William & Mary Law Review

Volume 53 (2011-2012)
Issue 2 Constitutional Transformations: The State, the Citizen, and the Changing Role of Government Symposium

Article 2

November 2011

Laws for Learning in an Age of Acceleration

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William and Mary
Law Review

VOLUME 53 NO. 2, 2011

LAWS FOR LEARNING IN AN AGE OF ACCELERATION

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TABLE OF CONTENTS

* © John O. McGinnis, George C. Dix Professor of Law, Northwestern Law School. Thanks to Bob Bennett, Steve Calabresi, Lee Epstein, Nelson Lund, Marisa Maleck, Mark Movsesian, Jim Pfander, John Pfaff, and Tuan Samahon for comments and Matthew Underwood for valuable research assistance. I am also grateful to comments I received from other participants in the William & Mary School of Law's Symposium, *Constitutional Transformations: The State, the Citizen, and the Changing Role of Government*. Thanks also to Michael Abramowicz for conversations about some of these matters during a seminar that we offered together. This piece is an overlapping companion to *Accelerating Regulatory Review*, *in* THE NANOTECHNOLOGY CHALLENGE (forthcoming 2012). That essay describes the relation of technological acceleration to regulatory review while this Essay focuses on the relation of accelerating technology to law and political culture.

INTRODUCTION

The twenty-first century's information age has the potential to usher in a more harmonious and productive politics. People often disagree about what policies to adopt, but the cornucopia of data that modern technology generates can allow them to better update their beliefs about policy outcomes on the basis of shared facts. In the long run, convergence on the facts can lead incrementally to more consensus on better policies. More credible factual information should over time also help make for a less divisive society, because partisans cannot as easily stoke social tensions by relying on false facts or exaggerated claims to support conflicting positions. Thus, a central task of contemporary public law is to accelerate a politics of learning whereby democracy improves a public reason focused on evaluating policy consequences.

Government should be shaped into an instrument that learns from the analysis of policy consequences made available from newly available technologies of information.[1] Greater computer capacity is generating more empirical analysis.[2] The Internet permits the rise of prediction markets that forecast policy results even before the policies are implemented.[3] The Internet also creates a dispersed media that specializes in particular topics and methodologies, gathers diverse information, and funnels salient facts about policy to legislators and citizens.[4]

But a public reason focused on policy consequences will improve only if our laws facilitate it. For instance, constitutional federalism must be reinvigorated to permit greater experimentation across jurisdictions, because with the rise of empiricism, decentralization has more value for social learning today than ever before.[5] Congress should include mandates for experiments within its own legislation,

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1. The premise of this project is that more information can help democracy update on the facts—an assumption I support in *Debiasing Democracy*. John O. McGinnis, Debiasing Democracy (May 1, 2011) (unpublished manuscript) (on file with author).

2. *See infra* Part II.A.

3. *See infra* Part II.B.

4. *See infra* Part II.C.

5. *See infra* Part III.A.1.

making policy initiatives contain the platforms for their own self-improvement.[6]

Creating a contemporary politics of democratic updating on the basis of facts is a matter both of great historical interest and of enormous importance to our future. In the historical sweep of ideas, a government more focused on learning from new information moves toward fulfilling the Enlightenment dream of a politics of reason—but a reason based not on the abstractions of the French Revolution, but instead on the hard facts of the more empirical tradition predominating in Britain. By displacing religion from the center of politics, the Enlightenment removed issues by their nature not susceptible to factual resolution, permitting a focus on policies that could be improved by information.[7] The better democratic updating afforded by modern technology can similarly increase social harmony and prosperity by facilitating policies that actually deliver the goods.

For the future, a more consequentially informed politics is an urgent necessity. The same technological acceleration that potentially creates a more information-rich politics also generates a wide range of technological innovation—from nanotechnology to biotechnology to artificial intelligence. Although these technologies offer unparalleled benefits to mankind, they may also create catastrophic risks, such as rapid environmental degradation and new weapons of mass destruction.[8] Only a democracy able to rapidly assimilate the facts is likely to be able to avoid disaster and reap the benefits inherent in the technology that is transforming our world at a faster pace than ever before.

Every industry that touches on information—book publishing, newspapers, and college education to name just a few—is undergoing a continuous series of revolutionary changes as new technology permits delivery of more information more quickly at lower cost. The same changes that are creating innovation in such private industries can also quickly create innovation in social governance. But the difference between information-intensive private industries

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6. *See, e.g.*, *infra* Part IV.

7. *See* John Witte, Jr., *The Theology and Politics of the First Amendment Religion Clauses: A Bicentennial Essay*, 40 EMORY L.J. 489, 495 (1991).

8. *See, e.g.*, Keith Johnson, *Bioscience Gains Cause Terror Fears*, WALL ST. J., Aug. 11, 2010, at A4.

and political institutions is that the latter lack the strong competitive framework for these revolutions to occur spontaneously. This Essay thus attempts to set out a blueprint for reform to make better use of some available information technologies.

Part I describes the reality of technology acceleration as the acceleration both creates the tools for democratic updating and prompts its necessity. Technological acceleration is the most important development of our time—more important even than globalization. Although technologists have described and discussed its significance, its implications for law and political structure have been barely noticed.

Part II briefly discusses how better social knowledge can change political results. A premise of the claim is that some political disagreements revolve about facts, not simply values. As a result, better social knowledge can help democracies design policies to achieve widely shared goals. Social knowledge energizes citizens to act on those encompassing interests, like improved public education, because they come to better recognize the policy instruments to advance those interests. Better social knowledge provides better incentives for citizens to vote on these interests.

Part III considers the mechanisms for creating a contemporary politics of democratic updating that begins to meet the needs of the age of accelerating technology. It focuses on two of the new resources that can have substantial synergies in improving social common knowledge and shows how an increase in common knowledge can systematically improve political results by providing better incentives for citizens to work for encompassing social goods. First, Part III considers the improvement in empirical analysis of social policy that flows from increasing computational capacity. It then discusses how specialized and innovative media does much more than disseminate opinions: it widely distributes facts and factual analysis. The combination of these technologies can better discipline experts and representatives, providing stronger incentives for them to update on the basis of new facts.

Part IV discusses the information-eliciting rules that will maximize the impact of new technologies of information. These steps include a program of restoring, where possible, governmental structures that permit appropriate decentralization for experimentation, empirical testing, and learning. Congress and regulatory agencies

should structure legislation and regulations to include social experiments when such experiments would help resolve disputed matters of policy. The Supreme Court should generally refrain from imposing new substantive rights for the nation so that it is easier to evaluate the consequences of different bundles of rights chosen by the states. But it should also protect the dispersed media, like blogs, from discriminatory laws, because this dispersed media plays a crucial role in modern policy evaluation. In short, the Supreme Court needs to emphasize a jurisprudence fostering social discovery and the political branches need to create frameworks for better social learning. Constitutive structures encouraging and evaluating experimentation become more valuable in an age where better evaluation of social experiments is possible.

I. TECHNOLOGICAL ACCELERATION

It is the premise of this Essay that technological acceleration is occurring and that our political system must adapt to the world it is creating. The case for technological acceleration rests on three mutually supporting kinds of evidence. First, from the longest-term perspective, epochal change has sped up: the transitions from hunter-gatherer society to agricultural society to the industrial age each took progressively less time to occur, and our transition to an information society is taking less time still. Second, from a technological perspective, computational power is increasing exponentially, and increasing computational power facilitates the growth of other society-changing technologies like biotechnology and nanotechnology. Third, even from our contemporary perspective, technology now changes the world on a yearly basis both in terms of hard data, like the amount of information created, and in terms of more subjective measures, like the social changes wrought by social media.

From the longest-term perspective, it seems clear that technological change is accelerating and, with it, the basic shape of human society and culture is changing.[9] Anthropologists suggest that for 100,000 years, members of the human species were hunter-gather-

9. *See generally* Robin Hanson, *Economics of the Singularity*, IEEE SPECTRUM (June 2008), http://www.spectrum.ieee.org/robotics/robotics-software/economics-of-the-singularity.

ers.[10] About 10,000 years ago humans made a transition to agricultural society.[11] With the advent of the Industrial Revolution, the West transformed itself into a society that thrived on manufacturing.[12] Since 1950, the world has been rapidly entering the information age.[13] Each of the completed epochs has been marked by a transition to substantially higher growth rates.[14] The period between each epoch has become very substantially shorter.[15] Thus, there is reason to extrapolate to even more and faster transitions in the future.

This evolution is consistent with a more fine-grained evaluation of human development. Recently, the historian Ian Morris has rated societies in the last 15,000 years on their level of development through objective benchmarks, such as energy capture.[16] The graph shows relatively steady, if modest, growth when plotted on a log linear scale, but in the last 100 years development has jumped to become sharply exponential.[17] Morris concludes that these patterns suggest that there may be four times as much social development in the world in the next 100 years than there has been in the last 14,000.[18]

The inventor and engineer Ray Kurzweil has dubbed this phenomenon of faster transitions "the law of accelerating returns."[19] Seeking to strengthen the case for exponential change, he has looked back to the dawn of life to show that even evolution seems to make transitions to higher organisms ever faster.[20] In a more granulated way, he has considered important events of the last 1000

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10. NICHOLAS WADE, BEFORE THE DAWN: RECOVERING THE LOST HISTORY OF OUR ANCESTORS 8-9 (2006).

11. *Id.* at 125.

12. *See* DAVID A. HOUNSHELL, FROM THE AMERICAN SYSTEM TO MASS PRODUCTION 1800-1932: THE DEVELOPMENT OF MANUFACTURING TECHNOLOGY IN THE UNITED STATES 15-46 (1984).

13. *See generally* Hanson, *supra* note 9.

14. *Id.*

15. *Id.*

16. *See* IAN MORRIS, WHY THE WEST RULES—FOR NOW: THE PATTERNS OF HISTORY, AND WHAT THEY REVEAL ABOUT THE FUTURE 156 fig.3.1 (2010).

17. *Id.* at 166 fig.3.7.

18. *Id.* at 590.

19. RAY KURZWEIL, THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY 35 (2005).

20. *Id.* at 14-21.

years to show that the periods between extraordinary advances, such as great scientific discoveries and technological inventions, have decreased.[21] Thus, both outside and within the great epochs of recorded human history, the story of acceleration is similar.

The technology of computation provides the second perspective on accelerating change. The easiest way to grasp this perspective is to consider Moore's Law. Moore's Law—named after Gordon Moore, one of the founders of Intel—is the observation that the number of transistors that can be fitted onto a computer chip doubles every eighteen months to two years.[22] This prediction, which has been approximately accurate for the last forty years,[23] means that almost every aspect of the digital world—from computational calculation power to computer memory—is growing in density at a similarly exponential rate.[24] Moore's Law reflects the rapid rise of computers to become the fundamental engine of mankind in the late twentieth and early twenty-first centuries.[25]

The power of exponential growth is hard to overstate. As the economist Robert Lucas has said, once you start thinking about exponential growth, it is hard to think about anything else.[26] The computational power in a cell phone today is a thousand times greater and a million times less expensive than all the computing power housed at MIT in 1965.[27] Projecting forward, the computing power of computers twenty-five years from now is likely to prove a million times more powerful than computing power today.[28]

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21. *Id.* at 18-20.

