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DISTINGUISHING BETWEEN CUSTOM AND LAW: EMPIRICAL EXAMPLES OF ENDOGENEITY IN PROPERTY AND FIRST AMENDMENT PRECEDENTS

Daniel L. Chen and Susan Yeh*

INTRODUCTION

This Article discusses the relationship between custom and law to highlight the phenomenon of endogeneity that arises when empirically evaluating the effects of laws. An important literature evaluates the roles of laws in motivating behaviors, including investigations of whether or how laws influence customs and social norms. Traditional economic analysis, for example, posits that codified laws influence behaviors by formally incentivizing a particular action, and social norm theories assert that the laws also communicate values.[1] Enhancing this strand of thought, an increasing number of works employing historical or empirical analyses have linked laws to broader societal changes over time.[2] Meanwhile, a valuable discourse examines how customs may determine both de facto laws and formally enacted laws, including the court precedents that are rendered.[3] Whether they are directly codified into a legal test or informally referenced, customs can influence formal laws that are adopted in a community and beyond. Indeed, some scholars have argued that evolving customs and norms have influenced the Supreme Court in its decisions.[4]

The subsequent effects of these formal laws and court decisions are of tremendous interest to policymakers and judges. With policy concerns in mind, we argue that one must not ignore the endogenous feedback between aggregate behaviors, customs, and laws. That is, while customs may shape or influence laws, laws can also shape customs

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[1] *See, e.g.*, Robert E. Scott, *The Limits of Behavioral Theories of Law and Social Norms*, 86 VA. L. REV. 1603 (2000). In a closely related strand, legal centralists emphasize the primacy of government-issued laws as the rules of conduct. *See, e.g.*, ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 138–40 (1991).

[2] For examples of prior empirical or historical works that strive to draw conclusions about the causal impact of law on norms, see MICHAEL J. KLARMAN, FROM JIM CROW TO CIVIL RIGHTS (2004) and GERALD N. ROSENBERG, THE HOLLOW HOPE (1991). Further literature looks specifically into the Court's influence on public opinions. *See, e.g.*, VALERIE J. HOEKSTRA, PUBLIC REACTION TO SUPREME COURT DECISIONS (2003); THOMAS R. MARSHALL, PUBLIC OPINION AND THE SUPREME COURT (1989).

[3] *See* Scott, *supra* note 1, at 1604.

[4] *See, e.g.*, BARRY FRIEDMAN, THE WILL OF THE PEOPLE (2009) (discussing the impact of public opinion on the Supreme Court).

through their effects on behaviors or norms in the aggregate. The endogeneity that custom produces suggests that simply by observing a correlation between law and behavior is not enough to assert that a law in itself is effective or to assert that social trends and evolving customs are driving legal change.[5]

Importantly, legal scholars from historical to international to political perspectives recognize that the interplay between custom and law involves feedback between both.[6] Individuals endorse customs partly by learning from the apparent beliefs of others and partly by distorting their public responses in the interest of maintaining social acceptance. "Availability entrepreneurs" manipulate the content of public discourse and strive "to trigger availability cascades likely to advance their own agendas."[7] Public discourse, in turn, influences law. Other scholars suggest that customary international law, having no binding power on states, does not influence rational actors who only follow custom insofar as it suits their best interest.[8] Theorists have formally modeled this relationship.[9] Moreover, whether court decisions respond to the public's policy preferences is important in the larger context of understanding how courts may rely on dominant customs for public legitimacy.[10] However, no empirical study of

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[5] While a growing body of literature analyzes the channels regarding how a law interacts with customs or examines the efficiency of customs and norms with respect to laws, this Article's goals are neither to claim a specific channel nor to comment on efficiency. Rather, our first purpose is to empirically highlight, through targeted examples, how custom can be a crucial factor in shaping formal law. *See, e.g.*, Richard Epstein, International News Service v. Associated Press*: Custom and Law as Sources of Property Rights in News*, 78 VA. L. REV. 85, 124–25 (1992); Henry E. Smith, *Community and Custom in Property*, 10 THEORETICAL INQUIRIES L. 5 (2009) (presenting an information-cost theory to explain the adoption of community customs into property law).

[6] *See, e.g.*, Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683 (1999) (analyzing the channels from perception formation to regulatory policy changes); Edward T. Swaine, *Rational Custom*, 52 DUKE L.J. 559 (2002) (applying rational choice theory to explain the role of custom in international law).

[7] Kuran & Sunstein, *supra* note 6, at 687.

[8] Swaine, *supra* note 6, at 561–62 & n.7.

[9] *See* Roland Benabou & Jean Tirole, *Law and Norms* (Nat'l Bureau of Econ. Res., Working Paper No. 17579, 2011); Daniel L. Chen, Vardges Levonyan & Susan Yeh, Do Policies Affect Preferences? Evidence from Random Variation in Abortion Jurisprudence (2012) (unpublished manuscript) (on file with the authors).

[10] *See, e.g.*, James L. Gibson, *Understandings of Justice: Institutional Legitimacy, Procedural Justice, and Political Tolerance*, 23 L. & SOC'Y REV. 469, 469 (1989) (examining "the linkages among institutional legitimacy, perceptions of procedural justice, and voluntary compliance with unpopular institutional decisions within the context of political intolerance and repression"); Tom R. Tyler, *Public Mistrust of the Law: A Political Perspective*, 66 U. CIN. L. REV. 847, 847 (1998) (arguing that "legal authorities need to be concerned about public dissatisfaction" with the law); *cf.* Tom R. Tyler & Gregory Mitchell, *Legitimacy and the Empowerment of Discretionary Legal Authority: The United States Supreme Court and Abortion Rights*, 43 DUKE L.J. 703 (1994) (showing that in the case of the U.S. Supreme Court, the relationship between institutional legitimacy and empowerment is far greater than the relationship between rational calculations and empowerment). Another scholarly approach

custom and law sufficiently addresses this endogeneity in its causal claims, and we are not aware of previous studies that empirically distinguish between law and custom. It remains an open empirical question whether appellate precedent in practice is motivated by customs that vary across time and space. To what extent are customs actually driving some laws in real life?

We contribute original empirical evidence highlighting the role of custom within court-made law in the United States. To do so, we use a narrower conception of the relationship between custom and law.[11] We focus on law as represented by court-made appellate precedent, and to illustrate our points, we use two distinct doctrinal examples in the United States. The first is obscenity law, where custom is directly referenced in the law through the *Miller* community standards test.[12] The second example is takings law, where we argue that entrenched expectations about what constitutes just compensation and public use in the Takings Clause of the Fifth Amendment play significant roles in shaping the law though they are not explicitly codified.[13] Using datasets that we assemble ourselves and from existing sources,[14] we show that in both examples, custom *does* correspond to the law in ways consistent with the expectations of legal observers.

In distinguishing the effects of law, our findings caution against relying on correlations between legal and social trends.[15] Through the examples of obscenity and takings precedents, we demonstrate empirically that custom predicts the law.[16] These links indicate how customs' roles in laws can threaten the validity of making causal inferences about the societal effects of laws. For instance, obscenity laws often have underlying rationales of influencing sexual behaviors or attitudes.[17] Yet custom is embedded in obscenity precedent under the *Miller* community standards test,[18] so the law is also determined by local prevailing attitudes regarding sexual behaviors, the very outcomes that the law is attempting to regulate.

Finally, we propose a greater role for experimental or quasi-experimental evidence among scholars interested in the empirical study of law. We sketch out an original empirical strategy that could overcome the endogeneity between custom and law, as well as between socioeconomic behaviors and law generally.[19] This methodology exploits

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argues that courts rely on public legitimacy as reflected by public opinion. *See* HOEKSTRA, *supra* note 2; KLARMAN, *supra* note 2; MARSHALL, *supra* note 2; ROSENBERG, *supra* note 2. *But see* FRIEDMAN, *supra* note 4, at 4, 7.

[11] *See infra* Part I.A.

[12] Miller v. California, 413 U.S. 15 (1973).

[13] *See* Carol Rose, *The Comedy of the Commons: Custom, Commerce and Inherently Public Property*, 53 U. CHI. L. REV. 711, 713–14 (1986).

[14] *See infra* Part II.

[15] *See infra* Part III.A.

[16] *See infra* Part II.C.

[17] *See* Andrew Koppelman, Essay, *Does Obscenity Cause Moral Harm?*, 105 COLUM. L. REV. 1635, 1636–37 (2005).

[18] *See* Miller v. California, 413 U.S. 15, 24 (1973).

