
THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Public Interest Comment¹ on

The National Telecommunications and Information Administration's Request for Comment

Developing the Administration's Approach to Consumer Privacy

Docket ID No. 180821780-8780-01

RIN: 0660-XC043

November 09, 2018

Daniel R. Pérez, Senior Policy Analyst²

The George Washington University Regulatory Studies Center

The George Washington University Regulatory Studies Center improves regulatory policy through research, education, and outreach. As part of its mission, the Center conducts careful and independent analyses to assess rulemaking proposals from the perspective of the public interest. This comment on the National Telecommunications and Information Administration's (NTIA) request for public comments on developing the administration's approach to consumer privacy does not represent the views of any particular affected party or special interest, but is designed to evaluate the effect of NTIA's proposal on overall consumer welfare.

Introduction

NTIA is requesting public comments on its proposed approach to guide federal policymaking related to consumer privacy. The agency's approach is divided in two parts: 1) a list of privacy outcomes that "any Federal actions on consumer-privacy policy" should aim to achieve, and 2) a list of high-level goals "setting the broad outline for the direction that Federal action should take."

¹ This comment reflects the views of the author, and does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://regulatorystudies.columbian.gwu.edu/policy-research-integrity>.

² Daniel Pérez is Senior Policy Analyst at the George Washington University Regulatory Studies Center. He can be reached at danielperez@gwu.edu or (202) 994-2988.

The increased role of data collection and analysis in modern economies along with the growth of emerging technologies such as highly automated vehicles and unmanned aircraft systems bring privacy concerns to the forefront—particularly regarding the proper role of government intervention. NTIA’s stated justification for the need to expand federal policymaking on consumer privacy protections is, at least in part, driven by international and domestic efforts to enact more stringent privacy and data protection regimes—such as the European Union’s General Data Protection Regulation (GDPR) and the California Consumer Privacy Act of 2018.³ The agency notes that these “distinct visions for how to address privacy concerns [lead] to a nationally and globally fragmented regulatory landscape” with the potential to reduce economic growth and innovation in the data sharing economy.

It is, therefore, reasonable that the agency is taking steps to minimize the costs of a patchwork of disparate privacy regimes. Nonetheless, the agency’s list of outcomes that “should be produced by *any* Federal actions on consumer privacy” is not an appropriate framework for regulation. The list implies that regulation to increase privacy protections in each category would—by design—generate better outcomes for the public. My own research on privacy controls identifies a broad base of evidence that consumers enjoy substantial benefits by gaining access to online content and other services in exchange for allowing use of their data; in contrast, there is little evidence that this exchange results in costly harms to consumer that outweigh these benefits (i.e., possibly presenting a compelling public need that might suggest the use of regulation).⁴ Consequently, it is not accurate to presume that NTIA’s list of outcomes will necessarily produce net beneficial results for the public.

This comment proposes the following recommendations for NTIA to consider:

1. **Privacy regulation should be based on evidence that regulation will actually advance privacy outcomes in ways that consumers value.** Evidence-based regulation (EBR)—successful implementation of evidence-enhancing strategies—is a more appropriate framework to guide regulatory decisions.
2. **The benefit of regulating consumer privacy should exceed the social cost—including costs consumers will bear as a result of regulation.**
3. **Further research should focus on generating useful empirical estimates of the benefits and costs of privacy controls.**

³ https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en; https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB375

⁴ Joseph J. Cordes & Daniel R. Pérez, “Measuring Costs and Benefits of Privacy Controls: Conceptual Issues and Empirical Estimates.” *Journal of Law, Economics and Policy*. Vol 15, No. 1 (Fall 2018, forthcoming). Working paper available at: <https://regulatorystudies.columbian.gwu.edu/measuring-costs-and-benefits-privacy-controls-conceptual-issues-and-empirical-estimates>.

This comment references the following research which, per NTIA’s Instructions for Commenters, I submit as attachments along with the comment:

- Marcus Peacock, Sofie E. Miller, and Daniel R. Pérez, “A Proposed Framework for Evidence-Based Regulation.” The George Washington University Regulatory Studies Center. February 22, 2018.
- Joseph J. Cordes & Daniel R. Pérez, “Measuring Costs and Benefits of Privacy Controls: Conceptual Issues and Empirical Estimates.” *Journal of Law, Economics and Policy*. Vol 15, No. 1 (Fall 2018, forthcoming).