22. *See Moore's Law Inspires Intel Innovation*, INTEL CORP., http://www.intel.com/technology/mooreslaw (last visited Oct. 31, 2011).

23. *See id.* ("Intel ... has maintained this pace for decades.").

24. *See* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1620 n.147 (2003).

25. *Cf.* HENRY ADAMS, THE EDUCATION OF HENRY ADAMS 352-62 (Penguin Books 2010) (1918).

26. Robert E. Lucas, Jr., *On the Mechanics of Economic Development*, 22 J. MONETARY ECON. 3, 5 (1988).

27. *See* Ray Kurzweil, *Making the World a Billion Times Better*, WASH. POST, Apr. 13, 2008, at B4.

28. *Id.*; *see also* HANS MORAVEC, ROBOT: MERE MACHINE TO TRANSCENDENT MIND 23 (1999) ("In less than fifty years, inexpensive computers will match and exceed—in raw information-processing power—even the well-developed functions of the human brain.").

To be sure, many people have been predicting the imminent death of Moore's Law for a substantial period now,[29] but it has nevertheless continued. Intel—a company that has a substantial interest in accurately telling software makers what to expect—projects that Moore's Law will continue at least until 2029.[30] Ray Kurzweil shows that Moore's Law is actually part of a more general exponential computation growth that has been gaining force for over a 100 years.[31] Integrated circuits replaced transistors that previously replaced vacuum tubes that in their time had replaced electromechanical methods of computation.[32] Through all of these changes in the mechanisms of computation, its power increased at an exponential rate.[33] This perspective suggests that other methods under research—from carbon nanotechnology to optical computing to quantum computing—are likely to continue growing exponentially even when silicon-based computing reaches its physical limits.[34]

Focusing on the exponential increase in hardware capability may actually understate the acceleration in computational capacity in two ways. First, a study considering developments in a computer task using a benchmark for measuring computer speed over a fifteen-year period suggests that the improvements in software algorithms improved performance even more than the increase in hardware capability.[35] Second, computers are interconnected more than ever before through the Internet, and these connections increase collective capacity, not only because of the increasing density among computer connections, but because of the increasing density of connections among humans made possible by computers.

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29. *See* KURZWEIL, *supra* note 19, at 66 (noting observers' beliefs that "Moore's Law is nothing more than self-fulfilling prophecy").

30. Jeremy Geelan, *Moore's Law: "We See No End in Sight," Says Intel's Pat Gelsinger*, SOA WORLD MAG. (May 1, 2008, 2:30 PM), http://java.sys-con.com/read/557154.htm.

31. KURZWEIL, *supra* note 19, at 66-67.

32. *See id.*

33. *Id.* at 68.

34. For a good introduction to quantum computing, see GEORGE JOHNSON, A SHORTCUT THROUGH TIME: THE PATH TO THE QUANTUM COMPUTER (2003).

35. *See* PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., EXEC. OFFICE OF THE PRESIDENT, REPORT TO THE PRESIDENT AND CONGRESS: DESIGNING A DIGITAL FUTURE: FEDERALLY FUNDED RESEARCH AND DEVELOPMENT IN NETWORKING AND INFORMATION TECHNOLOGY 71 (2010), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-nitrd-report-2010.pdf.

The salient feature of computers' exponential growth is their tremendous range of application compared to previous improvements. Almost everything in the modern world can be improved by adding an independent source of computational power. That is why computational improvement has a far greater social effect than improvements in technologies of old. Energy, medicine, and communication are now being continually transformed by the increase in computational power.[36] As I will discuss in Part II, even the formulation of new hypotheses in natural and social science will likely be aided by computers in the near future.

The final perspective on accelerating technology is the experience that the contemporary world provides. Technology changes the whole tenor of life more rapidly than ever before. At the most basic level, technological products change faster.[37] Repeated visits to a modern electronics store—or even a grocery store—reveal a whole new line of products within very few years. In contrast, someone visiting a store in 1910 and then again in 1920—let alone in 1810 and 1820—would not have noticed much difference. Even cultural generations move faster. Facebook, for instance, has changed the way college students relate in only a few years,[38] whereas the tenor of college life would not have seemed very different to students in 1920 and 1960.

Our current subjective sense of accelerating technology is also backed by more objective evidence from the contemporary world. Accelerating amounts of information are being generated.[39] Information, of course, is a proxy for knowledge. Consistent with this general observation, we experience exponential growth in practical technical knowledge, as evidenced by the rise in patent

36. *See* KURZWEIL, *supra* note 19, at 243-50 (energy); *id.* at 206-26 (biotechnology).

37. Ray Kurzweil, *The Law of Accelerating Returns*, KURZWEIL ACCELERATING INTELLIGENCE (Mar. 7, 2001), http://www.kurzweilai.net/the-law-of-accelerating-returns.

38. *See generally* Matthew Robert Vanden Boogart, Uncovering the Social Impacts of Facebook on a College Campus (2006) (unpublished M.S. thesis, Kansas State University), *available at* http://krex.k-state.edu/dspace/bitstream/2097/181/4/MatthewVandenBoogart2006.pdf ("Patents have become increasingly important .... [ ] and have adapted to remain abreast of changing economic and scientific circumstances.").

39. *See* Paula Skokowski, *Data Tsunami—5 Exabytes of Data Created Every 2 Days?*, ACCELLION (Aug. 9, 2010, 5:08 PM), http://www.accellion.com/blog/2010/08/data-tsunami-5-exabytes-of-data-created-every-2-days/.

applications.[40] Thus, the combination of data from our present life, together with the more sweeping historical and technological perspectives, makes a compelling case that technological acceleration is occurring.

It is this technological acceleration that creates both the capacity and the need for improving collective decision making. As technology accelerates, it creates new phenomena, from climate change to biotechnology to artificial intelligence of a human-like capacity. These technologies may themselves have very large positive or negative externalities and may require government decisions about their prohibition, regulation, or subsidization to forestall harms and capture their full benefits. They may also cause social dislocations, from unemployment to terrorism, that also require certain collective decisions. Society can best handle these crises not only by making better social policy to address them directly but by improving social policy more generally to create both more resources and more social harmony to endure them. Thus, society must deploy information technology in the service of democratic updating if it is to manage technological acceleration.

II. DEMOCRACY, POLICY CONSEQUENCES, AND SOCIAL KNOWLEDGE

If information helps in updating beliefs and in leading to convergence on better policies, then a central object of public law should be to empower the new information technologies, such as empiricism, and dispersed media, which lower the costs of creating and accessing common social knowledge. Before describing the effects of some of these specific technologies, it is useful to offer a brief theory of how reducing information costs is likely to lead to a better and more harmonious society. This framework explains why it is important to move any society to its information frontier.

Societies do best when they understand and act on the likely consequences of their collective decisions. Lowering information costs through the use of modern information technology can improve collective decision making in three ways. First, it helps create more

40. *See generally* Michael McAleer & Daniel Slottje, *A Simple New Measure of Innovation: The Patent Success Ratio*, 63 SCIENTOMETRICS 421, 421 (2005), *available at* http://www.iemss.org/iemss2004/pdf/econometric/mcalasim.pdf.

common social knowledge. Second, it encourages citizens to organize around diffuse public interests. Third, it encourages citizens to vote more on the basis of the public interest.

A. Creating Social Knowledge

First, and most obviously, reducing the costs of creating and accessing information creates more social knowledge about public policy and makes more of that knowledge common. The growth of common social knowledge itself can potentially help policymakers make better decisions. A key assumption beyond this claim is that some of the disagreements in a democracy are over factual consequences of policies, not simply political values.

Completely defending this assumption would require a more detailed discussion than possible here, but the dynamics of political life seem to support it. President George W. Bush proclaimed that tax cuts for individuals offered a way out of recession and would increase economic growth.[41] President Barack Obama proclaimed that his stimulus plan of higher government spending offered a way out of recession and would increase economic growth.[42] These were very different plans from Presidents of different parties, but the proffered objectives were broadly similar. As to these issues of growth, what is debated is which political program will, as a matter of fact, broadly deliver these economic goods.

Factual consequences matter even as to issues within the economic debate in which there is disagreement, as for instance on the issue of balance between growth and equality. Most favoring equality will nevertheless want as much growth as is consistent with an equality constraint, and most favoring growth will nevertheless want to minimize harm to equality. Thus more information about methods of increasing economic growth will make it easier to find the best way to increase economic growth without substantially reducing social equality or the best way to reduce economic inequality without substantially decreasing economic growth.

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41. *See* Remarks on the Bipartisan Congressional Tax Relief Agreement and an Exchange with Reporters, 1 PUB. PAPERS 474 (May 1, 2001) (arguing that tax cuts would stimulate the economy).

42. *See* Statement on Signing the American Recovery and Investment Act of 2009, 1 PUB. PAPERS 109 (Feb. 17, 2009) (seeing the act as aid in economic growth).

The current debate over education reform also centers on instrumental questions about the factual results of policy. Americans overwhelming want publicly funded education to deliver quality education to children. Of course, exactly how government aid is to increase educational outputs is a matter of intense contemporary disagreement. Will vouchers or charter schools improve attainments? Even within government run schools, will merit pay or smaller class sizes or both raise test scores? But these important questions are ones of means, not ends.

An important reason for substantial consensus on objectives within a nation on such questions is geopolitical competition. For instance, the rise of China prompts widespread concern about how to make sure our children have the education to keep the nation's economy competitive. In part, Americans want continued economic growth to assure that United States has the resources to continue to occupy a position of geopolitical strength in its dealings with this rising power.[43]

But even on the assumption that better knowledge of the actual consequences of policy has the potential to resolve some political disagreements, it will only do so if policymakers actually use this improved knowledge as a basis for their decisions. They are more likely to use the information for the public good in a democracy if the public gives them incentives to do so.

B. Encouraging Collective Action

Thus, a second effect of lowering information costs is important as well. Modern information technology can reduce the information costs citizens face in acting for common interests, like the best methods for improving education and economic growth. Information costs are one of the barriers to such collective action, because they impede the capacity of individuals to organize with others of like mind. When costs are high, groups in politics organize most effectively around an interest from which they can receive a very substantial payoff.[44] Hence citizens can much more easily organize

43. *See, e.g.*, David Barboza, *Shanghai Schools Push Students to Top of Test*, N.Y. TIMES Dec. 30, 2010, at A4 (discussing concern that Chinese students are performing better than Americans).

