 98% of all bars permit smoking, very few customers will have a non-smoking bar available to them. If, on the other hand, "only" 55% of bars allow smoking, many more potential patrons will have both a smoking and a non-smoking bar in their vicinity. The additional options will likely increase bar patronage. Accordingly, we can tentatively conclude that an equilibrium in which the proportion of smoking bars more closely matches the proportion of smokers in the general population will likely be superior to one in which those proportions differ more greatly. Or, more generally, the more proportionately available the various options, the better.

This conclusion is only tentative because it might be that an activity such as smoking is highly correlated with bar patronage. If this is the case, then an equilibrium closer to the proportion of smokers in the general population might leave the smoking bars overly crowded with patrons, and some smokers will not have bars they can patronize because of capacity constraints. This is an empirical question, and one that depends upon whether bars have excess unused capacity. But the idea that a more proportional equilibrium is likely to be superior is a useful rule of thumb, even if it is only a rule of thumb.

Thus, temporary law is efficient when it appears that the status quo is trapped in a suboptimal equilibrium (a superior equilibrium exists), there are informational barriers to directly mandating the better equilibrium (including uncertainty about whether it actually exists), and

the costs of switching between equilibrium are low compared to the efficiency gains.[72] Suppose that a superior equilibrium exists with probability p. Let B be the efficiency gain from this superior equilibrium compared with the status quo. Let SC_1 be the cost to individuals of switching from the status quo to complying with a temporary law (for example, a complete smoking ban). Let SC_0 be the cost to individuals of switching from the temporary legal regime back to the status quo, and SC_2 the cost of switching from the temporary legal regime to a new equilibrium (if one exists). Temporary law is justified if (and only if):

$$pB > SC_1 + pSC_2 + (1 - p)SC_0$$

It is worth noting that a number of these terms are related. As B increases, SC_2 will decrease. The reason is that the more that the new equilibrium diverges from the old equilibrium, and the more that it resembles the temporary legal regime, the greater the efficiency benefits of switching to it and the smaller the number of individuals who will have to switch from the temporary legal regime. Similarly, as SC_1 increases, B increases as well. That is, if the temporary regime is very far from the current equilibrium, switching costs will be higher but the potential benefits from locating a new equilibrium could be higher as well.

Of course, we hasten to add that if we do not know where the second equilibrium is located, or even whether that second equilibrium exists, we cannot know B (the efficiency gain of reaching that equilibrium) to any degree of certainty. This is one important sense in which the advantages of temporary law arise only in the absence of first-best information. The value of generating equilibrium verification and location can only be obtained at the risk of B being small, and the game not worth the candle. Accordingly, policymakers should only undertake experiments with temporary law when they have some intuitive or empirical reason to believe that p and B are relatively large and SC_{0-2} relatively small.

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[72] More precisely, we have to consider both the costs of the initial switch to the new equilibrium the temporary law imposes and the probability of incurring the additional switching costs, and their magnitude, if the original equilibrium re-emerges after the law expires.

2. Liberty

Liberal theory assumes as a default position that government should not regulate in the absence of market failure.[73] We have hypothesized that there may be situations in which market failure generates a socially suboptimal equilibrium when other, more efficient equilibria are possible. As we have explained, one way to move to a more efficient equilibrium is to simply impose a permanent regulation. But if we are correct that the choice of market equilibrium is path dependent, then permanent regulation might not be necessary. Policymakers could accomplish the same (or better) ends by using a temporary law that simply alters the legal path.

If temporality became a standard regulatory option, then those who advocated a permanent ban would have to offer a rationale for restricting liberty permanently. Temporary law also works against the general ratcheting effect of increasing government regulation permeating ever more aspects of human life.[74] Because the law will expire on its own, it does not require coordinated action on the part of the political branches to return to the unregulated status quo. Those who favor liberty, either as an instrumental or intrinsic good, should thus prefer temporary law to permanent law. Repealing the regulation allows the idiosyncratic to revert to their preferred behavior. Some or even most smokers may adjust to no-smoking bars, but those who do not can still find a bar to indulge their preferences.

Nonetheless, we can certainly understand that libertarians might perceive the idea of temporary law as a threat to liberty precisely because it appears to lower the stakes. First, there might be some cases where the politics of the situation would not support a permanent regulation, but will support a temporary regulation (as discussed in the next section). Second, there is some possibility that the supporters of the regulation will keep

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[73] Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909, 911 (1994) ("The problem of market failure provides the basic public-interest justification for the displacement of private ordering by government intervention.").

[74] *See* Marci A. Hamilton, *The Belief/Conduct Paradigm in the Supreme Court's Free-Exercise Jurisprudence: A Theological Account of the Failure to Protect Religious Conduct*, 54 OHIO ST. L.J. 713, 715 (1993) (describing this ratchet effect).

gathering support to extend it, transforming a temporary regulation into a de facto permanent one.[75]

We don't entirely reject these concerns, but we note a few responses. First, the logic we are proposing does not support the continuous renewal of temporary regulations. The de facto permanency of regulations undermines the credibility of the claim that the problem being addressed is path dependency. Second, the implication of our theory is not only the desirability of certain temporary regulations in the future, but also the fact that some past regulations that were permanent should have been temporary. Thus, the argument for temporary regulations supports the repeal of some existing regulations. Most obviously, our argument implies the desirability of eventually repealing many of the public smoking bans. In the final section, we discuss seat belt laws as another possible example.

3. Politics

The final advantage is political: temporary regulation creates new policy space for political bargains. Because the opponents of regulation will understand that the status quo ante will return after the regulatory period ends, they may be less resistant to explicitly temporary rules. Also, the optimism bias works in favor of this compromise.[76] Those favoring the regulation can optimistically believe in their path dependency arguments, therefore predicting that they will maintain a new equilibrium after the law is repealed. Those opposed to the regulation can optimistically believe that the status quo ante is the only equilibrium without a regulation, so it will return once the temporary law expires. With more space for political bargains, the stakes are lower, so there will be fewer resources wastefully invested in the political competition.[77]

We note that temporary clauses are common in national and subnational constitutions, where they are particularly useful as solutions to

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[75] *See* Emily Berman, *The Paradox of Counterterrorism Sunset Provisions* (unpublished manuscript 2012).

[76] *See* Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1536-37 (1998) (describing the phenomenon of optimism bias).