[19] *See infra* Parts III.A–B.

natural experiments in formal laws, which can be used to evaluate the societal consequences of appellate precedents in custom-laden or norm-driven doctrinal areas such as takings law or obscenity law. Developed and implemented in separate papers, our empirical framework and model are quite general, though our doctrinal applications in this Article are only a few instances of the general relationship between norms and law that is the subject of an extensive literature.

This Article proceeds as follows. Part I of this Article provides further background on the endogenous relationship between custom and law and describes the role of custom in takings and obscenity law in the United States. Part II describes the data and methods and presents results illustrating the extent to which custom predicts takings and obscenity precedent. Part III discusses a methodological strategy to overcome the challenges that customs pose when evaluating the consequences of law.

I. BACKGROUND

A. The Endogenous Relationship Between Custom and Law

Across disciplines, scholars have documented the influences of custom in legal rules,[20] theorizing about how legal rules might arise as a result of the law incorporating or heeding customs or norms of a community.[21] Discussions of custom determining legal rules typically call to mind those situations where custom is expressly referenced in doctrine or statutes. Prominent examples in classical doctrinal areas include the use of regional standards for physician practices to determine liability in medical malpractice;[22] the course of dealing standard for trade in contract law;[23] the potentially community-specific "ordinary wear and tear" baseline for determining

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[20] *See, e.g.*, Harold J. Berman, *The Historical Foundations of Law*, 54 EMORY L.J. 13, 16 (2005) (citing FRIEDRICH KARL VON SAVIGNY, ON THE VOCATION OF OUR AGE FOR LEGISLATION AND JURISPRUDENCE 30 (Abraham Hayward trans., 1975) (1814)) ("Law . . . like language, is an integral part of the common consciousness of the nation, organically connected with the ideas and norms reflected in a people's historically developing traditions, including its legal tradition."); Epstein, *supra* note 5, at 125; John Monahan & Laurens Walker, *Social Authority: Obtaining, Evaluating, and Establishing Social Science in Law*, 134 U. PA. L. REV. 477, 478 (1986) ("[S]ocial science research, when used to create a legal rule, is more analogous to 'law' than to 'fact,' and hence should be treated much as courts treat legal precedent.").

[21] *See* Smith, *supra* note 5. Summarizing a question regarding the role that custom should play in defining property rights, Richard Epstein writes: "[S]hould courts or legislatures refer to custom or should they invoke general principles of positive law? Where they do the former, their task is essentially reflective, to find out the normative rules on which parties organize their social interaction." Epstein, *supra* note 5, at 124–25.

[22] RESTATEMENT (SECOND) OF TORTS § 299A (1965); *see also* Michael Frakes, *The Impact of Medical Liability Standards on Regional Variations in Physician Behavior: Evidence from the Adoption of National-Standard Rules*, 103 AM. ECON. REV. 257 (2013).

[23] RESTATEMENT (SECOND) OF CONTRACTS § 223 (1981).

waste in landlord-tenant law;[24] and the *Miller* community standards test for obscenity, which we further investigate in this Article.

Loosely defined, custom can also influence the law without being expressly referenced in legal rules.[25] This de facto legal role of custom has been documented in situations such as negotiations "in the shadow of the law,"[26] or more generally, situations where people adjust their behaviors based on their expectations of how courts might approach a controversy.[27] In other words, entrenched traditions as well as prevailing trends outside of statutes or legal precedent determine the true rules of conduct even though the disputes do not actually reach litigation in the courtroom. Notably, this phenomenon can apply to property law, with scholars asserting that property laws and statutes emerge from existing practices common to a community rather than being imposed by policymakers who are "making" the law.[28]

Regardless of how custom influences law or how custom exists around law, one must consider that laws can also determine customs. Certainly, there is abundant policy and scholarly interest in evaluating the effects of laws on people's actions, as well as the impacts of laws on motivating broader societal change.[29] As laws change people's behaviors in the aggregate, it is not unreasonable for norms of what is considered acceptable practice in the community to also shift as a result of laws. In the social norms literature, legal theorists have asserted that the law can shape people's preferences and behaviors by communicating what a social norm is or what policymakers believe it should be.[30] Accordingly, some laws may encourage behaviors to more closely abide by an existing (or desired) norm, further perpetuating or transforming customs.[31]

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[24] RESTATEMENT (SECOND) OF PROPERTY: LANDLORD AND TENANT § 12.2(3) (1977).

[25] We acknowledge the considerable historical and doctrinal scholarship devoted to identifying and describing custom, and we rely on existing works to infer which practices generally are considered to be custom in relation to formal law.

[26] Robert H. Mnookin & Lewis Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950, 968 (1979).

[27] Epstein, *supra* note 5, at 86 (noting that "custom is the result of repeated interactions, trial and error" and "when a dispute arises, the custom effectively binds the litigants").

[28] *See, e.g.*, ELLICKSON, *supra* note 1, at 254; WILLIAM A. FISCHEL, REGULATORY TAKINGS 351–53 (1995); Epstein, *supra* note 5, at 85.

[29] *See, e.g.*, Kemit A. Mawakana, *Power and Law, Bait and Switch: Debunking "Law" as a Tool of Societal Change*, 36 OKLA. CITY U. L. REV. 93, 96–97 (2011); Sally Falk Moore, *Law and Social Change: The Semi-Autonomous Social Field as an Appropriate Subject of Study*, 7 L. & SOC'Y REV. 719, 719 (1973).

[30] The simplified view of the expressive function of law is that people find it costly to deviate too much from the norms as communicated by the law. Therefore, people will adjust their behaviors to comply with the law, independently of the actual costs of breaking the law. *See, e.g.*, Dan M. Kahan, *What Do Alternative Sanctions Mean?*, 63 U. CHI. L. REV. 591 (1996); Richard H. McAdams, *An Attitudinal Theory of Expressive Law*, 79 OR. L. REV. 339 (2000); Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021 (1996).

[31] *See* Sunstein, *supra* note 30, at 2052.

Such reactions apply across doctrinal areas and in government policies. As a concrete illustration from tort law, changes in state laws on medical malpractice liability have corresponded to a shift by physicians away from regional medical customs towards behaviors consistent with national practices in the United States.[32] In the public health arena, where local norms are of concern to policymakers hoping to change risky behaviors, critics have argued that high-profile government anti-obesity campaigns would encourage the shaming of obese people.[33] Indeed, one study finds that depending on the community, stricter anti-obesity laws correspond to greater social stigma for obese persons, reinforcing anti-obesity norms.[34] And in patent law, it has been argued that Federal Circuit precedent expands the boundaries of inventions that are patentable,[35] which would then create new, perhaps implicit, standards that would affect parties' incentives to innovate.[36] Such examples show that endogenous relationships between custom and law occur when custom influences law, which in turn may further affect local customs or norms.

Economists and political scientists have recognized endogeneity as a substantial curveball in determining optimal policies. Endogenous models figure prominently in central banking and monetary rulemaking, where inflationary expectations inform policy decisions to which people respond by adjusting their expectations and behaviors.[37] As recognized in the political economy literature, government policies are endogenous with voter behaviors: constituents' preferences and practices affect elections and legislative results,[38] which in turn can shape economic outcomes.[39] In empirical analyses,

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[32] Frakes, *supra* note 22, at 5, 12.

[33] *See* David Crary, *Do Georgia's Child Obesity Ads Go Too Far?*, HUFFINGTON POST (May 1, 2011), http://www.huffingtonpost.com/2011/05/02/georgia-child-obesity-ads_n_856255.html; Tara Parker-Pope, *Fat Stigma is Fast Becoming a Global Epidemic*, N.Y. TIMES, Mar. 31, 2011, at A1.

[34] Susan Yeh, *Laws and Social Norms: Unintended Consequences of Obesity Laws*, 81 U. CIN. L. REV. 173 (2013).

[35] Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470 (2011).

[36] *Id.* at 480; *see also* JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 2–3 (2008); Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. 698, 698 (1998).

[37] *See* OTMAR ISSING ET AL., IMPERFECT KNOWLEDGE AND MONETARY POLICY 1–11 (2005); Thomas W. Synnott, III, *The Great Inflation: Inflation, Inflationary Expectations, and the Phillips Cycle 1960–2002*, 43 BUS. ECON. 34, 35, 37 (2008); James VanderHoff, *Direct Evidence on Endogenous Expectation Formation Methods*, 28 Q. REV. ECON. & BUS. 6, 6 (1988).

[38] *See, e.g.*, Timothy Besley & Anne Case, *Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits*, 110 Q. J. ECON. 769, 769–70 (1995); James M. Poterba, *State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics*, 102 J. POL. ECON. 799, 799–800, 813 (1994).