44. *See generally* MANCUR OLSON, JR., THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS

to engage in seeking particular rents from the government, as when sugar growers find a common interest in subsidies.[45]

In our age, the cost of information about politics can fall sufficiently so that citizens can more easily make common cause with others on encompassing interests where the individual gain may be relatively small but the gain to society is collectively large, such as raising the economic growth rate or improving primary and secondary education. Moreover, once the policy instruments of achieving a result, like better education, become more transparent, citizens cannot be as easily misled by the pleading of a special interest group, like a teachers union for a policy that helps the interest group but not the public. Of course, special interest groups will continue to lobby, but declining information costs about policy can incrementally shift over time the balance of power between special interests and groups focused on more encompassing interests in society.

C. Voting in the Public Interest

Lowering the costs of information also provides better incentives to vote on the basis of encompassing interests rather than merely parochial ones. Even on rational choice grounds, it has been shown that voters consider broad issues of the common good, such as whether a policy will help economic growth, as well as narrower issues of whether the policy will help them in particular.[46] But given such dual motivations, voters are more likely to focus on parochial interests insofar as it is unclear how encompassing interests actually will be achieved. For instance, individuals have generally had more reason to believe that a subsidy will benefit them than to believe that a policy will lead to economic growth, because knowledge regarding growth-enhancing policies has been sparse, uncertain, and not very accessible to the ordinary citizen. But as the cost

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AND THE THEORY OF GROUPS 2 (1965) (explaining the influence of special interest groups in democratic societies).

45. *Cf. id.* at 143.

46. *See* GEOFFREY BRENNAN & LOREN LOMASKY, DEMOCRACY AND DECISION: THE PURE THEORY OF ELECTORAL PREFERENCE 19-53 (1993). Americans consider the effect of a policy on the nation as a whole. *See* SAMUEL L. POPKIN, THE REASONING VOTER: COMMUNICATION AND PERSUASION IN PRESIDENTIAL CAMPAIGNS 31 (1991).

of information dissemination decreases, the policy instruments of collective good may become more widely known. More citizens can then emphasize their public interest inclinations in the voting booth, more confident that policies supported by candidates that they favor will actually redound to the public interest. Thus, creating more social knowledge itself has a variety of incentive effects, helping citizens organize and vote for more encompassing interests.

III. TWO INFORMATION TECHNOLOGIES FOR IMPROVING SOCIAL KNOWLEDGE

In one respect, the nature of today's technological advances makes it easier for social governance to adapt to their transformations. At the heart of technological acceleration is growth in computation—an information capacity. Thus, unlike technological innovations of the past from the iron ploughshare to the water mill to the steam engine, this dynamo of technological improvements also directly improves the capacity for the accumulation, analysis, and distribution of information and thereby enhancing the capacity for policy analysis.

Computational improvements, broadly understood, are making available a variety of new information technologies that may improve social governance, including predictions markets[47] and artificial intelligence.[48] Here, however, we have space to focus in detail on just two new information technologies, modern empiricism and dispersed media, and the synergies they help create between themselves and with other innovative technologies to improve social governance. In Part IV, we consider the political reforms that can best integrate these technologies into social governance.

47. For the best discussion of prediction markets, see MICHAEL ABRAMOWICZ, PREDICTOCRACY: MARKET MECHANISMS FOR PUBLIC AND PRIVATE DECISIONMAKING (2008).

48. *See* John O. McGinnis, *Accelerating AI*, 104 NW. U. L. REV. 1253 (2010).

A. Modern Empiricism

1. The Nature of Empiricism

Empirical social science attempts to discover the causes of social behavior. One cause of social behavior is social policies. Insofar as empirical investigators show how various policies affect social behavior, they create social knowledge that can improve policies on the assumption that there is a consensus about whether the behavior is to be encouraged or discouraged.

Like natural science, social science seeks the causes of things, but the nature of social phenomena makes this task difficult. Experiments can be designed reliably to isolate the causes of natural phenomena, but social science generally faces the difficulty of trying to infer causes from a welter of real world data.[49] For instance, assume that Massachusetts places substantial restrictions on ownership and carrying of guns and Idaho imposes very few restrictions. Can one use this difference to evaluate the effects of gun control on homicides? Even if Idaho has a substantially lower homicide rate than Massachusetts, it does not follow from that correlation that gun control is causing that difference. Some other difference between Massachusetts and Idaho may be responsible for this disparity—anything from differences in demography to differences in culture. Moreover, because of the legislative decisions made in each state the observer can only see the effects of many restrictions in Massachusetts, not in Idaho, and the effect of few restrictions in Idaho and not in Massachusetts.

As a result, social science empiricism routinely faces difficulties, particularly the problem of excluding the possibility that correlations do not reflect causation. But social scientists have found clever ways to control for this possibility by introducing other variables to account for such possible causes as demography or culture.[50] By doing so, they thus reduce the likelihood that unobserved factors provide explanations for correlations.[51] To be sure, making analysis

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49. *See* Steven I. Friedland, *Law, Science and Malingering*, 30 ARIZ. ST. L.J. 337, 387 (1998).

50. *See* James Lindgren, *Predicting the Future of Empirical Legal Studies*, 86 B.U. L. REV. 1447, 1448-49 (2006).

51. *See id.* at 1448.

more complex may allow researchers to introduce ideologically driven distortions, but as discussed below the culture of empiricism has the potential to minimize this risk.

In some cases, social science empiricists are able to closely approximate scientific experiments.[52] A natural experiment is an experiment in which a scientist finds a real-world event that changes the levels of a variable they want to measure. A natural experiment depends on an event that is random with respect to the factors that may prevent correlation from reflection causation.[53] Only then can social scientists come close to replicating a scientific experiment. For instance, Jonathan Klick and Alex Tabarrock used the Homeland Security alerts as a natural experiment to demonstrate the effectiveness of police.[54] Homeland Security alerts increase the number of police in a given area but are otherwise random events with respect to crime rates.[55] On the basis of this information, their analysis suggests that a 50 percent increase in the number of police reduces crime by approximately 15 percent.[56] Part IV discusses how government policy can randomize two or more different policies to create policy experiments.

To be sure, experiments will not routinely provide conclusive proof regarding what policies to pursue. Social phenomena often have complex interactions.[57] Even if in Minneapolis it turns out that pupils assigned to charter schools were better than those assigned to public schools, this difference may be due to something about charter schools in Minnesota that cannot be generalized throughout the United States. Nevertheless, even if such interactions have an effect, such an experiment has value because it will change our view about what policy should be pursued locally and may even change our estimate of how effective vouchers are likely to be elsewhere. Knowledge is incremental, and it is no argument against randomization or decentralization to argue that it is not a single magic

52. *See id.*

53. *See id.* at 1448-49.

54. *See* Jonathan Klick & Alexander Tabarrok, *Using Terror Alert Levels To Estimate the Effect of Police on Crime*, 48 J.L. & ECON. 267, 268 (2005).

55. *See id.* at 271.

56. *Id.*

57. *See* Jim Manzi, *What Social Science Does—and Doesn't—Know*, CITY J., Summer 2010, *available at* http://www.city-journal.org/2010/20_3_social-science.html.

bullet. Moreover, the fact that even randomization studies need to be multiplied to gain more conclusive results is an argument for greater systemization of randomization that only government can encourage.

It might be argued that empiricism does not have the potential to help settle policy disputes because the causes empiricists infer are not really facts, given that they are not directly observed. But much, if not most, knowledge that affects how we live our lives is not directly observed. Most of us do not directly observe that the earth is round or that a molecule is made up of atoms but infer such propositions from other facts or credit their truth on the basis of scientific authority. Over time such scientific knowledge can have large social effects. Knowledge about social behavior may be harder to come by, but it remains knowledge even if it depends on inferences and authority.

2. The Rise of Empiricism

The accelerating power of computers, discussed above, addresses what has always been the Achilles' heel of social science empiricism: its need for enormous amounts of data and huge calculating capacity to tease apart causation from mere correlation. First, the social world must be broken down into numbers that can be calculated, and to deal with matters of any social complexity, a lot of numbers are required. To draw any conclusions, these numbers then must be sliced and diced to test hypotheses about particular social claims, such as the assertion that a certain kind of charter school improves test scores or that the deployment of more police decreases crime.

But now computers have ever greater storage capacity that allows more and more facts to be collected, making possible more comprehensive measurements of world events.[58] In fact, electronic agents may soon sweep the web to collect data for researchers to use.[59] The ubiquity of networked sensors will also collect far more data.[60] Such

58. *See* Lindgren, *supra* note 50, at 1454.

59. *See* Stephen T. Middlebrook & John Muller, *Thoughts on Bots: The Emerging Law of Electronic Agents*, 56 BUS. LAW. 341, 362 (2000) (noting the growth of autonomous agents on the net).

60. *See* Declan Butler, *Everything, Everywhere*, 440 NATURE 402, 402, 405 (2006).

data allow more opportunities for natural experiments. Storage of masses of data also allows social scientists to evaluate more possible causes of social phenomena and thus better approximate the true causes of social problems and successes.[61]

Greater computer calculating power also permits the construction of ever more complex equations, by which investigators try to exclude the confounding factors always present in the messy social world and thus to reveal the true causes of social phenomena.[62] It also permits the use of methods such as repeated sampling, which produces better error estimates and gives researchers greater confidence in their results.[63] Finally, it provides the computational infrastructure for ongoing advances in statistical methods.[64]

Given the continuing acceleration in information processing, we can expect more computational assistance to obtain even more and richer results. First, by 2020, computers are predicted to generate hypotheses to be tested, and thus we will not have to depend on only the ingenuity of researchers for testing the full range of explanations for social phenomena.[65] Second, computer simulations will become more powerful, permitting researchers to see what happens when they vary certain data from existence.[66] Such simulations will help enhance the robustness of empirical results.

Perhaps most importantly, the declining cost of empiricism will also change the culture of social science analysis by reducing the relative costs of empiricism and theory. A hundred years ago, armchair speculation was very cheap compared to empiricism, because the cost of seriously doing the latter enterprise was high, generally prohibitively so, in that the available technology rarely delivered any useful results. Thus, it was rational for universities to hire mostly theorists without much interest in comprehensive and statistical inquiry into the social world. But now that the cost of empiricism has fallen, a cascade of empiricists of all kinds—economists,

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61. For discussion of the huge increase in storage capacity for data, see generally Alexander Szalay & Jim Gray, *Science in an Exponential World*, 440 NATURE 413 (2006).

62. *See* Jonathan Simon, *Law After Society*, 24 LAW & SOC. INQUIRY 143, 188 (1999).

63. *See* Derek Partridge, *A Science of Approximate Computation*, http://www.nesc.ac.uk/esi/events/Grand_Challenges/paneld/d17.pdf (last visited Oct. 31, 2011).

64. *See* Lindgren, *supra* note 50, at 1452.