[77] *Cf.* John Bronsteen, Christopher Buccafusco, and Jonathan S. Masur, *Hedonic Adaptation and the Settlement of Civil Lawsuits*, 108 COLUM. L. REV. 1516, 1519-25 (2008) (describing a bargaining model in which the addition of bargaining space increases the likelihood of an agreement).

bargaining problems. Many constitutional negotiations have the character of bilateral monopoly, in which two parties have no alternative negotiating partners but also have an incentive to hold out for a better deal. Temporary provisions can facilitate needed institutional reforms or allow further information to be revealed so that a bargain can be concluded at a later date. Oftentimes the "temporary" legislation is actually a rule preventing legislators from overturning a default clause for a limited period of time. This is not precisely temporary legislation as we have defined it. But the effect can similarly be one of revealing information and allowing experiments.

B.   Costs

Temporary law also has some important disadvantages relative to permanent law. These include duplicative switching costs, incurred when a jurisdiction returns to the status quo ante, and lower quality law.

1. Duplicative Switching Costs

We anticipate the use of temporary law in situations in which we are not confident that the status quo ante represents the only or best equilibrium. In some instances, however, the decision to use temporary law may be wrong. In such an instance, people may have to switch back to the earlier equilibrium at some cost.

Consider the smoking ban example. When the ban on smoking took effect, bars might have hired waitstaff who preferred to work in a smoke-free environment. When the temporary smoking ban lapses, those employees are more likely to leave for other jobs, forcing the bar owners to find and hire new employees. Of course, the very fact that the ban is temporary may lead some bar owners to hedge their bets and refrain from hiring employees who are more likely to quit in the future. Similarly, some smoke-averse employees might avoid taking jobs in bars. But we acknowledge that there will likely be some fixed costs from switching that have to be born twice. Similarly, bars would not likely have had smoking-related signage when all bars always allowed smoking. During the period of regulation, bar owners may have to purchase signage that says "No smoking allowed;" if they choose to allow smoking thereafter, they will

need new signs that indicate that smoking is allowed. These are unrecoverable switching costs that result from the temporary law.

2. Lower Quality Law

When a law is meant to be temporary, legislators might not invest in writing the highest-quality law.[78] It might be overbroad or underinclusive in some respect, or it might target the wrong conduct.[79] For this reason, temporary law might work best when the temporary rule is relatively simple, like a smoking ban, and not as well when the rule requires complex legislative drafting.

Similarly, the law might not be enforced as rigorously as a permanent law because the officers charged with its enforcement know that it is only temporary. If under-enforcement dampens the law's impact significantly, then the informational value of the temporary law could be eliminated. If no private parties are forced to change their conduct because the temporary law is either unenforced or easily evaded, then the status quo remains uninterrupted. It is important, then, that the law be designed and enforced such that there is at least reasonable compliance. Indeed, depending on the context, one might imagine creating a compliance trigger for the law's expiration rather than a simple calendar date. For example, one might say that the will expire after eighteen months of a measurably high level of compliance. This would work if compliance were reasonably easy to measure, but not otherwise. For example, indoor smoking compliance can be checked by devices that measure the chemical traces of tobacco smoke in the ambient air. Yet temporary law will not be a good mechanisms for discovering multiple equilibrium if there is a significant chance of non-compliance and no easy way to agree on what the compliance level is. Relatedly, a poorly designed temporary law might fail to locate alternative equilibria, frustrating the objective of the enterprise and creating duplicative switching costs without any gains. The behavioral mechanisms that entrench the status quo and can thus create multiple equilibria do not reverse themselves instantaneously. For instance, if a bar

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[78] Richard E. Myers II, *Responding to the Time-Based Failures of the Criminal Law Through A Criminal Sunset Amendment*, 49 B.C. L. REV. 1327, 1371 (2008) ("[L]egislatures will take their job less seriously because they know that the legislation is only temporary.").

[79] *See* Adam Winkler, *Free Speech Federalism*, 108 MICH. L. REV. 153, 160 (2009) (offering a definition of high-quality and low-quality law).

has allowed smoking for twenty years and then is forced by a temporary law to ban smoking, the new non-smoking customers who show up on the first non-smoking day do not immediately become "available." They are not yet the bar's regulars, and will not be for some time. Similarly, bar patrons and employees will not all feel as though they "own" an entitlement to be free of smoke, for purposes of the endowment effect, on the first day that such a law springs into existence. Adaptation to new conditions also takes time, in some cases approximately two years.[80]

Accordingly, if a temporary law expires after too short a period, it may not succeed in counteracting the behavioral tendencies that had entrenched the previous status quo. Even if an alternative equilibrium exists, the law may not succeed in discovering it. Private actors will have undergone switching costs for no reason.

On the other hand, a temporary law with an unnecessarily long duration can impose needless costs as well. The longer the temporary law, the longer that private parties are stuck in an inefficient governmentally-mandated situation (for instance, a complete smoking ban). If a temporary law lasting two years would be sufficient to locate a new low-smoking equilibrium, and a city council passes a ten-year ban, those additional eight years were unnecessary and costly. This is true whether or not a low-smoking equilibrium exists. Regardless of whether a new equilibrium exists or whether private parties will return to the old equilibrium, the extra time spent under a complete prohibition generates social costs.

* * *

Temporary law provides a number of advantages over permanent law. For our purposes, the most important of these advantages is the ability to expose path-dependent equilibria and reveal situations in which multiple alternative equilibria might exist. It is for this reason that we believe temporary law offers the most direct and appropriate response to the multiple-equilibria problems we described above.

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[80] *See* Bronsteen et al., *Hedonic Adaptation*, *supra* note 77.

III.   A TEMPORARY SMOKING BAN: THE CASE OF CHAMPAIGN

We know of no smoking ban that was explicitly designed as temporary. However, we have studied one jurisdiction which unintentionally adopted a temporary ban, in that it enacted and later repealed a ban on smoking in bars. This section describes the ban in some detail.

Champaign (population 81,055) and Urbana (population 41,250) are twin cities that are host to the University of Illinois, the flagship public university of the state.[81] The two cities are the largest in mostly rural Champaign County, and many local residents believe that they have different characters, with Urbana being more liberal and willing to regulate business.[82] The cities have different municipal governments, but share certain governmental functions through special districts, such as a Mass Transit District and a Public Health District.

Like many municipalities around the country, Champaign and its neighboring city of Urbana were subject to pressure from anti-smoking groups, as well as resistance from bar owners and libertarians who sought to retain smoking.[83] In the late spring of 2006, Champaign and Urbana both passed smoking bans, effective January 2007.[84] While Urbana began taking steps to implement the ban, however, political controversy continued in Champaign. In reaction to the Champaign ban, candidates running for at-large seats in the City Council cited the smoking ban—either their support

[81] Population figures are from the 2010 U.S. Census. *Champaign County Statistical Abstract 2012* at 5, available at http://www.ccrpc.org/dev/2012stats/SA2011_050712.pdf [last visited Feb. 1, 2013] . A third contiguous city, the village of Savory, reported 7280 residents in a special census in 2010.