[39] Timothy Besley & Anne Case, *Unnatural Experiments? Estimating the Incidence of Endogenous Policies*, 110 ECON. J. F672, F672 (2000).

neglecting to address endogeneity in law leads to biased estimates and spurious conclusions about the impacts of law on people's behaviors. However, only recently has endogeneity and feedback in judicial precedent begun to be more widely acknowledged as a phenomenon by legal scholars.[40]

More generally, understanding how to disentangle these feedbacks when estimating the causal impact of court-made law on custom is important because it could affect the legitimacy of judicial decisions. An example of a formal model of the endogenous relationship between custom and law as it applies to abortion law is presented by Chen, Levonyan, and Yeh.[41] This theoretical model illustrates how decisions can generate backlash, depending on how far the values communicated by a judicial decision deviate from dominant social norms.

In the next subsections, we empirically establish that customs correlate with trends in appellate precedent in obscenity and takings doctrine. Such correlations highlight the endogeneity problems in evaluating the policy rationales crucial to court decisions in these areas.

B. Custom in Obscenity Precedent and Policy Rationales of Morality

Appellate obscenity precedent in the United States provides an excellent illustration of the endogenous links among custom, behavior, and legal rules. In the United States, judicial precedent effectively serves as the law on obscenity, determining the scope of allowable obscenity regulation.[42] Here, obscenity precedent explicitly relies on custom in the local community. Since 1973, obscenity doctrine has relied on the Supreme Court's *Miller* community standards test[43] to define whether or not an expression is obscene. This three-part test deems an expression to be obscene if: (1) "the average person, applying contemporary community standards" would find that the material "appeals to the prurient interest"; (2) has "patently offensive [depictions of] sexual conduct"; and (3) "lacks serious literary, artistic, political, or scientific value."[44]

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[40] *See, e.g.*, Orin S. Kerr, *An Equilibrium-Adjustment Theory of the Fourth Amendment*, 125 HARV. L. REV. 476, 481–82 (2011); Masur, *supra* note 35, at 472–74.

[41] Chen, Levonyan & Yeh, *supra* note 9.

[42] Obscenity regulations in the United States are represented at local, state, and federal levels of government and are subject to Constitutional scrutiny by courts. *See, e.g.*, Miller v. California, 413 U.S. 15 (1973). While there are statutes and regulations addressing specific areas of conduct at the federal level, such as FCC regulations prohibiting obscene matter in television broadcasts or federal statutes proscribing interstate transport of obscene material, there is no umbrella federal statute on obscenity in the United States.

[43] *See id.* at 37.

[44] *Id.* at 24. Prior to *Miller*, the *Roth* test also applied custom in determining obscenity: "whether to the average person, applying contemporary community standards, the dominant theme of the material taken as a whole appeals to prurient interest." Roth v. United States, 354 U.S. 476, 489 (1957).

Community standards apply to the first two prongs, while the third prong relies on national reasonable person standards.[45]

While what constitutes the relevant "community" is subject to some discretion and becoming increasingly controversial due to the rise of the Internet and global media,[46] courts have traditionally interpreted "community" according to geography.[47] In theory, because of the *Miller* test, it is logical to expect that trends in obscenity precedent and prosecutions would track local customs and norms about sexual behaviors. That is, the same sexually explicit content would generate more permissive obscenity precedent in places with more liberal sexual attitudes than in places with more conservative attitudes. On the other hand, although observers initially argued that *Miller* would favor conservative communities in more aggressively proscribing sexual materials,[48] cases such as *Utah v. Peterman*[49] reveal that liberal national trends in sexual attitudes and behaviors can still dominate where local customs favor very conservative regulation.[50] Hence, whether regional customs actually predict trends and outcomes in obscenity precedent poses an open empirical question. In view of this, in Part II we test for the presence of community standards in appellate obscenity precedent. We show evidence that region-specific norms can predict variation in the permissiveness of obscenity precedent across circuits even while standards might be changing nationwide.[51]

The fact that community standards determine obscenity precedent brings to the forefront the endogenous relationship between obscenity law and people's conduct or values. An important assumption underlying obscenity decisions is the belief that they will affect morals and sexual behaviors.[52] Major Supreme Court obscenity rulings

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[45] *See Miller*, 413 U.S. at 24; John Fee, *Obscenity and the World Wide Web*, 2007 BYU L. REV. 1691, 1695, 1706 n.63, 1709.

[46] *See, e.g.*, Fee, *supra* note 45, at 1691; Matthew Dawson, Comment, *The Intractable Obscenity Problem 2.0: The Emerging Circuit Split over the Constitutionality of "Local Community Standards" Online*, 60 CATH. U. L. REV. 719, 721–22, 748 (2011).

[47] *See, e.g.*, U.S. v. Henson, 513 F.2d 156, 158 (9th Cir. 1975).

[48] In a separate work, we document a dramatic increase in the numbers of conservative appellate obscenity decisions immediately following the *Miller* decision. *See* Daniel L. Chen & Susan Yeh, How Do Rights Revolutions Occur? Theory and Evidence from First Amendment Jurisprudence, 1958–2008 (Oct. 2012) (unpublished manuscript) (on file with the authors).

[49] Case No. 961401694 (4th Dist. Ct. Utah Cnty. Mar. 1999).

[50] *See id.* In *Peterman*, a video store owner was being prosecuted for violating a Utah obscenity statute. Remarkably, the jury did not convict Peterman for selling pornography despite the extremely conservative locale of Utah County. *Peterman* revealed that in even one of the most conservative places in the United States, substantial numbers of people in the community were consuming pornographic materials, consistent with national trends in technology and pornography distribution. *See* Timothy Egan, *Erotica Inc.—A Special Report; Technology Sent Wall Street Into Market for Pornography*, N.Y. TIMES, Oct. 23 2000, http://www.nytimes.com/2000/10/23/us/erotica-special-report-technology-sent-wall-street-into-market-for-pornography.html?/pagewanted=all&src=pm.

[51] *See infra* Part II.

[52] *See* Koppelman, *supra* note 17, at 1639.

have claimed to have policy rationales of protecting society from the general proliferation of moral harm,[53] as well as "secondary effects" such as sexual violence and sexually transmitted diseases.[54] Because obscenity precedents are endogenous, one cannot evaluate their effects merely by observing changes in sexual attitudes following a court decision, since those social trends may be the reasons for the decisions in the first place. To distinguish obscenity law from community standards, one would need an exogenous policy change or a natural experiment.[55]

C. Custom in Takings Precedent

Custom is present in the law of takings through legal precedent as well as in entrenched expectations. Notably, community norms can be implied or embedded in regulatory takings decisions, a phenomenon that has been explored by a number of property scholars,[56] and which we discuss now. Recall that in the United States, a regulation of property could reach the extent of a taking requiring just compensation according to the Fifth Amendment.[57] It is commonly taught that regulatory takings doctrine originated with the 1922 decision of *Pennsylvania Coal Co. v. Mahon*,[58] in which Justice Holmes deemed a taking to occur when a regulation "goes too far" by depriving a property owner of all reasonable use or value of the property.[59]

To an extent, norms are implied in interpreting the "goes too far" standard.[60] Indeed, Henry Smith points out that the "goes too far" rule in *Mahon* is "a question

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[53] *See, e.g.*, Fort Wayne Books, Inc. v. Indiana, 489 U.S. 46, 78–83 (1989); Renton v. Playtime Theatres, Inc., 475 U.S. 41, 54 (1986); Young v. Am. Mini Theatres, Inc., 427 U.S. 50, 71–73 (1976).

[54] *See* Ginsberg v. New York, 390 U.S. 629, 640–43 (1968); Amatel v. Reno, 156 F.3d 192, 200 (D.C. Cir. 1998); *see also* Koppelman, *supra* note 17, at 1636, 1679 (asserting that obscenity doctrine is driven by moral concerns, despite assumptions that the rationales are to protect people from physical harm).

[55] *See infra* Part III.

[56] *See, e.g.*, ELLICKSON, *supra* note 1; FISCHEL, *supra* note 28, at 307–55; William A. Fischel, *The Law and Economics of Cedar-Apple Rust: State Action and Just Compensation in* Miller v. Schoene, 3 REV. L. & ECON. 1 (2007); Smith, *supra* note 5. Scholars have analyzed customs in property rights generally. *See, e.g.*, Rose, *supra* note 13, at 741–42.

[57] U.S. CONST. amend. V.

[58] 260 U.S. 393 (1922).

[59] *Id.* at 415.