65. *See* Stephen H. Muggleton, *Exceeding Human Limits*, 440 NATURE 409, 409 (2006).

66. *See* JOSHUA M. EPSTEIN & ROBERT AXTELL, GROWING ARTIFICIAL SOCIETIES: SOCIAL SCIENCE FROM THE BOTTOM UP 19-20 (1996).

psychologists, political scientists—is flowing into our universities and think tanks.[67]

In law in particular, the rise of empiricism has been the most important change in legal scholarship in the last ten years.[68] Cornell Law School has created a new peer-reviewed journal devoted to empiricism.[69] A conference wholly devoted to empiricism and law is held every year.[70] In 2009, 175 papers were presented, approximately 50 percent more than the previous year.[71]

The large number of empiricists can create a rich market for empirical work and provide greater incentives to get the facts and models absolutely correct. For instance, the norms of empirical research are now beginning to require disclosure of data so that other investigators cannot only replicate the results but also subject the data to their own investigations that can test the robustness of the conclusions with additional statistical analysis.[72] Consideration is being given to whether evidence-based systemic review should supplement peer review. Thus, empirical culture will be no less ubiquitous than computing itself and it can serve to reorient our political culture over time to a greater concern with consequences.[73]

Better empiricism more broadly disseminated should mean that social scientists should converge on similar results. To be sure, there will be disagreements, but the rewards of a culture of empiricism should make empiricists handle these disputes in a professional way, adjudicating them with reference to the best evidence and

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67. On the rise of empiricists in law schools, see Henry G. Manne & Joshua D. Wright, *The Future of Law and Economics: A Discussion* 2-3 (George Mason Univ. Law & Econ. Research Paper Series, Paper No. 08-35, 2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1145421.

68. *See generally* Marc C. Suchman & Elizabeth Mertz, *Toward a New Legal Empiricism: Empirical Legal Studies and New Legal Realism*, 6 ANN. REV. L. & SOC. SCI. 555 (2010).

69. *See Journal of Empirical Legal Studies—Journal Information*, WILEY.COM, http://www.blackwellpublishing.com/journal.asp?ref=1740-1453&site=1 (last visited Oct. 31, 2011). On the importance of peer review for improving empirical scholarship, see Gregory Mitchell, *Empirical Legal Scholarship as Scientific Dialogue*, 83 N.C. L. REV. 167, 175 (2004).

70. *See The Fourth Annual Conference on Empirical Legal Studies*, USC LAW (Nov. 20-21, 2009), http://lawweb.usc.edu/assets/docs/contribute/CELSPorgram_002_.pdf.

71. For the 2009 program, see *id.* For the 2008 program, see *Conference on Empirical/Legal Studies 2008*, CELS 2008 (Sept. 12-13, 2008), http://www.lawschool.cornell.edu/cels2008/schedule.cfm.

72. *See* Lindgren, *supra* note 50, at 1454; Mitchell, *supra* note 69, at 190-94.

73. *See infra* Part IV.

methodology.[74] As in other sciences, adherence to professional norms will determine advancement and prestige.

To be clear, for the most part empirical studies will not directly change the minds of citizens. People are not statisticians and have better things to do with their time. But experts themselves affect policy. Indeed, representatives and experts have such a large combined effect on policy that some conceptions of democracy understand competition between elites (both representatives and experts) as the essence of modern democracy.[75]

Moreover, empirical work is now discussed in our dispersed media like blogs. The blogs are the most dynamic and consequential part of our media culture because of their own influence and the influence they exert through more mainstream media. By sifting and critiquing empirical work, dispersed media can amplify the most powerful empirical work, generating a better ratio of signals to noise from the professional enterprise of social fact finding. Given such synergies, we now turn to an analysis of the potential of dispersed media in modern democracy.

B. Dispersed and Innovative Media

New innovative media, such as blogs and web videos, advance a politics of learning. The most beneficial effect of the web on democracy is its capacity to produce better evaluation of policy consequences. Because of the greater space and interconnections that the web makes available, web-based media can be dispersed and specialized, and yet interconnected and connected with the wider world—a powerful combination to create better assessments of policy through debate and disagreement. As a result of this more decentralized and competitive media, the web generates both more innovative policy ideas and better assessments of policy than in the days when mainstream media dominated the flow of political discussion. However, the more mainstream media does remain an

74. *See* Bruce E. Cain, *Election Law as a Field: A Political Scientist's Perspective*, 32 LOY. L.A. L. REV. 1105, 1116 (1999).

75. *See* RICHARD A. POSNER, LAW, PRAGMATISM AND DEMOCRACY 18 (arguing for a concept of democracy where elites chosen by the people rule, as opposed to a more deliberate democracy in which the citizens themselves make the decisions).

important part of the mix, sifting the best of the web and bringing it to a wider public.

Blogs can be specialized and address issues with a level of sophistication that major media cannot sustain.[76] Just in the area of law, there are now scores of widely read blogs—often with quite particular focuses.[77] New websites, like Calculated Risk and Mish's Global Economic Trend Analyses, offer their own analyses of global economic news.[78]

Such specialized media improves factual knowledge of the policy world in two respects. First, specialized media provides a framework and discipline for the information in a particular area.[79] Unlike the mass media of the past, which emphasized theatrical opposition between partisan opponents in order to attract readers, some new specialized media will not seek out shrill or extreme voices.[80] Moreover, experts participating in such media and addressing their peers could speak more cautiously and with less partisanship in the media arena. For instance, the Empirical Legal Studies blog helps enforce professional standards by drawing more prominent attention to good and bad examples of legal empiricism.[81] In the world of intense scrutiny that specialized media creates, scholars will suffer blows to their reputation if they fail to engage in careful self-monitoring about their public policy pronouncements. Thus, specialization has the potential to match interest in truth seeking with an individual interest in personal advancement—an interest that is already reflected in the discussion in the world of

76. *See* Robert W. Bennett, *Democracy as Meaningful Conversation*, 14 CONST. COMMENT. 481, 511 (1997).

77. For a list of the huge number of specialized law professors' blogs, see LEGAL BLOGS, http://law-library.rutgers.edu/resources/lawblogs.php (last visited Oct. 31, 2011).

78. *See* Stephen Mihim, *D.I.Y. Macroeconomics*, N.Y. TIMES, Dec. 19, 2010, http://www.nytimes.com/interactive/2010/12/19/magazine/ideas210.html.

79. *See* Bennett, *supra* note 76, at 511 (discussing the importance of specialized media in ventilating particular policy disputes).

80. In economics alone, there are more than two dozen respected blogs that range from left to right. *See Top 25 Economic Blogs*, WALL ST. J., http://online.wsj.com/article/SB124768581740247061.html. In law as well, there is a wide variety of blogs that specialize in particular topics and range widely over the ideological spectrum. *See* Paul L. Caron, *2009 Law Prof Blog Rankings*, TAXPROF BLOG (Jan. 20, 2010), http://taxprof.typepad.com/taxprof_blog/2010/01/2009-law-prof.html (listing top blogs by law professors).

81. *See* EMPIRICAL LEGAL STUDIES, http://www.elsblog.org/the_empirical_legal_studi/ (last visited Oct. 31, 2011).

natural science. As Philip Tetlock has said, "[T]he more people know about pundits' track records, the stronger the pundits' incentives to compete by improving the epistemic (truth) value of their products."[82]

Second, such specialized media feeds into larger, more mainstream media, providing the kernels for stories that reach the wider public.[83] A modern reporter's beat is not simply pounding the pavement but going online.[84] Indeed, the Internet has become a vast funnel of information that allows specialized but important information to be diffused into the wider world in a form in which it can be understood.[85] Hypertext makes this fact visible: the reporter links to the academic article on which he relies, just as the academic may link to the data set on which she relies. The funnel has a two-way flow as well: such dispersed medias also monitor more mainstream medias, creating another kind of constraint that makes the information flow more accurate.[86]

Thus, the dispersed media creates a better discovery function for deciding what issues should be on the polity's agenda. No longer do we rely on the relatively unguided judgment of journalists. Instead, we have a direct pipeline from experts. The heightened degree of sifting helps the media patrol more efficiently for the issues most important to the flourishing of the polity.[87]

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82. *See* PHILIP E. TETLOCK, EXPERT POLITICAL JUDGEMENT: HOW GOOD IS IT, HOW CAN WE KNOW? 23 (2005).

83. *See* GLEN N. REYNOLDS, AN ARMY OF DAVIDS: HOW MARKETS AND TECHNOLOGY EMPOWER ORDINARY PEOPLE TO BEAT BIG MEDIA, BIG GOVERNMENT, AND OTHER GOLIATHS 89-97 (2006).

84. *See* Michael J. Gerhardt, *The Future of the Press in a Time of Managed News*, 2 FLA. INT'L U. L. REV. 41, 51 (2007).

85. Newspapers themselves now have reporters who focus on bringing academic empirical research to the attention of their readers. For an example of the funnel at work, see David Brooks, *The Biggest Issue*, N.Y. TIMES, July 29, 2008, at A24 (discussing various empirical studies on what will improve learning capacity in small children).

86. REYNOLDS, *supra* note 83, at 125-33. The dispersed media revolution is continuing. Video in the form of YouTube and other clips has only recently begun and yet already has an effect on political campaigns. *See* Jody C. Baumgartner & Jonathan S. Morris, *My FaceTube Politics*, 28 SOC. SCI. COMPUTER REV. 24, 31 (2010); Vassia Gueorguieva, *Voters, MySpace, and YouTube: The Impact of Alternative Communication Channels on the 2006 Election Cycle and Beyond*, 26 SOC. SCI. COMPUTER REV. 288 (2007). Social networks are also a potential avenue for conveying relevant information, as they permit groups of individuals to easily collaborate on policy initiatives.

87. POPKIN, *supra* note 46, at 47.

More generally, the funnel helps perform two crucial functions in structuring knowledge for social use. First, it helps with a concern that goes back to Aristotle: how one elicits the technical knowledge that experts have and keeps it available as social knowledge that can facilitate social decision making. The new media funnel makes available the technical knowledge that social scientists and other empiricists have developed.

Second, by making this knowledge available to the broader public, new media makes this knowledge more common. Common knowledge plays an important role in social decision making because it creates, in economic terms, a positive economic spillover. When many minds possess similar knowledge, it becomes possible to create even more ideas through recombination. The point has been made in the context of technological innovation.[88] But the same point can be made in terms of political innovation; there can be more improvement in policy ideas once they are more broadly known, as some ideas are discarded and others are recombined to yield yet different approaches.

The mechanisms for updating are undoubtedly less rapid and unerring in the democratic setting than in that of the market for technology, because the incentives are less powerful. In technological innovation, inventors and entrepreneurs have profit incentives to discard false propositions and recombine ideas for more productive innovations. Nevertheless, even in the democratic process, experts have incentives to update because of the effects on their reputations, and politicians have incentives to update because of the effects on election outcomes. Because these incentives are less direct and less powerful than monetary ones, updating will take longer and be more imperfect. Nevertheless the intensity of exchange and confrontation afforded by new media have the potential to speed the process along, particularly in conjunction with the rise of empiricism and prediction markets.