[82] See e.g. *Champaign-Urbana,* available at http://wikitravel.org/en/Champaign-Urbana [last visited Feb. 1, 2013] ("Urbana is seen as the more politically liberal and pastoral of the two, and Champaign is seen as having more of a big-city feel.")

[83] The ban proponents were known as the C-U Smokefree Alliance; the opponents were C-U Puff (People United For Freedom) formed to counter the smoking ban and debunk claims of a link between second hand smoke and cancer rates. See Mike Monson, *CU Smokefree Alliance Turns its Attention to Urbana*, The News-Gazette (Nov. 8, 2005), http://www.news-gazette.com/news/politics-and-government/2005-11-08/cu-smokefree-alliance-turns-its-attention-urbana.html?nomobile=true.

[84] Greg Kline, *Urbana Council Votes in Favor of Preliminary Smoking Ban*, The News-Gazette (June 6, 2006), http://www.news-gazette.com/news/health/miscellaneous/2006-06-06/urbana-council-votes-favor-preliminary-smoking-ban.html [last visited Feb. 1, 2013].

or their opposition—as a motivation for entering politics.[85] One argued that the ban was part of an attack on property rights.[86] The ban also led to a challenge to two-term mayor Jerry Schweighart of Champaign, who had run unopposed in the previous election. The challenger cited the smoking ban as a reason for his candidacy.[87]

In City Council elections held in 2006, ban opponents supported a slate of candidates that promised to repeal the ban, and these candidates won handily. Ban proponents expressed disappointment but hoped that a statewide ban under discussion would pre-empt the issue. On May 1, 2007, the Illinois House of Representatives passed a smoking ban that would take effect January 1, 2008, but it required the signature of the Governor.[88] The proposed state ban was stricter than the local ordinances as it banned smoking in all workplaces.

The same day, Champaign Mayor Schweighart announced that he would nevertheless seek an immediate repeal of the smoking ban for bars.[89] At the next City Council meeting on May 15, the repeal passed, effective immediately.[90] It affected only bars, so restaurants remained smoke-free. Champaign thus became the first jurisdiction in the United States to repeal

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[85] Mike Monson, *15 Candidates Will Vie for Council Seat*. The News-Gazette (Aug. 2, 2006), http://www.news-gazette.com/news/politics-and-government/2006-08-02/15-candidates-will-vie-council-seat.html [last visited Feb. 1, 2013].

[86] Mike Monson, *Primary to be held for At-Large City Council Candidates*, (Dec. 16, 2006), http://www.news-gazette.com/news/politics-and-government/2006-12-16/primary-be-held-large-city-council-candidates.html [last visited Feb. 1, 2013].

[87] Mike Monson, *Political Newcomer Joins Race for Champaign Mayor*, The News-Gazette (Dec. 19, 2006) http://www.news-gazette.com/news/politics-and-government/2006-12-19/political-newcomer-joins-race-champaign-mayor.html?nomobile=true.

[88] The bill was not signed into law until June 2007. See *Illinois Governor Signs Smoking Ban* (July 24, 2007), http://commonlaw.findlaw.com/2007/07/illinois-govern.html [last visited Feb. 1, 2013]. The Champaign City Council thus acted in a situation of some legal uncertainty.

[89] Mike Monson, *Champaign Mayor to Seek Repeal of Smoking Ban*, May 2, 2007, available at http://www.news-gazette.com/news/politics-and-government/2007-05-02/champaign-mayor-seek-smoking-ban-repeal-may-15.html [last accessed February 1, 2013].

[90] Mike Monson, *Champaign Repeals Three-month Old Smoking Ban on Bar, Club Smoking*, May 16, 2007, available at http://www.news-gazette.com/news/politics-and-government/2007-05-16/champaign-repeals-3-month-old-ban-bar-club-smoking.html [last accessed February 1, 2013].

a smoking ban, and provides an example of a temporary smoking ban.[91] Figure 3 below lays out the sequence of events.

Figure 3: Timeline of Champaign-Urbana Smoking Ban

Date	Champaign	Urbana
May 2006	*Adopts smoking ban*	
June 2006		*Adopts smoking ban*
January 2007	Ban takes effect Jan. 31	Ban takes effect Jan. 1
	State Senate introduces Smoke Free Illinois Act	
March 2007	State Senate adopts Smoke Free Illinois Act[92]	
May 2007	State House adopts Smoke Free Illinois Act	
	Repeals smoking ban	Ban remains in effect
July 2007	Governor Blagojevich signs statewide ban	
January 2008	State ban takes effect	

Governor Blagojevich signed the statewide ban in July.[93] Note that because of the subsequent statewide ban, the Champaign *repeal* was also

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[91] Cf. AFP, *Geneva smoking ban returns after one-year break,* available at http://www.google.com/hostednews/afp/article/ALeqM5gEmjS2OSGhD-pG58Hke6nwqmSPZw [last accessed January 30, 2013] (describing smoking ban in Geneva Switzerland that was overturned by court); see also *Norcross Repeals City Wide Smoking Ban,* July 3, 2012, available at http://atlanta.cbslocal.com/2012/07/03/norcross-repeals-city-wide-smoking-ban/ [last accessed June 4, 2013] (reporting repeal of ban in Norcross, Georgia after several months in force); *No to Nanny: Kentucky County Repeals Indoor Smoking Ban,* available at http://www.theblaze.com/stories/2011/02/17/no-to-nanny-kentucky-county-repeals-indoor-smoking-ban/ [last accessed June 4, 2013] (describing repeal in Campbell County, Kentucky); *Johnson County Repeals Smoking Ban,* available at http://indianapublicmedia.org/news/johnson-county-repeals-smoking-ban-41710/ [last accessed June 4, 2013] (repeal by Johnson County, Indiana of ban stricter than the statewide ban).

[92] *See* http://votesmart.org/bill/votes/12788#.UbaSyncudj8.

temporary in character, lasting only 7.5 months. While it was uncertain at the time of the repeal whether the governor would in fact sign the state ban, bar owners who had undergone switching costs to comply with the ban (discarding ashtrays, disabling ventilation systems) would have had to consider the likelihood of a state ban coming into effect when evaluating whether to absorb the costs of switching back to smoking. In the aftermath of the repeal, 30 of 50 bars that we observed returned to smoking.[94]

While some of the bar owners that did not return to allowing smoking noted that they had learned about the benefits of non-smoking from the ban, they also cited the imminent statewide ban as a reason not to switch.[95] Accordingly, the subsequent statewide ban presents a potential confounding factor. Nonetheless, we present our findings regarding smoking and compliance levels because we believe they shed at least some light on the effects of temporary law in the presence of multiple equilibria.