[60] In *Mahon*, the Court did not offer specific guidance beyond the standard of "goes too far" in determining whether a government action constitutes a regulatory taking. *Id.* Subsequently, *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978) set forth a balancing test of economic impacts, interference with investment-backed expectations, and the character of the action. *Id.* at 130–31. And *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992), establishes that regulatory takings include "all-or-nothing" scenarios with the deprivation of all economically viable use of property value. *Id.* at 1014–19, 1029–30. But balancing tests are vague and subject to much discretion, and even with *Lucas*'s categorical

of degree"[61] regarding the appropriateness of regulating private property for public use. As a relative concept, the degree of "too far" implies that what is customary or expected would matter as a baseline in deciding whether just compensation was due. Consider a property use restriction that is long entrenched in the community. The view is that because this restriction is a long-standing norm, it would not be considered a taking even if it happens to deplete one's property values.[62] Along these lines, Henry Smith suggests that in takings law, custom is important in "defin[ing] the baseline of entitlement against which a regulation's effect on the owner's property interest can be measured."[63]

Because baselines differ across communities, they can lead to very different legal decisions regarding takings or property rights.[64] In this way, custom further shapes regulatory takings law through the Supreme Court's applications of common law in nuisance.[65] In *Lucas v. South Carolina Coastal Council*,[66] the Supreme Court ruled that a regulation preventing a public nuisance is not a taking.[67] Noting this, Smith characterizes the common law of nuisance in takings as providing a property rights baseline whose interpretation would depend on customary practices in the community.[68]

In physical takings, custom can play an important role in courts' interpretation of whether an exercise of eminent domain satisfies the public use requirement of the Takings Clause.[69] As early as *Clark v. Nash*,[70] the Supreme Court suggested that public use could be determined by custom, depending on "some peculiar condition of the soil or climate, or other peculiarity of the State."[71] In *Clark*, the Court upheld a state statute allowing an individual farmer to condemn property by digging a ditch across another farmer's land in order to access river waters.[72] The Court suggested

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holding, it remains unclear what actions count as "goes too far" in the wide range between "all" or "nothing."

[61] *Mahon*, 260 U.S. at 416.

[62] *See* Smith, *supra* note 5, at 37.

[63] *Id.* at 36. Smith also observes that *Lucas* "hold[s] that regulations that prohibit all economically beneficial uses of land are takings if they prohibit uses not actionable under prior 'background law' of property and nuisance." *Id.* at 34 n.109 (citing *Lucas*, 505 U.S. at 1029–30).

[64] *See id.* at 34, 36, 40–41.

[65] *Id.* at 38.

[66] 505 U.S. 1003 (1992).

[67] *Id.* at 1031–32 ("South Carolina must identify background principles of nuisance and property law that prohibit the uses he now intends in the circumstances in which the property is presently found. Only on this showing can the State fairly claim that, in proscribing all such beneficial uses, the Beachfront Management Act is taking nothing.").

[68] Smith, *supra* note 5, at 36. Moreover, custom is directly invoked in landmark nuisance decisions. In the classic case *Sturges v. Bridgman*, the Court ruled that a locality's existing practices determine whether or not there is nuisance liability. Sturges v. Bridgman, [1879] 11 Ch. 852, 865 (Eng.).

[69] *See* Smith, *supra* note 5, at 36–37.

[70] 198 U.S. 361 (1905).

[71] *Id.* at 368.

[72] *Id.* at 369–70.

that such use of waters was a public use based on practices that emerged from the locality's arid geography, population, and demands.[73] Indeed, one scholar classifies the *Clark* decision as descending from the custom of "allocating [property] rights by priority" that had developed over time in "the arid West."[74] Later, citing the Supreme Court's opinion in *Kelo v. City of New London*,[75] the Nichols treatise on eminent domain also acknowledges judicial deference to custom: because property use directly affects a community's economic well-being, local practices and conditions are likely to guide courts' interpretation of what constitutes public use.[76] Thus, the definition of "public use" is fluid and changes over time and across communities, depending on prevalent customs and socioeconomic circumstances.[77]

In this way, local economic measures can embody the customs that influence takings precedents. A concrete example of how a custom based on monetary values determined takings law is explored by William Fischel in his analysis of *Miller v. Schoene*,[78] which favored the uncompensated destruction of cedar trees to save apple trees amid a threat of fungus that could reside on either tree type.[79] Fischel observes that the legal rule that "prices make rights" was a codification of a long-accepted norm at the time favoring higher-valued commodities (apple trees) over lower-valued commodities (cedar trees).[80] The baseline practice here is to prefer the higher-valued resources, which had higher demand by the public in that particular market. As a result, it is plausible that one may observe that higher commodity or property values lead to court decisions that would be favorable towards owners of those commodities.

Importantly, Fischel observes "that commercial value itself is partly the product of a system of laws, so that there is an element of circularity in the claim that prices made rights."[81] He cautions against attributing commercial outcomes to courts and laws, arguing that customs that precede the law (such as institutions and individual preferences) explain both economic outcomes and variations in legal regimes.[82] Thus, rationales of government takings can be endogenous with economic outcomes. Moreover, given the public use requirement, a natural policy question concerns whether eminent domain will actually reap public benefits such as blight removal[83] or economic growth,[84] which skeptics of eminent domain worry that governments may unjustifiably

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[73] *Id.* at 370.

[74] A. Dan Tarlock, *Prior Appropriation: Rule, Principle, or Rhetoric?*, 76 N.D. L. REV. 881, 890 (2000).

[75] 843 A.2d 500, 524 (Conn. 2004), *aff'd*, 545 U.S. 469 (2005).

[76] 2A NICHOLS ON EMINENT DOMAIN § 7.02.

[77] *Id.* § 7.02 n.5.

[78] 276 U.S. 272 (1928).

[79] *See* Fischel, *supra* note 56, at 1.

[80] *Id.* at 24.

[81] *Id.*

[82] *Id.*

[83] *See* Berman v. Parker, 348 U.S. 26, 28–29 (1954).

[84] *See* Kelo v. City of New London, 545 U.S. 469, 489–90 (2005) (upholding a taking for a private developer with rationales that it would improve the city's economic outcomes).

be claiming at the outset when initiating a taking.[85] Some decisionmakers, including Justices O'Connor and Thomas, criticize eminent domain precedent such as *Kelo* as potentially hurting minority groups in terms of their housing situations and local employment opportunities in urban areas.[86]

Because of the circularity in the relationship between custom, economic conditions, and legal decisions, it is not a straightforward endeavor to evaluate the causal effects of takings. Economic trends leading up to condemnations and regulations may differ vastly across cities and regions. To what extent do local economic situations (customs) predict precedents that make it easier or harder for governments to take? We shed light on this question not only to contribute empirical evidence on custom's explanatory power in law for its own sake, but also to more solidly illustrate the endogeneity problem when analyzing the economic efficiency and distributional effects of takings.

II. EMPIRICAL EXAMPLES

Using ordinary least square regressions, we examine whether data support the argument that customs are predictive of trends in legal precedent. In obscenity, where custom is directly codified into the doctrine,[87] we analyze whether community standards, proxied by local attitudes regarding sexual behaviors, are predictive of more liberal obscenity decisions at the appellate level.[88] In takings law, we examine a possible link between locale-specific, preexisting economic norms and trends in court precedents making it easier or harder for the government to regulate or physically take property.[89]

Economists have theorized that takings with just compensation lead to overinvestment or inefficient allocation of resources. *See, e.g.*, Lawrence Blume, Daniel L. Rubinfeld & Perry Shapiro, *The Taking of Land: When Should Compensation Be Paid?*, 100 Q. J. ECON. 71 (1984); Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509 (1986).

[85] Daniel L. Chen & Susan Yeh, The Impact of Government Power to Expropriate on Growth and Inequality 2 (Jan. 2013) (unpublished manuscript) (on file with the authors).

[86] *Kelo*, 545 U.S. at 505 (O'Connor, J., dissenting); *id.* at 505–06 (Thomas, J., dissenting); *see also In the Footprint: The Battle Over Atlantic Yards* (the Civilians Investigative Theater, 2010) (musical criticizing the impacts of the Atlantic Yards project on minority urban dwellers).

The development economics literature links secure property rights with agricultural productivity and housing investment. *See* Erica Field, *Property Rights and Investment in Urban Slums*, 3 J. EUR. ECON. ASSOC. 279 (2005) (examining the relationship of increased property rights on investment in urban slums); Richard Hornbeck, *Barbed Wire: Property Rights and Agricultural Development*, 125 Q. J. ECON. 767 (2010) (examining the impact of the introduction of barbed wire fences on agricultural development in the American Plains). Insecure property rights in U.S. takings law most likely would arise if the government undercompensates the property owner. Chen & Yeh, *supra* note 85.