The ongoing switch from television to more dispersed media has good effects on the nature of common knowledge. Television emphasizes the personal, encouraging people to make more-than-warranted extrapolations from personal characteristics of a candidate

88. *See* JOHNSON, *supra* note 34, at 32.

to the improvements he will make to public policy.[89] But the new dispersed media encourages a more policy-oriented evaluation of the candidates' positions on the issues.

Some have expressed concerns that the Internet and other new media actually represent a danger to democracy because they will lead to more polarization. Cass Sunstein is the most prominent of these theorists.[90] His argument that the new media may undermine democratic deliberation combines a theory about the Internet with one about human psychology.[91] He argues that the Internet moves us toward more perfect filtering of worldviews because technology allows people to live in an information bubble where all the information reinforces their beliefs.[92] Conservatives visit only right-leaning sites, and liberals visit only left-leaning sites.[93] He also relies on experiments in psychology that suggest that individuals embrace more extreme views when they associate with others with extreme views and are exposed to more of the arguments on one side.[94]

Both steps of Sunstein's argument are open to challenge. First, as Dan Hunter has suggested, perfect filtering of other views is really not possible, because systems cannot be perfect filters.[95] Moreover, the evidence as yet does not suggest any better filtering afforded by the Internet has given people a more monochromatic view of the world.[96] For instance, a recent study has suggested that ideological segregation on the Internet is not a strong effect.[97] Conservatives get a diet of online information that is the ideological equivalent of reading *USA Today* and liberals the equivalent of listening to CNN.[98] An individual's online community is actually less ideologi-

89. *Cf.* POPKIN, *supra* note 46, at 91 ("Television ... provides the 'illusion of intimacy.'" (citation omitted)).

90. *See* CASS R. SUNSTEIN, REPUBLIC.COM 2.0, at 69 (2007).

91. *See id.* at 5-7.

92. *Id.*

93. *See id.* at 50.

94. *Id.* at 61.

95. Dan Hunter, *Philipic.com*, 90 CALIF. L. REV. 611, 614 (2002) (reviewing CASS SUNSTEIN, REPUBLIC.COM (2001)).

96. *Id.* at 651.

97. *See* Matthew Gentzkow & Jesse M. Shapiro, *Ideological Segregation Online and Offline* 24 (Nat'l Bureau of Econ. Research, Working Paper No. 15916, 2010), *available at* http://www.nber.org/papers/w15916.

98. *See id.*

cally segregated than his or her neighborhood or network of friends, suggesting that the Internet may expose people to more diverse views than people would.[99]

Nor does the Internet provide the same context as the experiments on polarization on which Sunstein relies. For instance, the experiments Sunstein cites happened over a short time period, at most a few days.[100] Internet exposure is over a long period. People's uptake on the Internet is enduring. As has been noted, this difference makes the experiments on which Sunstein relies relatively weak support for his extrapolation about the effect of the Internet on ideological extremes in the real world because citizens' understanding of the world comes not only from their choices on the Internet but also from their daily life and events they cannot control.[101] In fact, those who are online regularly are more tolerant of ideas they do not like than those who are not.[102]

Finally, Sunstein's view is a static one, because it ignores the way that new information technologies, including dispersed media, will create a politics oriented to facts. For instance, empirical studies of past policies place greater emphasis on whether policies actually work. Prediction markets could make the debate about what future policies will actually do far more politically salient.

The very structure of the Internet's capacity for interconnection also makes following trails of evidence easier. Because hyperlinking to sources is low cost, it becomes the norm to do so. More generally, when one side makes factual claims crucial to its argument, the other side has incentives to show that they are not true. More than ever, the Internet allows such claims to be investigated and analyzed. Hyperlinks provide an easy way to ground one's own argument in facts and point out the errors of others.

An example can help make this abstract point more concrete. Robert Barro, a Harvard economics professor who is frequently mentioned as a candidate for the Nobel Prize, recently published an op-ed in the *Wall Street Journal* arguing that extending the

99. *See* Gentzkow & Shapiro, *supra* note 97, at 2.

100. *See* SUNSTEIN, *supra* note 90, at 70.

101. *See* Hunter, *supra* note 95, at 651.

102. Jeffrey R. Young, *A Study Finds that Web Users Are More Tolerant than Non-Users*, CHRON. HIGHER EDUC., June 15, 2001, http://chronicle.com/article/A-Study-Finds-that-Web-Users/109088.

unemployment benefits during the 2008-2009 recession had substantially increased the unemployment rate.[103] Bloggers were undeterred by his prestige or authority and raised substantial doubts about the factual underpinning of his argument. A key premise of Barro's argument was that it is possible to extrapolate what the employment numbers today should be from what employment was in previous recessions.[104] But commentators pointed out that the recent recession was very different due to huge losses stemming from a housing bubble.[105] These losses in turn depressed new housing starts, which had themselves been good predictors of the unemployment rate.[106] Another commentator provided evidence that Barro had gotten the relationship between unemployment insurance and unemployment backwards.[107] It was high unemployment that caused insurance to be lengthened, rather than the other way around.[108]

Some wax nostalgic for a time when a relatively few established sources—the major networks and major newspapers—set the agenda for social policy through their decisions about what to report.[109] But just as more vigorous market competition improves consumer welfare through creating better products, more vigorous competition in ideas should improve policy, particularly when the medium creates a trail to the factual grounding of arguments.

The information advantages of dispersed media over more concentrated media are similar to those of democracy over oligarchy. Other forms of government appear much more stable than democracy, because they create less surface conflict. But the absence of conflict makes it harder to find changing consensus on policies that will work. Media oligopoly is not dictatorship, but the relative absence of factual confrontation projects a pretense of social know-

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103. Robert Barro, Op-Ed., *The Folly of Subsidizing Unemployment*, WALL ST. J., Aug. 30, 2010, at A15.

104. *Id.*

105. *See, e.g.*, Joe Weisenthal, *Does Anyone Believe that Unemployment Would Be Just 6.8% if Obama Hadn't Extended Jobless Benefits?*, BUSINESS INSIDER (Aug. 30, 2010, 7:57 AM), http://www.businessinsider.com/robert-barro-on-extending-jobless-benefits-2010-8.

106. *Id.* ("Housing is just one difference, but ... it's a powerful predictor of jobs.").

107. *See* E. Tedeschi, *Robert Barro Picks a Hard Fight*, LOBSTER STUFFED WITH TACOS (Aug. 31, 2010, 12:25 AM), http://etedeschi.com/2010/08/31/robert-barro-picks-a-hard-fight/.

108. *Id.*

109. *See* ALAN WOLFE, DOES AMERICAN DEMOCRACY STILL WORK? 109-11 (2006).

ledge that is not necessarily well-founded. In contrast, dispersed media forces confrontations about the factual disagreements underlying policy disputes—a process that is more likely to root out falsehoods and in the long run to generate actual knowledge.

C. A Culture of Social Learning

New information technologies have the potential to create a new democratic culture of learning, focusing on the consequences of policies. They create synergies, providing improvements that are more than the sum of their parts. Empiricism gathers information about the past that helps prediction markets test the future.[110] The dispersed media brings to the fore issues that should be on the political agenda for testing and predicting. Dispersed media also offers theories about social events that can be tested. If facts without theory are blind and theory without facts is inert, the combination of empiricism and dispersed media helps generate the needed synthesis.

The notion that information about the actual consequences of policy is necessarily part of democratic ordering is not itself new. The political scientist Charles Lindblom viewed informal experimentation as the essence of democratic practice: democratic policy is "a piecemeal process of limited comparisons, a sequence of trials and errors followed by revised trials."[111] The difference today is that better information technologies permits more rapid and accurate assessments of policy successes and failures even as accelerating technology makes mistates more costly.

It should be emphasized that the changes these new technologies will make to democracy will be gradual. Neverthelesss over time they have the potential to make a large difference to political culture, assuming our political system creates rules to maximize their impact. Indeed, as these sources of information become more prevalent in daily life, we might expect some people to embrace this culture as part of their identity, focusing on the latest predictions from information markets and empirical studies and leaving behind

110. *See* McGinnis, *supra* note 1, at 16.

111. *See* Charles Lindblom, *The Science of Muddling Through*, 19 PUB. ADMIN. REV. 79, 88 (1959).

more partisan or ideological worldviews as central to their sense of self.

Some might regard the kind of democratic decision making that empirical studies, and factually based dispersed media promote as impoverished. This kind of democracy focuses on instrumental questions such as what will create economic growth, improve health care outcomes, or decrease certain pollutants. It is of far less help in deciding more cosmic questions, such as whether economic growth is a good thing, or moral questions, such as whether abortion should be legal. But there is little evidence that the public at large is preoccupied with such large cosmic questions, and although many people are intensely interested in social and moral questions like abortion, democratic discussion does not often promote consensus or resolution. Thus, while nothing about factual updating in a democracy suggests that these kinds of issues should ever be outside the bounds of democratic discourse, it is defensible to focus on promoting the better resolution of the more tractable issues in which most people are interested.

The focus on a politics of factual updating can be seen as part of Western political philosophy's long tradition of trying to reduce the social salience of issues, like religious questions, that have no clear answer and focus on issues on which there can be progress, such as the creation of wealth and the prolongation of life.[112] Of course, for much of the last few centuries, the progress on such tractable issues has derived from the natural sciences, not the empirical social sciences.[113] Today, however, our structure of governance must create rules to elicit answers from the social sciences on disputed issues of social policy as well, because technology has simultaneously empowered the empiricism at the heart of useful social science and created the kind of accelerated change that only a more empirically minded democracy can address.

Many of the mechanisms that help democracy perform better are not themselves democratic in the sense of weighing the opinions of all citizens equally. As long as democracy permits these mechanisms to enrich the information its citizens utilize when they vote, there

112. *See* Witte, *supra* note 7, at 495 (noting that enlightenment ideas suggest that "society achieve a properly focused and properly restricted political process").

113. *See* Mitchell, *supra* note 69, at 30.

is no contradiction between these mechanisms and democratic decision making. Each citizen's preferences should count equally in a democracy, but democracy, like any other institution, will work best if its decisions rest on accurate factual readings of the world.[114] As Senator Patrick Moynihan once famously said, a person has a right to his own opinions, "but not to his own facts."[115] The next Section turns to rules that help democracy capture the dispersed information latent in the world and focus it to permit greater agreement on the consequences of policy.

IV. LEGAL REFORM AND DEMOCRATIC UPDATING

This Part discusses important reforms that would make for more effective learning about sound social policies. Each of the newly powerful mechanisms of information—empiricism, randomization, and new media—need legal regimes to make them most effective.