We sent observers to monitor the level of smoking and rates of patronage before and after the smoking ban took effect. For each bar, we had researchers pay at least three visits at different times of day during the week before and after the ban took effect (January 1, 2007 in Urbana; January 31, 2007 in Champaign). Our observers were instructed to note the total number of patrons in the bar over the course of an hour, and the number who smoked during any point in their visit. Bar staff were excluded from the analysis.

Our initial research concern was to evaluate compliance with the ban. We found overwhelming compliance with the law, despite a very weak enforcement structure. (The official enforcement policy requires repeated warnings, and both police and the public health district had expressed reluctance to imposing even the minimal punitive fines available

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[93] Press Release, *Gov. Blagojevich signs legislation making Illinois smoke-free; drastically reduces the risk of second-hand smoke for workers and the public,* available at http://www.idph.state.il.us/public/press07/7.23.07GovSmokeFreeIL.htm [last accessed February 1, 2013].

[94] Data on file with authors. Several bars were closed for the summer, making it impossible to determine their policy.

[95] Mike Monson, *Several Champaign Bars 'Not Going Back'* (May 14, 2007), http://news-gazette.com/news/business/miscellaneous/2007-05-14/several-champaign-bars-not-going-back.html [last visited Feb. 1, 2013] (Cody Sokolski noting that the ban made him feel better when performing on stage, and also noting the sunk costs of switching, as well as potential for confusing customers by reverting before the ban).

under the ordinances).[96] Out of 15 bars in Urbana, all but one immediately exhibited perfect compliance, and that bar was the subject of a complaint. In Champaign, we observed perfect compliance in 63 establishments. The high levels of compliance suggest that the law was working, even without formal enforcement efforts.[97] In addition, for bars in both Urbana and Champaign, we observed an average of 21.3 patrons in attendance before the ban (n=281) and an average of 24.4 in the first month after the ban (n=13). Though the sample sizes are too small to demonstrate statistical significance, this suggests at a minimum that the pre-ban equilibrium may not have been uniquely optimal. Furthermore, newspapers reported that revenue was up for Champaign restaurants and bars after the ban.[98]

After the repeal took effect in Champaign on May 15, 2007, we were able to study the responses of the 30 bars that reinstituted smoking. There were 15 bars for which we had at least three observations of patronage and smoking behavior both before the ban and after the repeal. (We also observed patronage and smoking rates in the interim stage, when the ban was in effect.) We observed that post-repeal, the bars that returned to smoking had higher levels of patronage (mean = 44.7) than they did before the ban went into effect (mean = 29.8). They also observed higher percentages of smoking patrons (37.9% post-repeal vs. 31% pre-ban).[99] Seventy-five per cent of the bars that returned to smoking showed higher patronage post-repeal, while 71% showed higher concentrations of

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[96] Fines ranged from $165 to $750. Urbana Code of Ordinances 1-18 ($165) and 1-10 ($750). See also interview 43 (Champaign police department).

[97] This may be an example of what one of us has called the expressive role of law. See Richard McAdams, *The Attitudinal Theory of Expressive Law*, 79 OR. L. REV. 339 (2000).

[98] Charles Vance, *Smoking Ban Revenue*, WCIA 3 Report (May 7, 2007), *available at* http://www.smokersclubinc.com/modules.php?name=News&file=article&sid=4146 [last accessed November 22, 2012]. Some reports noted a decline in restaurant tax revenue for the first two months followed by an increase. Mike Monson, *Smoking Bans' Effects on C-U Tax Revenue Sparks Debate*, News-Gazette May 9, 2007, available at Mike Monson, *Champaign Mayor to Seek Repeal of Smoking Ban*, May 2, 2007 [last accessed January 31, 2013] (revenues down in February but up in March 2007).

[99] The n is too small to demonstrate statistical significance. Furthermore, we cannot rule out that the observed differences in patronage are attributable to the different times of year. The ban was repealed in summer, and it is possible that more people attend bars at that time. On the other hand, the time of year would likely not explain higher levels of smoking. During summer, people may be able to go outside to smoke, which is less pleasant in Champaign in the winter. We would thus expect to observe more smokers *inside* bars in the winter than in the summer.

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smokers.[100] These data are consistent with the idea that the initial equilibrium in which all bars allowed smoking was sub-optimal relative to a mixed equilibrium in which some bars allowed smoking and others did not. The data also provide some evidence for sorting and market segmentation, since the concentrations of smoking were higher after the ban was repealed than before it was put into effect.

Our interviews revealed a number of different motivations for returning to smoking. Some of the bar owners felt that they lost business during the ban, and our observations were consistent with this. Thirteen of the fifteen bars that we observed at least three times had lower average patronage during the ban then they had beforehand.[101] Some identified marginally higher costs in the form of having to run outdoor heaters for smokers in winter.[102] In addition, some bar owners were themselves smokers who felt personally besieged by the ban.[103] At least one bar owner, interviewed during the temporary ban, asserted that his bar would revert if the ban were repealed because "all bars would"; but the bar failed to revert after the repeal.[104]

In short, there were three stages of regulatory development. In the first, there was no regulation at all, and 100% of bars had smoking. In the second stage, with a ban, 0% of bars had smoking. In the third stage, after the temporary regulation was repealed, 60% of bars had smoking while 40% did not. It is our speculation that this last distribution more closely approximated the actual levels of demand for smoking establishments than did the status quo ante. The temporary law helped to reveal this equilibrium.

Our interview data are consistent with our theoretical account: bar owners who did not switch back reported a variety of motivations. While some of them did mention the possibility of the state ban, others reported that they had themselves learned how pleasant it was not to have pervasive smoke. One interviewee reported that he himself was a nonsmoker, but had feigned opposition to the ban to keep customers.[105]

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[100] Data on file with authors.

[101] From an average of 29.8 patrons to an average of 24.8. This is despite the fact that most bars experienced higher patronage.

[102] Interview R2, April 13, 2007, on file with authors.

[103] Interview R2, April 13, 2007.

[104] Interview R4, April 13, 2007.

[105] Interview T14A, May 30, 2007.

Another, who had opposed the ban on libertarian grounds, disclosed that he had not reversed the decision to ban smoking because he found that nonsmoking provided a superior environment.[106] While it is only anecdotal, some interviewees reported that the potential statewide ban was not an issue in their decision not to return to smoking. Lower cleaning costs and the transition costs of re-installing air purification equipment were also cited as reasons for remaining non-smoking, even after smoking was again allowed.[107] These rationales suggest that even without the subsequent statewide ban, the temporary smoking ban would have led to a new post-ban equilibrium in which less than 100% of bars allowed smoking.