[87] *See* Miller v. California, 413 U.S. 15, 24 (1973) (setting forth a test for obscenity and incorporating a contemporary community standards prong).

[88] *See infra* Part II.A.1.

[89] *See infra* Part II.A.2.

A. Data

1. Obscenity

Our data on obscenity decisions are assembled from several sources. Federal appellate-level obscenity precedents come mainly from a study by Sunstein et al.;[90] we apply the corrections by Jonathan Kastellec.[91] Through our own data collection and coding, we extend the series to 2008, giving us a total of 186 obscenity cases in 612 circuit years for 1958–2008. These data were coded to include the names of the judges on each case's panel and their individual votes.[92] Decisions that find that the activity was not obscene within the meaning of the law are coded as "liberal," which corresponds to a "liberal" obscenity law. In these obscenity cases, a liberal obscenity decision could mean that the court held that material itself was not obscene according to obscenity-defining criteria, such as the *Miller* test.[93] A liberal obscenity decision could also mean that the court considered that individual interest in free expression outweighed the state's interest in protecting individuals from the effects of obscenity, as the rationale provides in *Ginsberg v. New York*.[94]

To construct outcome variables measuring moral attitudes and sexual behaviors reflecting community customs or norms, we use the General Social Survey (GSS).[95] As a nationally representative survey across the United States, the GSS provides

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[90] CASS R. SUNSTEIN ET AL., ARE JUDGES POLITICAL? (2006). These data were compiled first with Lexis searches of cases citing key Supreme Court obscenity decisions and then narrowed to cases decided on substantive grounds regarding obscenity. *Id.* at 161. Sunstein et al. review cases citing to *Miller v. California*, 413 U.S. 15 (1973), *Roth v. United States*, 354 U.S. 476 (1957), and *A Book Named "John Cleland's Memoirs of a Woman of Pleasure" v. Attorney General of Massachusetts*, 383 U.S. 413 (1966). *Id.* We follow this method and extend the series to 2008.

[91] Chen, Levonyan, & Yeh, *supra* note 9, at 13 & n.18. Programming code is on file with authors.

[92] *See infra* Part II.B.

[93] *See Miller*, 413 U.S. at 24.

[94] *See* Ginsberg v. New York, 390 U.S. 629 (1968). In the dataset, many of the obscenity cases involve challenges to charges of the distribution, production, or possession of obscene materials. Some examples include: *Eckstein v. Melson*, 18 F.3d 1181 (4th Cir. 1994) (selling magazines and books with explicit sexual imagery), *Penthouse International, Ltd. v. McAuliffe*, 702 F.2d 925 (11th Cir. 1983) (showing a Penthouse movie), and *United States v. Keller*, 259 F.2d 54 (3d Cir. 1958) (mailing postcards containing indecent language). More recently, cases in the 1990s and 2000s involve downloading images from the internet, *see* United States v. Thomas, 74 F.3d 701 (6th Cir. 1996), and making lewd phone calls, *see* United States v. Landham, 251 F.3d 1072 (6th Cir. 2001). Based on the legal tests and precedents referring to community norms, it is ex ante plausible that judges employ sexual custom in making decisions regarding obscenity.

[95] GEN. SOC. SURV., http://publicdata.norc.org:41000/gssbeta/index.html (last visited Apr. 16, 2013).

individual-level information on the demographic characteristics of individual respondents and their attitudes towards various situations and societal phenomena.[96] The survey was conducted annually from 1973 to 1994 (except for 1979, 1981, and 1992), and biannually from 1994 to 2004,[97] giving a total of 44,897 sample individuals between 1973 and 2004.[98] For our analysis in this Article, our variables of interest are of two categories: (1) attitudes towards more liberal sexual behaviors such as premarital sex, extramarital sex, teen sex, and same-sex sex;[99] and (2) actual sexual behaviors, for example casual sex.

To measure actual sexual behaviors, we use both self-reports from the GSS and government statistics on diseases by state. Custom may be revealed in behaviors that are observable outside of individuals' self-reports. Riskier sexual practices can correspond with the spread of venereal diseases, which courts have mentioned as a harmful effect that would warrant obscenity regulation.[100] We obtain the incidence (new cases) of sexually transmitted disease (STD) chlamydia for each state from 1984 to 2008 from the Centers for Disease Control and Prevention.[101]

2. Takings

We use data on all federal appellate regulatory takings published decisions from 1979 to 2004 collected by Sunstein et al.[102] We apply a similar methodology to

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[96] *Id.*

[97] *GSS Variables, Variables by Year*, GEN. SOC. SURV., http://www3.norc.org/GSS+Website/Browse+GSS+Variables/Collections/ (lasted visited Apr. 16, 2013).

[98] *Dataset: GSS, 1972–2006 (Cumulative File)*, GEN. SOC. SURV., http://www3.norc.org/GSS+Website/Browse+GSS+Variables/Collections/ (last visited Apr. 16, 2013). For each of these survey years, a cross-sectional sample of residents of the United States who are at least eighteen years old was randomly selected. The GSS consists of individual responses from around 1,500 respondents for each survey year between 1973 and 1992, and around 2,900 respondents per survey year from 1994 to 2004. *Id.*

[99] In this Article, we use a summary index of a series of separate questions regarding sexual attitudes. For details on how we constructed this index, see Chen & Yeh, *supra* note 48.

[100] *See* Fort Wayne Books, Inc. v. Indiana, 489 U.S. 46, 79 n.18 (1989). Footnote 19 references statements of Senator Helms when proposing the addition of state and federal obscenity violations as predicate offenses under Federal Rico: "Surely it is not coincidential [*sic*] that, as [*sic*] a time in our history when pornography and obscene materials are rampant, we are also experiencing record levels of promiscuity, veneral [*sic*] diseases, herpes." *Id.* at n.19.

[101] U.S. Dep't of Health & Human Servs., Div. of STD/HIV Prevention, *Sexually Transmitted Disease Morbidity 1984–2008*, CDC WONDER ONLINE DATABASE (Nov. 2009), http://wonder.cdc.gov/std-v2008.html.

[102] *See supra* notes 90–91 and accompanying text. Decisions of the U.S. Court of Federal Claims were excluded. We obtained the data directly from authors. The cases were identified by tracking the citations of the following landmark Supreme Court decisions, and it is reasonable that most takings cases would cite one or more of these cases: *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992); *Nollan v. California Coastal Commission*, 483 U.S.

collect appellate physical takings decisions from 1975 to 2008.[103] If the judge voted to grant the party alleging a violation of the Takings Clause any relief, then the vote was coded as a pro-plaintiff vote. If the judge voted against that party and instead voted in favor of the government that engaged in the alleged taking, then the vote was coded as a pro-government vote. The sample includes only cases that had substantive decisions about takings, rather than cases that were decided only on procedural grounds.

Following our discussion of local economic trends or situations as reflecting customary expectations, we proxy for custom using economic outcome variables. First, we use property values at the zip-code level from Fiserv Case-Shiller database.[104] The Fiserv data cover the entire United States, and we use the data to construct a panel of about 41,000 zip codes followed quarterly from 1975 to 2008.[105] In some checks, we weigh the zip-code level price indexes by zip-code population from the U.S. Census.[106] We use the Merged Outgoing Rotation Group's (MORG) Current Population Survey (CPS) for minority employment outcomes.[107] Data on Gross Domestic Product (GDP) by state and year were obtained from the Bureau of Economic Analysis.[108]

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825 (1987); *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470 (1987); *Penn Central Transportation Co. v. New York City*, 438 U.S. 104 (1978). *See* SUNSTEIN ET AL., *supra* note 90, at 158 n.6.

[103] We shephardized *Kelo v. City of New London*, 545 U.S. 469 (2005); *Yee v. City of Escondido*, 503 U.S. 519 (1992); *Hawaii Housing Authority v. Midkiff*, 467 U.S. 229 (1984); *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982); and *Berman v. Parker*, 348 U.S. 26 (1954).

[104] *Home Price Indexes*, FISERV, http://www.caseshiller.fiserv.com/fiserv-case-shiller-home-price-index-changes.aspx (last visited Apr. 16, 2013).