A. Empiricism and Information-Eliciting Rules

Just as empiricists become more valuable in an empirical age, so do structures of government that elicit information for empirical study. Government programs that actually put policies to an empirical test also become more desirable because we have better mechanisms to conduct testing. Besides the instrumental advantages of information-eliciting rules, they also create a better political culture. If political culture focuses on actual policy results, politicians cannot as easily posture by exaggerating the benefits of their policies and ignoring their costs. Moreover, as information-eliciting rules create more testing, citizens will become even more insistent that policies be tested to assure their value.

The empirical age makes three kind of information-eliciting rules more valuable. The first two track the two kinds of empiricism discussed above. The first category of rules encourage decentralization. By permitting jurisdictions to adapt different policies, a political system creates information about the effects of different policies

114. *See* POPKIN, *supra* note 46, at 96-97.

115. Steven R. Weisman, *Introduction* to DANIEL PATRICK MOYNIHAN: A PORTRAIT IN LETTERS OF AN AMERICAN VISIONARY 1, 2 (Steven R. Weisman ed., 2010).

that can then be tested through regression analysis and similar methods. The second category is randomization. By randomizing the application of different policies, governments can actually create experiments—called field experiments—yielding data to assess policy.

The third category is the simplest—rules that make government data more available in the most transparent and useful form. Such rules advance empiricism by offering more material for testing and assessment. The display of data also makes government more transparent, providing relative empowerment to those who want to organize on behalf of encompassing interests like improving education.

Each branch of government has a role to play in creating information-eliciting rules. Congress can systematically require that legislation consider the virtues of decentralization and randomization, can require that government data be made available, and can provide funding for empirical studies. The President can require agencies to engage in experiments within the discretion that Congress permits and prevent them from squelching different approaches at the state level. The judiciary can adopt a jurisprudence fostering social discovery, creating constitutional space for federalism and thus decentralization.

To some degree, this movement toward creating more space for experimentation is already taking place, if only inchoately and intermittently. By reviving constitutional federalism,[116] the Supreme Court has moved, however fitfully and incrementally, to create more effective social discovery machines within society, thereby making possible more evaluation of different approaches to social policy. In educational initiatives, like the No Child Left Behind Act,[117] Congress has encouraged public schools to evaluate the success of their programs based on scientific evidence.[118] In the related

116. *See* John O. McGinnis, *Reviving Tocqueville's America: The Rehnquist Court's Jurisprudence of Social Discovery*, 90 CALIF. L. REV. 485, 511-13 (2002).

117. Pub. L. No. 107-110, 115 Stat. 1425 (2001) (codified as amended in scattered sections of 20 U.S.C.).

118. The No Child Left Behind Act mentions scientific evidence more than a hundred times. *See* Herbert Turner et al., *Populating an International Web-Based Randomized Trials Register in the Social, Behavioral, Criminological, and Education Sciences*, 589 ANNALS AM. ACAD. POL. & SOC. SCI. 203, 205 (2003).

Education Sciences Reform Act of 2002,[119] Congress created a federal agency to produce data about and analysis of programs to improve educational outcomes[120] and specifically called for randomized trials to test educational programs.[121] But this Section provides a rationale for systematically extending information eliciting rules throughout the judicial, legislative, and regulatory functions of government as well as creating specific institutions to enforce these rules.

1. Decentralization

Of all the American governmental structures facilitating empiricism, the oldest is federalism and the decentralization that it embodies.[122] A powerful investigative tool in social science is to compare how different laws work in different jurisdictions, whether states or nations.[123] Such careful comparisons can help make manifest the consequences of good and bad policies.[124] To be sure, for reasons discussed earlier, such comparisons face more problems in establishing causation than randomized experiments, but randomization is not always politically possible or desirable. But an investigation of the effects of differences can work only if policies are permitted to differ among jurisdictions.

Of course, the decision about the proper amount of decentralization depends on considerations beyond the elicitation of information. Federalism has other advantages: decentralization creates a market

119. Pub. L. No. 107-279, 116 Stat. 1940 (codified as amended in scattered sections of 20 U.S.C.).

120. *See* Turner et al., *supra* note 118, at 206.

121. *See* Benjamin Michael Superfine, *New Directions in School Funding and Governance: Moving from Politics to Evidence*, 98 KY. L.J. 653, 687-88 (2009).

122. *Cf.* H. Jefferson Powell, *The Oldest Question of Constitutional Law*, 79 VA. L. REV. 633 (1993) (calling debates about federalism the oldest in constitutional law). Federalism is only the beginning of decentralization. States then need to cede substantial authority to localities in cases in which public goods are best produced locally.

123. *See, e.g.*, Fred C. Zacharias, *Who Can* Best *Regulate the Ethics of Federal Prosecutors, or, Who Should Regulate the Regulators?: Response to Little*, 65 FORDHAM L. REV. 429, 455-56 (1996) (arguing against federal regulation of ethics because empirical tests of best practices will thrive through permitting diversity).

124. *See, e.g.*, Jerome H. Reichman & Rochelle Cooper Dreyfuss, *Harmonization Without Consensus: Critical Reflections on Drafting a Substantive Patent Law Treaty*, 57 DUKE L.J. 85, 129 (2007) (arguing against premature harmonization of patent systems to gain data about what works).

for governance by allowing different jurisdictions to compete to attract people and investment.[125] It also permits the formulation of diverse policies that meet the diverse preferences of people. But federalism can have costs as well. When one jurisdiction is able to impose harms on another—what economists call negative externalities—a more centralized government spanning the different jurisdictions has the capacity to address the externalities better than multiple jurisdictions.[126]

Thus, the optimal degree of centralization of government policy remains a judgment call, depending on the substantiality of the externalities that more centralization could address and the quantum of competition and satisfaction of diverse preferences that decentralization can permit. But the possibility of sustained empiricism adds an important weight on the decentralization side of the scale: decentralization facilitates the empirical investigation of the differing consequences of social policy. Thus, far from being a relic of the past, federalism's virtues are reinforced by modern technology, because our computer age makes federalism a more effective discovery machine. With the rise of empiricism, Justice Louis Brandeis's praise of states as "laboratories of democracy" becomes more than a metaphor.[127]

Given that there is little left of constitutional restraints on federal power in the field of economic regulation, the political branches must create space for decentralized experiments. In her paper in this symposium, Gillian Metzger discusses how this movement is happening in the Obama administration.[128] For instance, the Patient Protection and Affordable Care Act (PPACA)[129] offers states substantial opportunities to experiment, albeit within a federal framework.[130] President Obama recently suggested, in fact, that he would like to expand these opportunities by stating that he believed

125. *See* Richard A. Epstein, *Exit Rights Under Federalism*, 55 LAW & CONTEMP. PROBS. 147, 147 (1992).

126. *See* Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE L. & POL'Y REV. 23, 25 (1996).

127. *See* New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

128. *See* Gillian E. Metzger, *Federalism Under Obama*, 53 WM. & MARY L. REV. 567 (2011).

129. Pub. L. No. 111-148, 124 Stat. 119 (2010) (to be codified in scattered sections of 25, 26, 29, and 42 U.S.C.).

130. *See Obama Gives a Bit on Health Rules*, L.A. TIMES, Mar. 1, 2011, at A7.

the law should be revised to allow the states immediately to design their own plans so long as they meet the federal requirements for expanding coverage.[131] These comments suggest a federal framework for state experimentation. President Obama and those supporting his health initiative believe that the coverage decision creates an interstate externality, because those without coverage impose costs on everyone through use of health services paid by taxpayers nationwide. But in every other aspect of heath care, the benefits of experimentations are to be encouraged. Thus, states should be free to experiment with a single-payer system, and other states can try to refine a fee-for-service system. The point of this example is not to defend the PPACA as an optimal reform but to observe that even within the most important federal initiative for decades there exists a consensus in favor of a great deal of experimentation.

While this kind of division of authority between the federal and state governments does not recreate constitutional federalism, such federal statutory frameworks may provide a second-best kind of information-eliciting rule in a world where constitutional federalism has eroded. The federal government determines that certain objectives should be national because of the interstate externalities involved. The best method of achieving those objectives is then left to state experimentation.[132]

Congress also created another mechanism of experimentation in authorizing the Race to the Top program, in which states may apply for funds for innovative educational changes.[133] The Education Department decides which programs are best, providing the chosen states with substantial funds to reorganize their educational programs.[134] Results of the different initiatives are then carefully assessed.

Congress should institutionalize a concern with the experimentation that comes from federalism by requiring that its committees formally consider the informational advantages of leaving states

131. *Id.*

132. *See, e.g.*, Metzger, *supra* note 128, at 579.

133. *See* U.S. DEP'T OF EDUC., RACE TO THE TOP PROGRAM EXECUTIVE SUMMARY (2009), *available at* http://www2.ed.gov/programs/racetothetop/executive-summary.pdf (discussing criteria for grant awards).

134. *Id.*

free to legislate before it preempts the states. Even if a federal role is desired, these requirements would further mandate considering the benefits of leaving room for state experimentation within a federal policy framework.[135] Even in the absence of action by Congress, the President also has a role to play in expanding empirically oriented federalism. Currently, through its regulatory apparatus, the executive branch agencies routinely make decisions about preempting state laws in favor of a federal standard.[136] Such preemption suppresses differences in states' regulation and thus decreases the opportunity for empirical study of the effects of those policy differences. The President should make clear that preemption is less apt, other things being equal, when the empirical study of laws in different jurisdictions is likely to provide substantial help in deciding what is the best policy. Moreover, various agencies have substantial authority to waive the federal requirements that Congress imposes.[137] The President should order agencies to systematically consider the advantages of experimental learning that will accrue from granting waivers.

The Supreme Court also has a role to play in pursuing a jurisprudence of social discovery by itself promoting information-eliciting rules. Information elicitation provides a pragmatic justification for revival of constitutional federalism in the area of noneconomic policy,[138] because in that area there tends not to be substantial interstate externalities. As a result of this jurisprudence, different states can adopt different policies on social issues, such as whether guns can be carried near schools. Empiricists can compare these policies to determine which kind of policy actually makes children safer.[139]

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135. So far, bills requiring committees to make federalism assessments have been introduced in Congress without success. *See, e.g.*, Federalism Accountability Act of 1999, S. 1214, 106th Cong. (1999).

136. Under the Bush administration, agencies were aggressive about preemption of state law. *See* Catherine M. Sharkey, *Preemption by Preamble: Federal Agencies and the Federalization of Tort Law*, 56 DEPAUL L. REV. 227, 227 (2007).

137. *See, e.g.*, Robert Pear, *Health Law Waivers Draw Kudos, and Criticism*, N.Y. TIMES, Mar. 19, 2001, http://www.nytimes.com/2011/03/20/health/policy/2-health.html.