IV. FURTHER EXAMPLES

We believe that the argument for temporary law generalizes to many forms of paternalistic regulation, as well as other issues on which there are likely to be multiple equilibria but significant barriers to determining the optimal one. In this section we describe several other situations in which we believe that multiple equilibria exist and temporary laws could be profitably employed or are already in use.

A.   Seat Belts

Seat belts save lives. However, before they were in widespread use, people felt that they were inconvenient and uncomfortable.[108] This led to very low rates of seatbelt usage and the adoption, in the United States, of "technology-forcing regulation" that required automobile manufacturers to include so-called "passive restraints" in all cars.[109] This led in turn to the technological development of automatically-locking seatbelts (which were

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[106] Interview T17, June 2, 2007.

[107] Interview R5, May 29, 2007.

[108] Anthony Ogus, ECONOMICS, REGULATION AND THE LAW 272 (1993) (assessing costs and benefits of seatbelts and including discomfort); Jerry L. Mashaw and David Harfst, THE STRUGGLE FOR AUTO SAFETY 272 (1990) (political struggle over seat belt laws).

[109] Id.

wildly unpopular) and airbags.[110] The issue was a major regulatory battleground, with successive political administrations adopting different rules.[111] Today, many states have enacted mandatory seat belt laws, which have been shown to increase seat belt usage. These laws are permanent.

We can imagine a path dependency argument that supports only limited government intervention in the form of a temporary law. We will not rehearse all the reasons that seat belt use might have multiple equilibria, but here are two. First, there are social network effects when drivers have passengers because, when usage in a society is low, a passenger who wears a seat belt may insult the driver by suggesting that he or she is incompetent.[112] Even the driver might incur social costs by wearing a seat belt when no one else does because, against the social practice, the driver seems unattractively timid, fearful, or incompetent. By contrast, when seat belt usage is high, wearing a belt does not convey distrust of the driver nor great timidity.[113] Thus, there are multiple equilibria.

Second, there are ways in which behavioral biases exacerbate the standard switching costs. At first, wearing a seat belt is uncomfortable and requires conscious effort, where after a time one develops a habit of "buckling up" and doesn't notice much discomfort. [114] Individuals must decide whether to invest in developing the habit and might rationally decide not to. Individuals with limited self-control[115] might wish to invest in the habit but nonetheless procrastinate; those subject to affective forecasting errors[116] will overestimate how long it takes to adjust to the initial discomfort and therefore mistakenly decide not to acquire the habit. In all of these cases, individuals who started out wearing seat belts would

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[110] *Motor Vehicle Manufacturing Association v. State Farm,* 463 U.S. 29 (1983) (describing 17 year regulatory fight).

[111] John David Graham, AUTO SAFETY: ASSESSING AMERICA'S PERFORMANCE 76 (1989) (describing history of Congress and seatbelt laws).

[112] Lawrence Lessig, *The Regulation of Social Meaning*, 62 U. CHI. L. REV. 943, 952 (1995) (describing social meaning of putting on a seatbelt in a Budapest taxi).

[113] *Id.*

[114] *See* Cass R. Sunstein, *Legal Interference With Private Preferences*, 53 U. Chi. L. Rev. 1129, 1137 (1986) ("Suppose that the costs of initial use are quite high; when drivers and passengers first buckle the belts, they do so unwillingly. Suppose too that the costs associated with buckling decrease sharply once one has gotten into the habit.").

[115] See supra text accompanying note X.

[116] See supra text accompany note X.

make different decisions than individuals who did not start out wearing seat belts.

For this reason, if one rejects whole-hearted paternalism, one could still justify temporary mandates under our theory. But the theory implies that we should phase out such laws in states where they have existed for some time (perhaps with an exception for new drivers, discussed below). Having raised total usage to historically high rates, there is no longer a social cost to wearing a seat belt as a driver or passenger. Having coerced drivers into the experience of wearing a seat belt, most have developed the habit now and would continue on without coercion. Those who would not continue on might have strong (if idiosyncratic) reasons not to wear them. As with smokers, the efficient outcome might be to permit those who continue to prefer the risky behavior to have their way, given that a temporary law is sufficient to cause most people to take the less risky behavior.

Such temporary laws or the repeal of existing laws might treat new drivers differently. A temporary condition for a new license might be the requirement that one use a seat belt for a time, say two to four years, after which the driver can obtain a license that does not require the behavior. Drivers might adapt to the new condition and learn that they do not mind the belt that they initially hated. In light of the health and safety benefits, most of them might continue the behavior after it is no longer required. But those who continue to find it extremely unpleasant can stop. In this way, temporary regulation might preserve liberties while changing behavior for the substantial majority of people.

B.   Affirmative Action

Proponents of affirmative action characterize the market as producing a sub-optimal level of educational or workforce participation by minorities, females, or other under-represented groups. The idea here draws from path dependency. Given past patterns of educational and employment discrimination, the removal of explicit discrimination alone may be insufficient to is reveal an "optimal" equilibrium that reflects the actual distribution of talent in society. Indeed, it is possible that there will be continuing market failures based on information asymmetries. For example, employers making hiring decisions may rely on existing levels of

workforce participation in considering new hires. The result would be very slow or even no progress toward an optimal hiring equilibrium.

Affirmative action is conceived of as helping to overcome this kind market failure. It is usually considered to be a "temporary" remedy, a point made quite explicit by Justice O'Connor in her *Grutter* opinion.[117] In upholding the University of Michigan's use of race in undergraduate admissions, O'Connor noted that "race-conscious admissions policies must be limited in time" and suggested that the interest of the University in utilizing such policies would not last more the a period of 25 years. A similar argument has been made for Title VII.[118]

Indeed, international law conceives of affirmative action as inherently temporary in character, as the International Convention on the Elimination of All Forms of Racial Discrimination states that affirmative action programs "shall in no case entail as a consequence the maintenance of unequal or separate rights for different racial groups after the objectives for which they were taken have been achieved."[119] The temporary and remedial nature of affirmative action distinguishes it from "ordinary" racial discrimination.

The affirmative action story fits the case for a temporary law. It is easy to agree that the status quo ante produced an inefficient equilibrium, because of the legacy of discrimination, continuing behavioral biases, and underinvestment in human capital by those discriminated against as a rational response to lack of opportunities. Discrimination entrenches the status quo over time when markets are the only remedial mechanism.[120] At the same time, it is unclear what the precise level of participation is for any particular group in any particular market. An approach that sets quotas for participation is an attempt to move toward a particular specified equilibrium. It *may* be more efficient than the situation of no regulation, but it is hard to tell, as the informational barriers are large. Affirmative action can be viewed as an attempt to intervene in labor and educational markets

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[117] *Grutter v. Bollinger*, 539 U.S. 306 (2003)

[118] See John J. Donohue, *Is Title VII Efficient?*, 134 U. Pa. L. Rev. 1411 (1986) (argument for temporary anti-discrimination laws).