[105] The Case-Shiller indices are based on repeat sales data on single-family homes. *See About the Indexes*, FISERV, http://www.caseshiller.fiserv.com/about-fiserv-case-shiller-indexes.aspx (last visited Apr. 16, 2013). In geographic areas that do not have a valid Case-Shiller price index, Fiserv splices in the corresponding Federal Housing Finance Agency (FHFA) index. *Id.* The FHFA series is a quarterly, weighted, repeat-sales single family house price index based on repeat mortgage transactions handled by Fannie Mae or Freddie Mac. *Id.* We weigh the zip code Fiserv price indices using zip code specific population estimates calculated for 2005 from the U.S. Census.

[106] The Census data documentation is located at U.S. CENSUS BUREAU, 2000 CENSUS OF POPULATION AND HOUSING (2007), http://www.census.gov/prod/cen2000/doc/sf1.pdf.

[107] *CPS Merged Outgoing Rotation Groups*, NAT'L BUREAU ECON. RES., http://www.nber.org/data/morg.html (last visited Apr. 16, 2013). Information on individual employment outcomes, including weekly earnings, amount of time worked, and employment status, was obtained from the Merged Outgoing Rotation Groups (MORG) Current Population Survey (CPS). The MORG provides point-in-time measures of the individual-level variables, including age, sex, race, marital status, educational attainment, and the geographic location of the individual (matching the state of residence to the circuit having legal jurisdiction). *See id.* We restrict our sample to individuals between the ages of eighteen and sixty-five.

[108] U.S. DEP'T OF COMMERCE, *Widespread Economic Growth Across States in 2011*, BUREAU ECON. ANALYSIS (June 5, 2012), https://www.bea.gov/newsreleases/regional/gdp_state/gsp_highlights.pdf. These estimates are aggregated across all industries.

B. Measuring Law

We construct a measure of law specific to each appellate circuit and year. For obscenity precedents, we calculate the percentage of appellate obscenity decisions within a circuit and year that have a liberal outcome, i.e., the three-judge panel concludes that a particular activity or expression should not be punished for being obscene. For regulatory and physical takings (separately), we measure pro-government takings precedents as the percentage of appellate takings cases that are decided in favor of the government. This percentage allows us to measure trends in pro-government takings decisions net of pro-plaintiff decisions in a circuit and year. Intuitively, this percentage captures whether an appellate decision in favor of the government, on the margin, makes it easier overall for a litigant to bring and win suit contesting a government regulation, condemnation, or other action. We justify these law measures econometrically in separate papers.[109]

C. Results and Implications of Custom in Law

In each set of regressions below, we examine the correlation between appellate precedent in the current year and custom in the preceding year. If judges take custom into account, we should expect to see a correlation between custom and judicial decisions. Each pair of columns in the results that follow show an ordinary least squares correlation between appellate law and a proxy for custom and an ordinary least squares correlation between the two variables while controlling for time-invariant characteristics within a circuit and circuit-invariant characteristics within a year. We limit our robustness checks to turning on and off these time-invariant and circuit-invariant characteristics since these statistical correlations are intended merely to illustrate the possibility that custom influences the law rather than to prove definitively that a causal relationship exists.

Table 1—Relationship Between Custom and Obscenity Law

	Liberal Obscenity Precedent					
	(1)	(2)	(3)	(4)	(5)	(6)
Sexual Attitudes	-0.00580	-0.00946*				
	(0.00414)	(0.00390)				
Casual Sex			-0.0138+	-0.00957		
			(0.00824)	(0.00751)		
Chlamydia					-0.000118*	0.000130
					(0.0000589)	(0.0000817)
N	40409	40409	23566	23566	1118	1118
R-sq	0.105	0.229	0.001	0.172	0.004	0.188

[109] *See* Chen & Yeh, *supra* note 48; Chen & Yeh, *supra* note 85.

Consistent with the idea that community customs are predictive of judge-made obscenity legal outcomes, Table 1 shows a statistically significant correlation between local sexual attitudes and the percentage of liberal obscenity precedent in an appellate circuit and year when time-invariant and circuit-invariant characteristics are controlled for. There is also a correlation between casual sex prevalence and the percentage of liberal obscenity decisions, as well as between local chlamydia prevalence rates and liberal obscenity decisions when time-invariant and circuit-invariant characteristics are not controlled for.

Table 2—Relationship Between Custom and Takings Law

Panel A	Pro-Government Regulatory Takings Precedent					
	(1)	(2)	(3)	(4)	(5)	(6)
Log Property Prices	0.00944**	0.0290**				
	(0.000808)	(0.00157)				
Minority Employment			0.00659**	-0.000377		
			(0.000823)	(0.000730)		
Log GDP					0.0123	-0.0271**
					(0.00766)	(0.00953)
N	2981400	2981400	1378649	1378649	1680	1680
R-sq	0.000	0.188	0.000	0.219	0.002	0.208
Panel B	Pro-Government Physical Takings Precedent					
	(1)	(2)	(3)	(4)	(5)	(6)
Log Property Prices	0.110**	0.121**				
	(0.000371)	(0.000950)				
Minority Employment			0.00494**	-0.00107+		
			(0.000634)	(0.000560)		
Log GDP					0.0313**	-0.00198
					(0.0113)	(0.0127)
N	4054704	4054704	1864977	1864977	1323	1323
R-sq	0.021	0.190	0.000	0.225	0.006	0.238

Similarly, we find that economic circumstances predict trends in takings laws by region. Table 2 shows strong and statistically significant correlations between local economic outcomes preceding takings decisions and the probabilities of takings decisions that are pro-government in the circuit.

As we have shown, past social and economic outcomes can be correlated with later laws. Given these correlations, it is difficult to ascertain a causal effect of the law on social or economic outcomes that are observed *after* the law has been promulgated. This is because those social or economic situations may be changing over time, regardless of the legal decision. Moreover, there may be other factors, like custom, that are

driving social or economic outcomes before as well as after the legal decision. Studies that rely only on correlations are less likely to have a causal interpretation.

III. A SOLUTION THROUGH NATURAL EXPERIMENTS

A. Intuition

Making definitive conclusions about the impacts of court-made law is no easy task. Indeed, as suggested by both the *Miller* test[110] as well as in actual data linking trends in sexual norms with obscenity law,[111] norms and customs drive judicial decisions. How, then, do we ascertain a causal effect from judicial decisions to the norms? Distinguishing correlation from causation is difficult for reasons beyond the crucial role of norms. There is often a long lag between cause and effect, and courts make decisions in different ways depending to some extent on external factors, be they litigant strategy, developments in legal doctrine, or social trends. Observational studies are frequently confounded by other factors, which tend to move in tandem with the treatment of interest. The common approach of "controlling for" potential confounders in a multivariate regression is not satisfactory[112] and can accentuate the problem of omitted variable bias.[113] Moreover, problems in making causal inferences become more pronounced with judge-made law, where judges may use future societal trends as a factor in their decisionmaking. Even if omitted variables are adequately controlled for, reverse causality remains a problem.

Refutable research hypotheses about the effects of court-made law can be evaluated in an observational setting where identifying variation is plausibly exogenous. The hypothesis may have several implications, which can be evaluated in available data. The most compelling empirical comparisons do not require sophisticated econometric fixes.[114] Instead, good natural experiments identify treatment effects with minimal statistical adjustment.[115] The cleanest of experiments—where the treatment (of court-made law) is randomly assigned—requires only the comparison of means to estimate causal effects. This controlled experiment should be emulated wherever possible. Operationally, the proposed approach seeks to unearth comparisons in an observational setting where unadjusted impact estimates are quite similar to regression-adjusted impact estimates.

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[110] *See* Miller v. California, 415 U.S. 15, 24 (1973).

[111] *See* Robert B. Cairns et al., *Sex Censorship: the Assumptions of Anti-Obscenity Laws and the Empirical Evidence*, 46 MINN. L. REV. 1009, 1009–12 (1962).

[112] *See* David A. Freedman, *Statistical Models and Shoe Leather*, 21 SOC. METHODOLOGY 291 (1991).

[113] *See, e.g.*, Kevin A. Clarke, *The Phantom Menace: Omitted Variable Bias in Econometric Research*, 22 CONFLICT MGMT. & PEACE SCI. 341 (2005).

[114] *Cf.* Freedman, *supra* note 112, at 292 (arguing that regression models can be "technical fixes [that] do not solve the problems" in a causal argument).

[115] *Id.* at 304, 307.