138. *See* McGinnis, *supra* note 116, at 511-16. Since my 2002 article, the Court has seemed to backslide from this revival in *Gonzales v. Raich*, 545 U.S. 1, 22 (2005), in which the Court permitted the federal government to regulate the personal medical use of marijuana, despite a state law that permitted such use.

139. There is now vigorous empirical research that has not yet attained consensus about

The Supreme Court can also promote information-eliciting rules by constraining its jurisprudence of substantive due process, including that component that interprets the Bill of Rights to apply to states with the same vigor with which it applies to the federal government.[140] As Justice Stevens reminded us, there are reasons not to apply the Bill of Rights identically against the federal government and the states.[141] Although the Court has not offered the promotion of empiricism as a rationale for restraint in applying the Bill of Rights, this rationale has, in fact, grown more powerful as the apparatus for empiricism has grown more powerful.[142] It has become less plausible for the Court to rely on the Justices' intuitions about what the effect of providing a particular version of a right will be in an age in which we can begin to test the effects of competing conceptions. This preference for providing space for different versions of rights that can be empirically tested rather than relying on judicial fiat parallels the rise of empiricists over theorists in the academic community.

For instance, in the most important education case since *Brown v. Board of Education*,[143] the Court upheld school vouchers against an Establishment Clause challenge, so long as the vouchers were available for nonreligious as well as religious schools.[144] This holding permits the practical evaluation of whether such vouchers lead to religious divisions as well as whether vouchers will improve performance in the United States education system, which has been widely criticized.[145] Thus, this decision is potentially doubly information-eliciting. Moreover, assuming that vouchers do improve performance, schools will produce citizens who are better able to

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the relation of gun control and crime generally. *See* Jens Ludwig, *Gun Self-Defense and Deterrence*, 27 CRIME & JUST. 363, 367 (2000).

140. *See* Peter Linzer, *Why Bother with State Bills of Rights*?, 68 TEX. L. REV. 1573, 1605 (1990).

141. McDonald v. Chicago, 130 S. Ct. 3020, 3109 (2010) (Stevens, J., dissenting).

142. *See* Deborah Jones Merritt, *The Guarantee Clause and State Autonomy: Federalism for a Third Century*, 88 COLUM. L. REV. 1, 3-10 (1988) (identifying importance of experimentation for future federalism).

143. 347 U.S. 483 (1954).

144. *See* Zelman v. Simmons-Harris, 536 U.S. 639, 662-63 (2002).

145. This decision has already permitted much empirical research on whether vouchers improve school performance. For a description of the research that has been largely favorable to school vouchers, see Patrick J. Wolf, *School Voucher Programs: What the Research Says About Parental School Choice*, 2008 BYU L. REV. 415.

process information and make better decisions, thus making society as a whole a better social discovery machine.

While liberals frequently resort to the Establishment Clause to trump state laws, the same analysis should apply to federal rights to which conservatives appeal. The Court has held that the right to keep and bear arms applies to the states.[146] But the Court should not apply this right with same vigor against the states as it does against the federal government. Greater scope for experimentation with gun control will allow better evaluation of the appropriate scope of gun rights.

A jurisprudence favoring social discovery through experimentation also calls for caution in expanding fundamental rights nowhere mentioned in the Constitution. For instance, now that some jurisdictions have granted same-sex marriage rights,[147] the argument for the Supreme Court to stay its hand on mandating a national right becomes stronger.[148] Social scientists will be able to study the actual effects of same-sex marriage and will have an easier time doing so, because they will be able to compare the jurisdictions recognizing same-sex marriage to those that refuse recognition. Social scientists can then investigate claims of proponents that same-sex marriage will help stabilize same-sex relationships[149] and claims of opponents that same-sex marriage will mean that couples generally will take marriage obligations less seriously.[150] Of course, it is true that many people on both sides of the debate will not care about these results, because they believe either that same-sex marriage is a human right or a human or religious evil, and thus its consequences do not matter. But many people in the middle do not share such deontological absolutism. Proponents and opponents of same-sex marriage recognize this fact: that is why they make arguments based on consequences.

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146. *McDonald*, 130 S. Ct. at 3046.

147. *See, e.g.*, Goodridge v. Dep't of Pub. Health, 798 N.E.2d 941, 961 (Mass. 2003).

148. The case against a federal constitutional amendment defining marriage as the union between a man and a woman can also rest on the need for experimentation in the area. *See* John O. McGinnis & Nelson Lund, Lawrence v. Texas *and Judicial Hubris*, 102 MICH. L. REV. 1555, 1613 (2004).

149. *See, e.g.*, ANDREW SULLIVAN, VIRTUALLY NORMAL: AN ARGUMENT ABOUT HOMOSEXUALITY 181-85 (1995).

150. *See* Maggie Gallagher, *(How) Will Gay Marriage Weaken Marriage as a Social Institution: A Reply to Andrew Koppelman*, 2 U. ST. THOMAS L.J. 33, 53 (2004).

Thus, all three branches of the federal government should consider creating better frameworks for decentralization, ones in which such devolution promotes experimentation and assessment. It should also be remembered that federalism is a particular instance of a more general social policy—decentralization—that favors experimentation. Just as federal political actors should give space for state experimentation, state political actors should devolve responsibilities to localities when localities are better positioned to test different policies. Localities in turn also should consider the possibilities of experimentation in the policy structures they create. For instance, because charter schools enjoy greater independence to set educational policy, they create more opportunities to test what ideas work. An age that provides the tools for serious empiricism should make use of political structures that facilitate it.

2. Randomizing Policy

As discussed above, another way for empirical social science to assess the effects of social policy is to use experiments that take advantage of a random event that permits the direct measurement of policy effects, such as increasing the number of police in an area.[151] The government itself can also create such field experiments through policy, thereby facilitating social learning. The most obvious way it can do so is through randomization, assigning different individuals or groups of individuals—perhaps based on geographic districts—to different programs at random. Social scientists can then measure the different outcomes. The idea here has parallels in trials of a new medication. In order to ascertain whether a new drug is efficacious, a randomized trial is devised whereby one group of patients is given a new drug and another is given a placebo or an old drug. The difference in outcomes can be measured and attributed to the difference in treatments.

Private businesses have been creating natural experiments to make decisions on an ever broader scale.[152] For instance, Google decided what color its links should be by experimenting with

151. *See supra* notes 54-56.

152. *See* Thomas H. Davenport, *How To Design Smart Business Experiments*, HARV. BUS. REV., Feb. 2009, at 69, 71.

different colors.[153] Government should follow the lead of private enterprise in creating frameworks for experimentation.

It is true that the government has already engaged in some random social experiments. But these experiments have mostly centered on "persons or families who are somehow disadvantaged."[154] For instance, a wide variety of studies have randomly assigned recipients of government benefits to different treatments, permitting focus on how differences in job training or counseling in government programs affect employment.[155] There is room for similar experiments when the conditions required of recipients are still subject to debate.[156] The extent to which prolonging of unemployment benefits results in longer unemployment is still controversial and could be assessed through social experiments.[157]

Sadly, however, the government has almost never conducted studies directed at testing policies affecting middle- or upper-class individuals, corporations, or the structure of government itself. Broader policy studies affecting individuals could include testing the effect of electricity charges that vary with time, or testing the effect of differing health insurance deductibles on medical usage and outcomes.[158] An educational program, like school vouchers, can affect individuals of varying income levels. It is one of the most important, yet contentious, issues in education today and can be assessed best through randomized testing.[159]

The salient question in randomization is whether this additional information is worth the costs, broadly assessed, of the experiments.

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153. Charles Arthur, *Google's Marissa Mayer on the Importance of Real-Time Search*, GUARDIAN, July 8, 2009, http://www.guardian.co.uk/technology/2009/jul/08/google-search-marissa-mayer.

154. David Greenberg, Mark Shroder & Matthew Onstott, *The Social Experiment Market*, 13 J. ECON. PERSP. 157, 159 (1999).

155. *Id.* at 160.

156. *See, e.g.*, Lee Anne Fennell, *Relative Burdens: Family Ties and the Safety Net*, 45 WM. & MARY L. REV. 1453, 1508 (2004) (discussing different conditions that encourage recipients of public assistance to control medical costs).

157. President Obama's former economic adviser, Larry Summers, has also recognized this point. *See* Lawrence H. Summers, *Unemployment*, THE CONCISE ENCYCLOPEDIA OF ECONOMICS, http://www.econlib.org/library/Enc/Unemployment.html (last visited Oct. 31, 2011).

158. Greenberg et al., *supra* note 154, at 160.

159. For a discussion of the latest issues in the school voucher debate, see Terry M. Moe, *Beyond the Free Market: The Structure of School Choice*, 2008 BYU L. REV. 557, 557-58 (2008).

Congress can build on its recent but desultory mandates for encouraging and evaluating experiments in the education area and create an office modeled on the Congressional Budget Office. This office could have the authority to recommend the insertion of specific provisions, including funding, into legislation to evaluate the consequences of the policies that the same legislation puts in place.[160] In this way, Congress would consider whether each piece of legislation should include a structure for evaluating and improving the policy it advances. Moreover, such an office could become a clearinghouse of knowledge, translating to the public sector some of the ideas regarding randomization that have been successful in the private sector.

Given that it will often be wise to delegate decisions about randomization to administrative agencies, a unit within the Office of Management and Budget (OMB) should develop and deploy the expertise of the OMB to help determine the extent to which regulation should be designed to promote such social learning. President Obama could add a new provision establishing an office devoted to experimentation within the confines of the Office of Information and Regulatory Affairs (OIRA), which currently reviews all regulations. Putting an office devoted to experimentation in OIRA would be a signal that the bureaucracy should try to employ methods of trial and error to shape government regulation.

It might be argued that it is wrong to use individuals as the subjects of social experiments—as contemporary guinea pigs for the benefit of future generations. But in medicine, randomized trials of new pharmaceuticals are routinely undertaken.[161] There, as here, the justification is that we are not confident which course of action will benefit individuals more. Randomization of social policy should be used only when there is a genuine controversy over what social policy to follow. Those are the general circumstances in which it is plausible that randomization may enjoy political support.[162]

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160. One might well consider the creation of the Congressional Budget Office itself as part of a movement toward a politics of learning.

161. *See* Richard Dolinar & S. Luke Leininger, *Pay-for-Performance or Compliance? A Second Opinion on Medicare Reimbursement*, 3 IND. HEALTH L. REV. 391, 406 (2006) (noting that randomized trials are part of the "gold standard of evidence in evidence-based medicine").

162. Of course, there are limits to the permissible scope of randomization. We cannot deprive people of settled rights for the benefit of knowledge, however great. But if the policy

It is true that patients must voluntarily agree to medical trials while citizens would not have the option of avoiding the randomized regulation. But that difference results from the structure of pre-existing legal rights. Patients have the right to refuse treatment and thus cannot be forced to participate in a medical study. Citizens do not have the right to refuse to follow a valid regulation and hence can be forced to obey even a regulation that has been chosen at random, so long as those regulations are otherwise legal. By increasing public knowledge, policy randomization in a world of limited political understanding can be a public good and thus provides a justification for randomization.