[119] G.A. Res. 2106 (XX), U.N. GAOR, 20th Sess., Supp. No. 14, U.N. Doc A/6014, at 48 (Dec. 21, 1965).

[120] Daria Roithmayr, *Locked In Inequality: The Persistence of Discrimination*, 9 Mich. J. Race & L. 31 (2003); Daria Roithmayr, *Locked In Segregation*" 12 Va. J. Soc. Pol'y & L. 197 (2004).

so as to better reveal the optimal equilibrium—that which would exist in the absence of either a discriminatory starting point *or* mandatory quotas.[121]

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[121] A temporary scheme may be superior to the status quo ante of no regulation, but may also generate rent-seeking behavior that makes it difficult to let the law expire. Even so, the need to review the programs after set periods puts some burden on proponents to justify the extensions, and surely is superior to a permanent scheme. Malaysia provides an interesting illustration of a temporary affirmative action scheme, but also the political difficulties of modifying it once it has been established. When drafting the Malaysian Constitution, the Reid Commission of the United Kingdom sought to ensure the special position of the indigenous Malays, who formed a narrow majority of the population but were economically far behind the ethnic Chinese and Indian subjects of British Malaya. The Commission recommended setting aside a certain number of public service commissions, business licenses, and university scholarships for Malays, but also suggested that these provisions expire 15 years after independence. Report of the Federation of Malaya Constitutional Commission 1957 (London: Her Majesty's Stationary Office) ¶¶163-167, available at http://www.krisispraxis.com/Constitutional%20Commission%201957.pdf [last accessed February 1, 2013]. (describing current situation and noting that there was agreement for continuing preferences on a temporary basis.) However, the affirmative action scheme was retained after the subset period, and remains largely intact today. Barbara Watson Andaya & Leonard Y. Andaya, A HISTORY OF MALAYSIA 297-303 (2001) (describing ethnic tensions and violence, with New Economic Policy adopted as a solution.) *But see* Joseph Chin, MRCB, *Pos in focus after PM unveils new economic model*, The Edge Malaysia, available at http://www.theedgemalaysia.com/highlights/162642-mrcb-pos-in-focus-after-pm-unveils-new-economic-model.html [last accessed Feb. 1, 2013] (Prime Minister's announcement of review and gradual phase-out of quotas).

C.   Curfews

Another example of explicitly temporary law is a curfew. Curfews are restrictions on presence in public spaces, usually adopted to combat crime or to otherwise change the social dynamics of a particular locality. The rationale is that the status quo ante represents a sub-optimal equilibrium that can be remedied by a temporary disruption to the pattern of social interaction. For example, if young people have the habit of congregating each evening in a particular location, each individual will have an expectation that others will show up at the same spot. If the people in question are drug dealers or criminals, there may be significant externalities from this equilibrium. A temporary ban can disrupt expectations about where and when to congregate, and thus may change the equilibrium level of crime or drug dealing after the ban is lifted.

In Laurel, Delaware, for example, Mayor John Shwed instituted an emergency curfew for non-residents of the Carvel resident complex on February 22, 2012. [122] The curfew was imposed in response to an increase in violence and gang activity, and remained in effect from 10pm through 6am.[123] The effect of the curfew was positive, and the town's police chief noted that it was followed by an almost 60% decrease in complaints of criminal activities at the housing complex. As a result of reduced violence, the Mayor decided not to extend the curfew and it was removed on September 4th, 2012.[124] City officials and residents believed that crime would not go back to the pre-curfew level[125] and, though there is no hard data, there has been no news of rising crime.

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[122] Town of Laurel Police Department, *Emergency Curfew for Non-Residents of Carvel Gardens and Carvel Gardens Apartment Annex*, Feb. 22, 2012, avialable at http://www.townoflaurel.net/index.cfm?ref=28100 [last accessed January 12, 2012].

[123] Id.

[124] Tony Windsor, *Laurel officials stop emergency curfew at public housing complex*, Laurel Star, available at

http://www.laurelstar.com/index.cfm?ref=42578&ref2=380 [last accessed January 12, 2012].

[125] WBOC News, *Laurel Plans to Let Emergency Curfew Expire,* Sept. 14, 2012, Available at http://www.wboc.com/story/19430430/town-plans-to-let-emergency-curfew-expire   [last accessed January 12, 2012].

Curfews like that found in Laurel are not uncommon, and have been implemented in East St. Louis, Philadelphia, and other cities. [126] In a democracy, permanent restrictions on liberty are frowned upon, so curfews may be framed as temporary in nature, or else restricted to minors. For example, the Philadelphia curfew adopted in October 2011, specifically meant to respond to problems with flash mobs, is set to expire in December 2013.[127] The Philadelphia Police Department notes that the law has been effective in reducing crime and has incentivized the city to provide youth with alternative activities including bowling nights and spending more time at recreation centers.[128] In short, curfews are a tool employed with some regularity in democracies that illustrate the use of temporary law to find superior equilibria. They are obviously superior relative to permanent restrictions on liberty.

D. Traffic: Congestion Pricing in Sweden

Traffic is another problem potentially amenable to analysis from the perspective of multiple equilibria. Traffic causes all kinds of externalities, and is universally regulated in some form or another. Many cities have experimented with so-called congestion pricing, in which costs of driving in crowded downtown areas increases during peak usage times. One might imagine that an effect of this pricing would be to incentivize drivers to take public transit or other alternative means of transportation. If so, it might be conceivable that a temporary scheme of congestion pricing would be sufficient to induce lower levels of driving.

We know of one experiment with temporary regulation in this regard. From January to July 2006, Stockholm instituted a trial period of congestion pricing to reduce traffic. The pricing program put a flat rate of $2.60 on all vehicles entering Stockholm during peak hours, and a rate

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[126] See, e.g., Barry Leibowitz, *Curfew, Dress Code Imposed on Teens to Combat Crime in East St. Louis*, CBS News, available at http://www.cbsnews.com/8301-504083_162-57521814-504083/curfew-dress-code-imposed-on-teens-to-combat-crime-in-east-st-louis/ [last accessed, February 1, 2013] (East St. Louis); Maria Gonzalez, *City Curfew Law Creates Controversy*, The Daily Pennsylvanian, February 13, 2012, http://www.thedp.com/index.php/article/2012/02/city_curfew_law_creates_controversy[last accessed, February 1, 2013] (Philadelphia).
[127] Id.
[128] Id.

ranging from $1.30 to $2 for other times during the day.[129] By the time the trial ended on July 31, 2006, Stockholm had experienced a 22% drop in traffic and travel time.[130]

Following the trial period, a referendum was held in September 2006 allowing residents to decide whether to reintroduce the system on a permanent basis. The pricing system was approved by 52% of the city's voters, and was thus re-introduced in August 2007.[131] Both the congestion policy and the subsequent period of driving without a fee were temporary in character.