The ideal way to estimate a causal effect of court-made law would be to ask a court to randomize judicial decisions, much as a scientist would conduct a randomized control trial.[116] This scenario is unlikely to come to pass and, indeed, arguably undermines the notion of judging. But we have a close approximation in the random assignment of appellate judges who, in exercising their judicial discretion, often interpret the facts and the law in a slightly different manner that is correlated with their demographic background characteristics. This "local knowledge" and the practice of stare decisis provide key ingredients for an instrumental variables approach to developing causal estimates of court-made law.[117]

The key problem in estimating the effects of court-made law is that there are many causal factors that contribute to judicial precedent in any given circuit or year.[118] Some of these factors may have direct or indirect effects on the outcomes of interest. We can control for as many of these causal factors as possible, but we never know if there might be additional omitted variables. Our instrumental variables approach isolates one particular causal factor that will be uncorrelated with other social trends and legal developments. We do this by exploiting the random variation in the demographic composition of the judge panels sitting on a set of cases, which arises because the judges are randomly assigned.[119] The judges' biographies predict their decisions on the judicial panels.[120] Provided that the demographic composition does not also have direct effects on socio-economic outcomes, we can infer that the judicial decisions themselves had a causal impact on social and economic outcomes.

Appellate courts determine a significant portion of cases that shape the law in the United States.[121] This effective making of law occurs since decisions become precedents for decisions in future cases. More formally, we can isolate an unexpected component of appellate jurisprudence using the random assignment of appellate judges to particular case types (e.g., obscenity decisions). The random assignment of judges to appellate cases creates exogenous variation in legal precedent that is not due to social trends or other legal developments.

We expect to see appellate judicial decisions to have effects on agents' behaviors if judges follow precedent and appellate decisions on the margin make it easier for

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[116] *See* Michael Abramowicz et al., *Randomizing Law*, 159 U. PA. L. REV. 929, 1005 (2011) (arguing that randomizing legal rules is informative in evaluating policy).

[117] Among others, Adam Samaha has recognized the potential of randomized case assignment for research. *See* Adam M. Samaha, *Randomization in Adjudication*, 51 WM. & MARY L. REV. 1, 7 (2009) (noting that "random assignment creates a natural experiment" and "[t]rustworthy empirical study may depend on such lotteries for insight into judicial behavior").

[118] *See id.* at 63–65 (explaining the concerns "that random case assignment will effectively randomize merits decisions").

[119] Chen & Yeh, *supra* note 48, at 3 (explaining the empirical strategy used to determine how judges' demographic characteristics affect appellate decisions).

[120] *Id.*

[121] *See generally* DAVID E. KLEIN, MAKING LAW IN THE UNITED STATES COURTS OF APPEALS 4–5 (2002).

subsequent plaintiffs to bring and win suit. For example, allowing city ordinances restrictive of sexual expression when theater owners merely intend to exhibit adult motion pictures, even if there may be some uncertainty about their secondary effects,[122] would make it harder for subsequent plaintiffs to challenge obscenity regulations. Then individual actors in the economy or in the government may respond to appellate decisions as they become known through local community leaders, newspaper publicity,[123] lawyer advocates,[124] or consultants who emphasize the risk of suit after major appellate decisions.[125]

Our strategy therefore overcomes the community standards and other factors that would otherwise be endogenous with obscenity decisions as follows: Democratic appointees are more likely to vote liberally on obscenity cases. When judges are randomly assigned to three-judge appellate panels, there will be arbitrarily more or fewer Democratic appointees. Therefore, there should be arbitrarily more or fewer liberal votes on obscenity cases, respectively. To clarify, our strategy does not rely on cases getting more Democratic appointees in the Ninth Circuit, a generally more liberal court with a greater percentage of Democratic appointees than the Fourth Circuit.[126] "Rather, the strategy relies on the fact that from year to year, the proportion of obscenity cases [*within* the Ninth Circuit] that are assigned Democratic appointees varies in a random manner."[127] In years with an unexpectedly high proportion of obscenity cases with Democratic appointees, the proportion of obscenity cases that will result in liberal precedent is also high.

The judges' votes then result in unexpectedly more or fewer liberal obscenity decisions for that circuit. These shocks in liberal obscenity decisions (due to randomly assigned Democratic judges) are akin to natural experiments in laws that are not influenced by preexisting community standards. Rather, a randomized control trial is created through the random assignment of judges who interpret the facts and the law differently.

Random variation in the assignment of appellate judges is an attractive instrument for a number of reasons. The random assignment of judges is exogenous and unexpected. It varies in both the cross-section and the time series, so it does not rely on strong assumptions about the comparability of different regions (e.g., circuits) and

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[122] *See, e.g.*, Renton v. Playtime Theatres, Inc., 475 U.S. 41 (1986).

[123] *See* Herbert M. Kritzer & Robert E. Drechsel, *A Portrait of Local News Reporting of Civil Litigation* (Univ. of Minn. Law Sch. Legal Studies Res. Paper Series, Paper No. 10-34, 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1633504.'

[124] *See* Chen & Yeh, *supra* note 48, at 14–15 (discussing how community organizations and advocates respond to appellate obscenity decisions); Frank Dobbin & Erin L. Kelly, *How to Stop Harassment: Professional Construction of Legal Compliance in Organizations*, 112 AM. J. SOC. 1203, 1220–23 (2007).

[125] *See* Dobbin & Kelly, *supra* note 124, at 1203.

[126] Chen & Yeh, *supra* note 48, at 16.

[127] *Id.* ("The idiosyncratic variation is not expected ahead of time since judicial assignment is not revealed to parties until very late . . . and after each litigant's briefs are filed.").

years. The enormous variation in legal decisions due to the judicial panel composition also makes the empirical design an ideal context to study the consequences of law. We explain this empirical strategy in technical terms.[128]

Our analysis of how community standards in sexual norms determines legal precedent in obscenity, which can further affect local sexual attitudes and behaviors, highlights a circularity that makes it difficult to evaluate a law's true impacts on social change. Correlation does not equal causation. Our empirical strategy recognizes the endogenous relationship between custom and court-made law and takes advantage of a natural experiment from the random assignment of judges to court cases as a powerful tool in evaluating the societal impacts of court-made law.

B. Empirical Model

The basic specification models the changes in precedent at the circuit-year level and its relationship to individual outcomes of persons, firms, government, or other units:

$$\text{(1a)} \qquad Y_{ict} = \beta_0 + \beta_1 Law_{ct} + \epsilon_{ict}$$

The dependent variable, Y_{ict}, is a measure of outcomes of unit I in circuit c and time t. The main coefficient of interest is β_1 on Law_{ct}, where Law_{ct} is the measure of precedent issued in circuit c and year t, such as the percentage of cases with a pro-plaintiff outcome.[129]

If legal precedent and economic outcomes are systematically correlated due to omitted variables, then β_1 is biased. A critical concern with judge-made law is that of cross-fertilization across different areas of doctrine. If different but related doctrinal areas have independent effects on economic outcomes, social changes may be misattributed to one legal rule when many legal rules are also changing. Distinguishing correlation from causation is challenging in observational studies, which are frequently confounded by other factors moving in tandem with the treatment of interest.[130]

The common approach of controlling for potential confounders is a multivariate regression:

$$\text{(1b)} \qquad Y_{ict} = \beta_0 + \beta_1 Law_{ct} + \beta_2 C_c + \beta_3 T_t + \beta_4 C_c * Time + \beta_5 W_{ct} + \beta_6 X_{ict} + \epsilon_{ict}$$

but this can exacerbate omitted variable problems.[131] With a research design involving random treatment assignment, adding control variables can add precision to the

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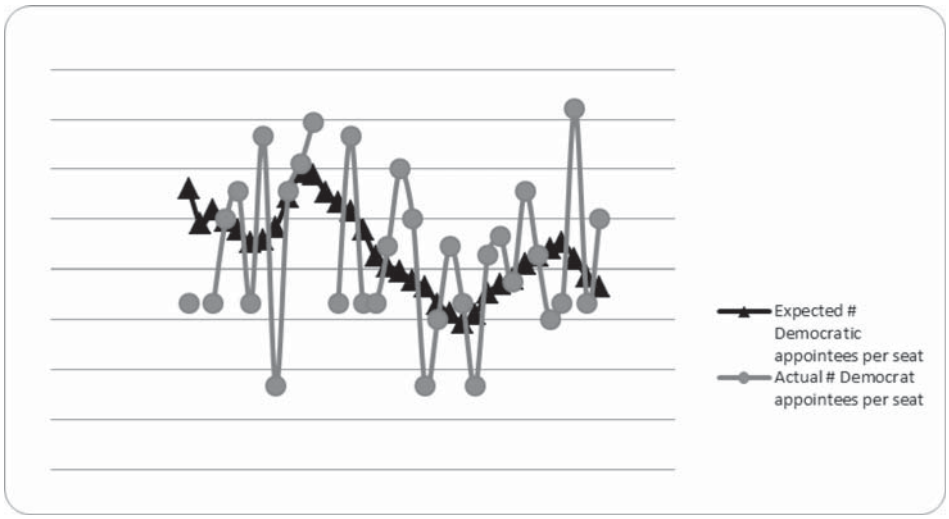
[128] *Id.* at 3.
[129] *See id.* at 21.
[130] *See id.* at 22.
[131] *See id.*

estimates if the controls are strong predictors of the outcomes.[132] We can show that the main estimates are invariant to the inclusion or exclusion of: circuit fixed effects, C_c, and time fixed effects, T_t, to address whether fixed unobservable differences within circuits and within time periods are correlated with pro-government takings precedent and economic outcomes; circuit-specific time trends, C_c*$Time$, to allow circuits to be on different trajectories with respect to outcomes; state fixed effects to address the possible influence of state-specific takings statutes or state interpretation of federal laws; a vector of observable characteristics, X_{ict} (e.g., gender, education, and race); and time-varying circuit-level controls, W_{ct}, such as the characteristics of the pool of judges available to be assigned.