Consistent with this view, executive and judicial precedents suggest that randomization is constitutional. Most dramatically, the government instituted a lottery to determine who would be drafted in the Vietnam War.[163] While this randomization was not designed for experimental reasons, it had far more dramatic results than the kind of randomization policies recommended here. Some young men faced a much higher risk of death than others as a result of a random drawing. And this method of choice did not allocate that risk on the basis of willingness or capacity to serve.

The Second Circuit Court of Appeals, in an opinion by Judge Henry Friendly, rejected the only substantial legal challenge to randomization within regulatory policy for reasons of social experimentation.[164] In that case, New York State required family members in the households of public recipients to engage in training or working but imposed these requirements in only certain districts, choosing them on a random basis.[165] The court responded to the equal protection challenge by holding that the policy of social experimentation was wholly rational given the importance of experiments to social policy.[166]

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options to be randomized are all within the government's authority to provide, and if, further, there is a reasonable basis to believe that all options included are potentially efficacious, the individuals assigned to different programs have no constitutional or moral reason to complain.

163. *See* Stefen F. Feinberg, *Randominzation and Social Affairs: The 1970 Draft Lottery*, 171 SCIENCE 255 (1971).

164. *See* Aguayo v. Richardson, 473 F.2d 1090, 1103-08 (2d Cir. 1973). Adam M. Samaha discusses this case extensively in *Randomization in Adjudication*, 51 WM. & MARY L. REV. 1, 42-43 (2009).

165. *Aguayo*, 473 F.2d at 1093.

166. *Id.* at 1109-10.

3. Access to Data

Empiricism is improved by data. As such, the government should have new, information-eliciting rules that improve data and access to it. Over the years, the government has become more transparent, with the federal Freedom of Information Act (FOIA) serving as landmark legislation in this regard.[167] But the rise of empiricism provides ever stronger rationales for making public everything that the government does—outside of sensitive national security matters, business trade secrets, and matters that trench on personal privacy. Thus, government data should be posted automatically and in machine-readable form so that it can be easily used for empirical research and innovation in government programs. One condition on using such data should be to make the results of any studies public in order to avoid the reporting bias discussed below. President Obama has made a start through his Open Government Initiative.[168] It creates a presumption of transparency for data and encourages data to be published online.[169] A website, Data.gov, has already been established to be a kind of clearinghouse for government data.[170]

Because of the benefits of comparing state policies, democratic updating would benefit from similar initiatives at the state level at least as much as at the federal level. Given that each state can benefit from other states' initiatives, each state initiative offering data generates positive national externalities. Thus, the federal government should subsidize these state initiatives on behalf of the entire nation.

Finally, the government should combat reporting bias in empirical studies. The problem is that researchers tend not to report and journals tend not to publish studies that do not have statistically significant results or otherwise have flaws.[171] This practice may make the studies that are reported unrepresentative, and thus,

167. *See* 5 U.S.C. § 552 (2006).

168. *See* Transparency and Open Government, 74 Fed. Reg. 4685 (Jan. 26, 2009); Memorandum from Peter R. Orszag, Dir., Office of Mgmt. & Budget, to the Heads of Exec. Dep'ts & Agencies (Dec. 8, 2009), *available at* http://www.whitehouse.gov/omb/assets/memoranda_2010/m10-06.pdf.

169. *Id.*

170. *About*, DATA.GOV, http://data.gov/about (last visited Oct. 31, 2011).

171. *See* John J. Donohue & Justin Wolfers, *Uses and Abuses of Empirical Evidence in the Death Penalty Debate*, 58 STAN. L. REV. 791, 838 (2005).

surveys of the actual evidence in the field, like those that do meta-analyses of all studies, may be distorted.[172] Thus, as a condition of receiving funding for a study or using a study to receive government approval for an action, the government should require that any study performed by the recipient or applicant be reported, whatever the results. If necessary, the government should provide funds for clearinghouses where the results and underlying data could be housed.

B. Rules for Promoting the New Media

1. Resisting Discrimination Against the New Media

As described above, dispersed media is important to aggregating the information provided by new technologies.[173] Yet the more traditional forms of media remain important to making that information accessible to a broader audience. A politics of democratic updating must attempt to protect this information flow. Once again, the Supreme Court has been moving generally in this direction. Although, as discussed above, the Court has generally limited the scope of rights applied against the states,[174] a conspicuous exception has been made for free speech rights, including collective free speech rights protected under the right of association.[175] In fact, the Rehnquist Court was called the most free-speech protective in history.[176]

But even if the Court has amassed precedent that is friendly to protecting the information capacity of the new media, it is likely to grapple with at least two kinds of regulations that could potentially interfere with such media. The first are regulations that overtly discriminate against new media, like bloggers. For instance, such discrimination is raised in considering whether a new law, such as

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172. *Id.*

173. *See supra* Part II.

174. *See supra* notes 138-42 and accompanying text.

175. *See* Burt Neuborne, *Free Expression and the Rehnquist Court*, *in* COMMUNICATIONS LAW 1998, at 1273, 1276 (PLI Patents, Copyrights, Trademarks & Literary Property, Course Handbook Ser. No. 04-4039, 1998).

176. *Id.* ("[T]he Rehnquist Court has been among the strongest free speech courts in the nation's history.").

the federal shield laws for reporters, will apply to bloggers,[177] as well as how old laws, like FOIA, will apply to bloggers.[178] Any discrimination between old and new media may raise First Amendment concerns, because that Amendment should apply equally to everyone, regardless of size or kind of media.[179] But putting aside these constitutional concerns, such discrimination is a policy mistake. Even if new media like blogs are individually small, they can rapidly grow large in the aggregate. As discussed above, they are like a multitude of rivulets feeding into the mainstream media, bringing specialized information and local knowledge.[180] To treat them as less important or worthy of protection reflects a misunderstanding of how media can contribute to political learning.[181]

Second, some advocates of campaign finance restrictions suggest that blog postings should be considered in some circumstances a contribution to candidates and subject to regulation under campaign finance law.[182] Such regulation would also have a deleterious effect on the diversity of information citizens need, because the new media is likely to bring specialized and offbeat information to the attention of citizens. It is precisely near elections that those with empirical data and expertise are most needed to critique the policies and platforms of candidates.

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177. *See* Randall D. Eliason, *The Problems with the Reporter's Privilege*, 57 AM. U. L. REV. 1341, 1369 (2008).

178. Michael Russo, *Are Bloggers Representatives of the News Media Under the Freedom of Information Act?*, 40 COLUM. J.L. & SOC. PROBS. 225, 225 (2006).

179. *See* Stephanie J. Frazee, *Bloggers as Reporters: An Effect-Based Approach to First Amendment Protections in a New Age of Information Dissemination*, 8 VAND. J. ENT. & TECH. L. 609, 635 (2006).

180. *See supra* text accompanying notes 83-86.

181. Wikileaks—the website that has disclosed classified information from the United States government—has raised this issue anew. *See* Charles Savage, *After Afghan War Leaks, Revisions in a Shield Bill*, N.Y. TIMES, Aug. 4, 2010, at A12.

182. Certain members of Congress sued the Federal Election Commission to force the agency to extend the strictures of McCain-Feingold to the Internet. *See* Shays v. FEC, 337 F. Supp. 2d 28, 65-71 (D.D.C. 2004), *aff'd*, 414 F.3d 76 (D.C. Cir. 2005). So far, however, the FEC has "largely exempted the Internet." *See* Bradley A. Smith, *The John Roberts Salvage Company: After* McConnell*, A New Court Looks To Repair the Constitution*, 68 OHIO ST. L.J. 891, 898 (2007).

2. Requiring Posting of Bills Before Passage and Signing

Dispersed media can better analyze government action if that action is made more transparent. The need to make dispersed media even more effective calls for another set of government information-eliciting rules—requirements that legal proposals be made publicly available for a time period before further action is taken on them. Before a committee vote on proposed legislation, before the vote in the either chamber on an item on the floor, and before the President signs a bill, the exact language at issue and all relevant amendments should be posted for all to see.

Dispersed media will then have a chance to publicize hidden special-interest provisions in the bill and to refine the arguments for and against the bill before it is passed or signed. Thus transparency before legislative action facilitates social knowledge and promotes the forces favoring encompassing interests. To be effective, however, the time period for such analysis would not have to be lengthy, given the ubiquity of sources for information analysis in the modern world. Experts can opine expeditiously, and blogs will surely begin debating immediately. Thus, useful requirements may be as short as a week or ten days. Of course, such requirements should have exceptions for emergencies.

The body politic is already sensing, however inchoately, that such rules would be beneficial. President Obama promised during his campaign to wait for five days before signing any nonemergency bill.[183] He has not fully honored that commitment,[184] but his deployment of such a promise in a presidential campaign shows the public resonance of the notion that the polity can benefit from the more intense information analysis provided by a period of reflection. The current House of Representatives has required that a bill be posted three calendar days before a vote.[185] These useful ideas should be

183. *See Barack Obama and Joe Biden's Plan*, CHANGE.GOV, http://change.gov/agenda/ethics_agenda/ (last visited Oct. 31, 2011) ("As president, Obama will not sign any non-emergency bill without giving the American public an opportunity to review and comment on the White House website for five days.").

184. *See* Katharine Q. Seelye, *White House Changes the Terms of a Campaign Pledge About Posting Bills Online*, N.Y. TIMES, June 22, 2009, at A11.

185. *See* H.R. 5, 112th Cong. (2011) (amending standing rule XXI of the House).

expanded to require the posting of legislative proposals before every important stage of the legislative process.

CONCLUSION

Societies flourish in part through their ability to learn. Such factual updating requires exploitation of the latest technology. Technology progresses because man exploits some element of the world, from water and fire to magnetic fields and the quantum movement of atoms. Government structure, then, also progresses as new technology is deployed to create better sources of information for social decision making, including decision making about problems created by the new technology itself. Ultimately, the distinctive forms of government throughout history have been the outgrowth of the human genius for material invention—a social echo of the Promethean capture of some natural element for our collective improvement.

So it is today. Modern information technology has provided society with ever-greater computational and communication capacity. These features have given rise to more powerful information technology, like modern empiricism, and new dispersed media. Thus, the task of political reform is to use such technologies to improve updating on the basis of new information they provide. Part of this goal can be met through legal reforms that shape government to be a better instrument of social learning.

The same technology that is providing democracy a new capacity for updating is also making this task more urgent. New technologies can provide great benefits. But they can also pose new dangers—from weapons of mass destruction to new forms of pollution. Government needs to know how to act to avoid the dangers and reap the benefits. Society's capacity for learning must match its capacity for change.