The initial experiment was conducted on a temporary basis primarily for political reasons.[132] In the 2002 national election, the Social Democrats won a plurality and formed a government by attracting the support of the Environmentalist Party. In return, the Social Democrats agreed to the congestion pricing experiment. They also had to convince the Stockholm Social Democrats, who had promised not to engage in congestion pricing, to implement the experiment. Popular support for the program was low before the trial started. A poll in fall 2005 showed that around 55% of Stockholm residents believed it was a bad decision to conduct a congestion pricing trial. In fact, when the trial started, public opposition to the fees ran as high as 75%.[133] By May 2006, however, support had increased: only 41% of Stockholm residents thought the trial was a bad idea.[134] The temporary law thus revealed information about preferences. Support consistently increased and by May 2011, support for the policy was at 70%. The reason for this support is still unclear: it could be because

[129] Brad Plumer, *How Sweden Cut Traffic Congestion*, The Washington Post (Dec. 15, 2011), http://www.washingtonpost.com/blogs/ezra-klein/post/how-sweden-cut-traffic-congestion/2011/12/15/gIQA3xPVwO_blog.html.

[130] Derrick Z. Jackson, *Finding the Cure for Traffic*, The Boston Globe (Aug. 5, 2012), http://www.bostonglobe.com/opinion/2012/08/04/congestion-charges-fixing-traffic-for-price-cup-coffee/Z4VWqAK3t2vVR5Im02kmjK/story.html.

[131] Björn Hårsman & John M. Quigley, *Political and Public Acceptability of Congestion Pricing: Ideology and Self-Interest in Sweden*, 29 J. Pol'y Analysis & Mgmt. 854, 856 (2010) available at http://www.uctc.net/access/38/access38_congestion_pricing_sweden.shtml [last accessed February 1, 2013].

[132] Id.

[133] See Jackson, supra n.130.

[134] Muriel Beser Hugosson & Jonas Eliasson, *The Stockholm Congestion Charging System – An Overview of the Effects After Six Months*. (Feb. 2, 2006) (Proceeding of European Transport Conference, Strasbourg, France), available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_377.pdf.

people enjoyed fewer traffic jams and delays, people adjusted their driving patterns, people shifted to public transit, or a combination of the three.[135]

Interestingly, although a new political equilibrium was produced by the temporary law, the underlying levels of driving were unaffected during the immediate post-trial period. The congestion policy was not in place between July 2006 (when the trial period ended) and August 2007 (when the policy was re-introduced permanently). During this period, traffic rose close to the level it had been before congestion pricing was ever implemented. Had driving levels stayed low, of course, there would have been less need for a permanent congestion pricing policy.[136] So one outcome of this experiment was to reveal that a temporary law was *insufficient* to reorder the underlying behavior that was the target of regulation. This was not a case of multiple equilibria, a fact which the temporary ban revealed. We include this example to illustrate that temporary law may occasionally fail to validate the existence of a second equilibrium. When this is the case, policymakers must simply adopt the approach that Swedish authorities followed here: decide whether a permanent law is warranted.

E.   Bank Holidays and Trading Curbs

Examples of temporary law can also be found in the financial sector. Consider first the problem of a run on a bank. Bank runs are caused when too many depositors try to pull their deposits out of a bank in too short of a time frame.[137] Even when the bank is solvent, it might not have sufficient liquidity to pay all of the depositors at once, causing the bank to fail.[138] The problem can be self-reinforcing: the more depositors withdraw their money from the bank, the more that the remaining depositors must fear that the bank will not have sufficient reserves to pay them if they attempt to withdraw funds.[139]

Accordingly, a bank run can be driven by a rational collective action problem: it is separately rational for each individual to rush to the

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[135] See Plumer, supra n. 129.

[136] See Jackson, supra n. 130.

[137] Helen A. Garten, *What Price Bank Failure*, 50 OHIO ST. L.J. 1159, 1168-69 (1989) (describing bank runs).

[138] *Id*.

[139] *Id*.

bank and withdraw her money, even if it would be collectively superior if they were all to leave their money on deposit.[140] They can also be caused by behavioral errors, namely panic—an irrational stampede to the exit.[141]

We can thus conceive of the banking system as operating at one of two equilibria: a "stable" equilibrium, in which banks are solvent, depositors have no need to pull out their money, and no one is panicked; and a "running" equilibrium, in which banks may lack necessary liquidity, depositors are in the midst of a race to withdraw their funds, and panic is widespread. Both of these equilibria are self-reinforcing, in the sense that no individual has an incentive to change her behavior absent an exogenous shock of some sort (such as a news report that a bank has become insolvent).[142]

Suppose that one or more banks tip into a dangerous "running" equilibrium and depositors are racing to withdraw their deposits. How might policymakers trigger a switch to a stable equilibrium? The solution that President Franklin Roosevelt employed during the Great Depression was a temporary law: a "bank holiday" during which banks were closed and no money could be deposited and withdrawn.[143] These bank holidays typically only lasted a few days, but nonetheless they effectively flipped the status quo. Before the inception of the temporary law, banks and customers were stuck in a running equilibrium. When the law elapsed, the status quo was zero activity—no one had been making withdrawals, precisely because of the holiday.

If we believed that only one equilibrium—a running equilibrium—was possible, we should have expected a bank run to resume immediately after a bank holiday ended. But this is not what occurred. Roosevelt's bank holidays were generally quite successful at ending bank runs.[144] This indicates that a simple change in the starting point, produced by temporary law, can result in a very different outcome due to path dependence.

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[140] Krishna Mantapragada, *Depositors as a Source of Market Discipline*, 9 YALE J. ON REG. 543, 560-61 (1992) (describing the mechanisms that can trigger bank runs).

[141] *Id.*

[142] *See* Taipei Times, *News Report Triggers Another Bank Run*, *available at* http://www.taipeitimes.com/News/front/archives/2000/05/25/0000037364 (May 25, 2000).

[143] Jerry W. Markham, *The Subprime Crisis – A Test Match for the Bankers: Glass-Steagall vs. Gramm-Leach-Bliley*, 12 U. PA. J. BUS. LAW 1081, 1091 (2010) (offering a description of Roosevelt's bank holidays).

[144] *Id.* (describing the success of bank holidays at stabilizing the banking system).