Figure 1: Judicial Composition and Random Assignment, 1971–2004



We construct an instrumental variable that is uncorrelated with possible confounders for Law_{ct} such as covarying legal developments or social trends that drive both legal decisions, Law_{ct}, as well as the outcomes, Y_{ict}. This approach addresses the possible omitted variables bias that creates a spurious correlation between Law_{ct} and the outcome of interest.[133] Figure 1 roughly depicts the intuition for the empirical strategy, in which we exploit the random variation that arises from using the actual deviations from the expected probability of a circuit year having judges who were Democratic appointees.[134] The flatter line is the expected number of Democratic

[132] Esther Duflo et al., *Using Randomization in Development Economics Research: A Toolkit*, *in* HANDBOOK OF DEVELOPMENT ECONOMICS 3895, 3924 (T. Paul Schultz & John Strauss eds., 2008).

[133] Chen & Yeh, *supra* note 48, at 23.

[134] *See id.*

appointees on a panel. The jagged line is the actual number of Democratic appointees on a panel, in this instance, for abortion cases. (The figure displays the average values across all circuits, therefore masking some of the actual variation.) Circuit-years receiving an unexpectedly high proportion of Democratic appointees on their panels for a particular case category (such as obscenity) receive an unexpectedly higher proportion of liberal decisions in that legal category.[135] Each actual spike above the expected probability of getting a Democrat judge corresponds to the circuit year randomly receiving a "treatment" of more liberal decisions.[136] Thus, changes in outcomes can be attributed to the "treatment" of liberal laws. Figure 1 suggests the first stage equation:

$$\text{(2a)} \qquad Law_{ct} = g_0 + g_1 Treatment_{ct} + g_2 C_c + g_3 T_t + g_4 C_c{*}Year + g_5 X_{ict} + \epsilon_{ict}$$

We define Law_{ct} as the percentage of decisions that are [liberal] when there are cases and 0 when there are no cases in a circuit and year. The "Treatment" group ($Treatment_{ct} = 1$) comprises individuals living in circuits and years who experience an unexpectedly higher percentage of liberal decisions. We calculate the difference in Y_{ict} for those treated versus those who are not treated and the difference in Law_{ct} for those treated versus those who are not treated. The ratio of the two differences in each of the years after the treatment gives us the treatment effect in that year.[137]

C. Implementation

We apply this empirical strategy in separate papers,[138] where we develop and implement the econometric models in greater technical detail. To examine the causal impact of liberal obscenity laws on custom as reflected by local sexual attitudes and behaviors, we use the random assignment of federal appellate judges who were Democratic appointees. We document that appellate judges' Democratic affiliation predicts that they will favor more permissive obscenity standards.[139] Thus, the random assignment of Democratic appointees effectively leads to unanticipated shocks in the percentage of obscenity decisions per year that are liberal. Using the same data on obscenity decisions and from the GSS, our instrumental variables estimates reveal that liberal obscenity precedents on average lead to progressive sexual customs.[140] Progressive

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[135] *See id.*

[136] *See id.*

[137] *Id.* at 24. Formally, $Treatment_{ct} = 1[(N_{ct}/M_{ct}) > \mathrm{E}(N_{ct}/M_{ct})]$, where N is the number of Democratic appointees assigned to all cases of a particular doctrinal category in that circuit and year (i.e., the number of Democratic appointees assigned to obscenity cases) and M is the number of cases in a particular doctrinal category in that circuit and year. $\mathrm{E}[N/M]$ is the expected number of Democratic appointees per given case. *Id.*

[138] Chen & Yeh, *supra* note 48; Chen & Yeh, *supra* note 85.

[139] Chen & Yeh, *supra* note 48, at 1.

[140] *Id.*

sexual attitudes, nonmarital sexual behavior especially by men, prostitution and rape arrests, and the incidence of STDs increased after liberal obscenity precedent.[141]

To examine the impact of regulatory and physical takings decisions, we exploit the random assignment of judges and establish that they vote on takings cases in a manner correlated with their race, political affiliation, and prior government experience. Through the instrumental variable estimates, we find that appellate decisions favoring physical takings increase growth by 0.2% points but reduce minority home ownership and employment by 0.5% and 0.4% points[142] respectively. Meanwhile, decisions favoring regulatory takings initially depress property prices but spur economic growth in the medium run by 0.7% points.[143]

We also examine the impacts of appellate court decisions allowing takings on subsequent government behavior. We collect novel data on all state exactions since 1990 and use a government dataset of condemnations across the United States. We find that decisions favoring the government in physical takings cases subsequently displace commercial tenants and reduce just compensation,[144] consistent with an interpretation of eminent domain doctrine increasing government power.

CONCLUSION

A valuable body of scholarship asserts whether or how custom determines formally adopted laws. At the same time, there is increasing interest among legal scholars in making causal inferences about the impacts of formal laws such as statutes or court precedents on social norms or other outcomes. Since custom is not codified, it may cause these observers to spuriously conclude that a correlation between a formal law and a social trend is due to the law, when it is likely to be due to custom, whether it is embodied by the outcome or whether it remains an unobserved factor in the calculus. This Article illustrates this in the context of First Amendment jurisprudence in obscenity, where custom is explicitly referenced in the written doctrine, and takings jurisprudence, where custom is not as obvious when trying to determine what constitutes public use or just compensation.

Our empirical analyses document statistical correlations between sexual norms and obscenity law and between economic outcomes and takings law. The first correlation suggests that judges are applying the *Miller* community standards test and relying on local sexual norms to decide an obscenity case. The second result is consistent

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[141] We also investigate a causal mechanism hypothesizing that people pay attention to and are influenced by news reports on obscenity decisions. We show that newspapers report on appellate obscenity decisions. We also conduct a field experiment assigning workers to transcribe obscenity news reports and find that exposing them to liberal obscenity decisions leads them to report more permissive sexual attitudes. *Id.* at 5–6.

[142] Chen & Yeh, *supra* note 85, at 5.

[143] *Id.* at 1.

[144] *Id.* at 23.

with the idea that local practices can determine both economic trends as well as takings decisions based on what is considered to be "public use" or "just compensation" in a particular place and time. Studies examining the effects of laws on people's behavior would require understanding the correlation between custom and the law. To identify the impact of the law on custom, we propose an empirical method that overcomes the reverse causality issues that would otherwise occur when custom simultaneously determines the law.

Estimating the causal effects of law on custom is important for a number of reasons. Understanding the legitimacy of court-made decisions is one such reason; for example, one theoretical model illustrates how decisions can backfire.[145] Moreover, our empirical solution can be a valuable contribution in evaluating legal policy. Consider a public health crisis, such as an HIV/AIDS outbreak. Policymakers may want to know what policies could curb STDs, perhaps through behavioral changes in health customs. They may try to learn from past experience, but observational data would indicate that previous crises preceded both policy decisions and health customs, but not that policy decisions affect health customs. Our methodology would inform policymakers whether their decisions have a causal impact on health customs that may be related to the incidence of STDs.[146] While this Article has cited examples from two specific areas of legal doctrine, our empirical framework is quite general and can be applied to thinking about the relationships among norms, customs, and laws amid a broader interdisciplinary conversation. The theoretical literature in customs and laws includes works that present taxonomies and works that elucidate mechanisms. Our empirical framework allows researchers a useful way to test the latter set of theories with real world laws.

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[145] *See generally* Chen, Levonyan & Yeh, *supra* note 9.

[146] We thank our discussant for this insight.