Trading curbs, sometimes known as trading "circuit breakers," play a similar role in arresting steep declines in securities markets. Just like a bank run, a stock market crash or a precipitous drop in the price of a single stock might be caused by either rational or irrational factors.[145] From a rational perspective, if one investor sees other investors selling a stock (or many stocks), causing its price to drop, she might rationally choose to sell as well in order to avoid being left holding a much lower-priced asset.[146] This could be the case even if she believes that the stock is actually worth more than the current price—she may need liquidity in the near future and be unable to hold onto the stock long enough to wait for it to rise.[147] And of course she may take the drop in the stock's price as information that the stock is worth much, much less than she believed.[148] What she believes to be true information could actually be an information cascade,[149] in which each individual believes that the others have valuable information when in fact no one (or only the few people who trigger the cascade) know anything of significance.[150]

On the other hand, investors might be irrationally panicking about a stock (or an entire market or economy) and needlessly rushing to unload

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[145] *See, e.g.*, Robert J. Shiller, IRRATIONAL EXUBERANCE (Princeton University Press, 2nd ed. 2005) (market irrationality); Burton G. Malkiel, *The Efficient Market Hypothesis and Its Critics*, 17 J. ECON. PERSPECTIVES 59, 73-74 (2003) ("Share prices can be highly sensitive as a result of rational responses to small changes in interest rates and risk perceptions."). *See generally* Richard A. Brealey et al., *Principles of Corporate Finance* 340-68 (McGraw-Hill/Irwin, Global ed. 10th ed. 2011).

[146] *See* Gadi Barlevy & Pietro Veronesi, *Rational Panics and Stock Market Crashes* 2 (Ctr. For Research in Security Prices, Working Paper No. 483, 2000) (explaining method by which rational uninformed investors sell stocks when observing price drop).

[147] *See, e.g.*, Antonio E. Bernardo & Ivo Welch, *Liquidity and Financial Market Runs*, 119 Q. J. ECON. 135, 135 (2004) (describing how a "liquidity shock" may force investor to sell stocks).

[148] *See* Kenneth French, *Crash Testing the Efficient Market Hypothesis*, *in* 3 NBER MACROECONOMICS ANNUAL 277, 277-86 (Stanley Fischer ed., 1988) ("[E]conomic agents rationally combine their own private information with the information they infer from observed prices and value. . . . [Study suggests] investors over-react to each other's trades."). *See generally* Joseph E. Stiglitz, *Symposium on Bubbles*, 4 JOURNAL ON ECONOMIC PERSPECTIVES 13 (1990) (discussing divergent views on the extent to which prices of assets represent "fundamental" values).

[149] Cass R. Sunstein, *Deliberative Trouble? Why Groups Go To Extremes*, 110 YALE L.J. 71, 82-83 (2000).

[150] Robert J. Schiller, IRRATIONAL EXUBERANCE 153-165 (2000).

securities and hide their money in something safer. [151] In either case, the stock market is trapped in a self-destructive equilibrium.[152] This is opposed to the typical market equilibrium in which investors are not panicked and are not chasing one another into a downward spiral.

The solution to the problem of stock market crashes is a temporary law very similar to Roosevelt's bank holidays. Every major securities exchange in the United States imposes trading curbs, otherwise known as "circuit breakers," that automatically cut off trading in a stock or an entire market when that market falls by a certain percentage in a single day.[153] These circuit breakers are even more temporary than bank holidays: they typically last only until the end of the trading day.[154] But just like bank holidays, they reverse the status quo ante. Before the circuit breaker takes effect, the market is stuck in a "running" equilibrium. After the circuit breaker has lapsed (the very next day), the market is starting from a stable equilibrium. If there is in fact only one possible equilibrium—that is, if the stock market crash is based on correct, rational valuations of the securities—then we should expect the crash to resume the very next day as the running equilibrium re-emerges. But in fact market circuit breakers often halt stock market crashes, with the market reverting to a stable equilibrium and rising the next day. [155] Such is the power of temporary law to locate a second potential equilibrium, even when that temporary law lasts only part of a day.[156]

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[151] *See, e.g., id.*; Joseph E. Stiglitz, *Symposium on Bubbles*, 4 J. ECON. PERSPECTIVES 13 (1990); *see also* Allen M. Poteshman & Vitaly Serbib, *Clearly Irrational Financial Market Behavior: Evidence from the Early Exercise of Exchange Traded Stock Options* 29-21 (Office for Futures and Options Research, Paper No. 01-02, 2001) (finding evidence of irrational market behavior).

[152] It is of course possible that the stock or the market is highly over-valued and the crash is appropriate. But it is widely believed that stock market crashes (or run-ups) frequently occur even when there is no economic basis for them. *See* Schiller, *supra* note 150.

[153] United States Securities and Exchange Commission, *Investor Bulletin: New Measures to Address Market Volatility, available at* http://www.sec.gov/investor/alerts/circuitbreakersbulletin.htm (July 23, 2012).

[154] *See id.*

[155] *See* Beni Lauterbach & Uri Ben-Zion, *Stock Market Crashes and the Performance of Circuit Breakers: Empirical Evidence*, 48 J. FIN. 1909, 1909 (1993) (collecting literature and finding that "circuit breakers . . . reduced the next-day opening order imbalance and the initial price loss").

[156] Of course, not all temporary interventions in the market are so successful. In August 1971, President Richard Nixon sought to curb inflation by imposing temporary wage and

V. CONCLUSION

Conflicts between libertarians and those in favor of regulation, along with new attention to behavioral biases, have motivated a search for more effective and less intrusive regulatory devices. In this paper, we highlight one such mechanism: temporary law. We show that under certain conditions, it is possible to utilize temporary law to identify information on the most efficient outcome, and to do so in a way that is less politically costly than an equivalent permanent law. These conditions occur when (1) there are multiple equilibria and good reasons for believing that the status quo is stuck in an inefficient equilibrium; and (2) there are informational barriers to identifying the superior equilibrium.

Using the example of smoking bans, we have shown that temporary law is plausible, and likely to be superior to a permanent law on several dimensions. The temporary approach will be better at revealing information than a permanent ban, which imposes a new equilibrium without establishing that it is *the* optimal equilibrium. A temporary ban will certainly be less intrusive of the liberties of smokers. And it is likely to be politically easier to adopt, given that the costs will not be borne permanently. The explicitly experimental, information-forcing rational of temporary law may win over some opponents of particular policies. The idea of temporary law easily generalizes, as we show by applying it beyond the smoking example to seat belt mandates, affirmative action policies, curfews, traffic regulation, and bank holidays.

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price controls. Some policymakers seemed to believe that the United States was stuck in an inflationary equilibrium, in which wages and prices collectively spiraled higher, and that a temporary ban on increases would restore a lower-inflation equilibrium. That turned out not to be the case, as inflation continued to increase throughout the decade in the face of repeated unsuccessful interventions. *See* http://www.econreview.com/events/wageprice1971b.htm.

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