Background on Interagency Policy Task Force—Privacy Initiative

Located within the Department of Commerce (DOC), NTIA is responsible for advising the president on telecommunications and information policy issues.⁵ The agency’s request for comment is part of its work as a member of the Internet Policy Task Force—an interagency task force DOC created to review policy issues including privacy, copyright, global free flow of information, and cybersecurity.⁶ NTIA’s proposed approach to guide federal consumer-privacy policy is the result of this interagency process led by the National Economic Council in coordination with the International Trade Administration and the National Institute of Standards and Technology.

NTIA Proposed Privacy Outcomes

The agency proposes several “principle-based approaches” to privacy, stating that it intends to avoid overly-prescriptive policies that “stymie innovating privacy solutions [while] not necessarily providing measurable privacy benefits.” It is worth noting that NTIA’s list of broadly-defined, normative privacy principles closely parallels several of the elements of the EU’s GDPR regulation—albeit with less specificity or proposed stringency regarding penalties (i.e., fines for noncompliance).⁷

1. **Transparency.** Users should be provided the opportunity to give informed consent in such a way that they understand the manner in which entities are collecting, storing, and using their personally identifiable information (PII).
2. **Control.** Consumers should have some measure of control over the collection, storage, and use of their data.

⁵ <https://www.ntia.doc.gov/>

⁶ <https://www.ntia.doc.gov/category/internet-policy-task-force>

⁷ <https://eugdpr.org/the-regulation/>

3. **Reasonable Minimization.** “Collection, storage, length, use, and sharing by organizations should be minimized in a manner and to an extent that is reasonable and appropriate to the context and risk of privacy harm.”
4. **Security.** “Organizations...should employ security safeguards to secure these data [PII]. In short, users should have a reasonable expectation that their PII are protected from unauthorized access, destruction, etc.
5. **Access and Correction.** Users should have “reasonable [ability] to access personal data that they have provided, and to rectify, complete, amend, or delete this data.”
6. **Risk Management.** Organizations should use risk-based approaches to reduce the risk of potential harm to consumers and increase user privacy.
7. **Accountability.** Entities should be accountable—both internally and to external audiences—while using approaches “that enable flexibility, encourage privacy-by-design, and focus on privacy outcomes... [while taking] steps to ensure that their third-party vendors and servicers are accountable for their use, storage, processing, and sharing of that data.”

NTIA Proposed Goals for Federal Action

The proposal lists eight goals intended to set a broad outline for the direction that it suggests the federal government take to increase consumer privacy.

1. **Harmonize the regulatory landscape.** NTIA states that “...there is a need to avoid duplicative...privacy-related obligations placed on organizations [by] the production of a patchwork of competing and contradictory baseline laws.”
2. **Legal clarity while maintaining the flexibility to innovate.** “The ideal end-state would ensure that organizations have clear rules...while enabling flexibility that allows for novel business models and technologies...”
3. **Comprehensive application.** “Any action addressing consumer privacy should apply to all private sector organizations that collect, store, use, or share personal data in activities...not covered by sectoral laws.”
4. **Employ a risk and outcome-based approach.** “Instead of creating a compliance model that creates cumbersome red tape...the approach to privacy regulations should be based on risk modeling and focused on creating user-centric outcomes.”
5. **Interoperability.** NTIA seeks “to reduce the friction placed on the data flows by developing a regulatory landscape that is consistent with...international norms and frameworks...”
6. **Incentivize privacy research.** “The U.S. government should encourage more research...into understanding user preferences, concerns, and difficulties... [to] inform the development of standards, frameworks, models, methodologies, tools, and products...”

7. **FTC enforcement.** “Given its history of effectiveness, the FTC is the appropriate federal agency to enforce consumer privacy with certain exceptions made for sectoral laws outside the FTC’s jurisdiction.”
8. **Scalability.** “[NTIA] should ensure that the proverbial sticks used to incentivize strong consumer privacy outcomes are deployed in proportion to the scale and scope of the information an organization is handling.”

Evidence-Based Regulation

Scholars and practitioners widely agree that the systematic application of evidence-based approaches is a necessary and valuable input in the creation of effective public policy.⁸ Notably, the federal regulatory process is a distinct policy process that requires a tailored approach for successful implementation of evidence-enhancing strategies.⁹ For example, the Administrative Procedure Act of 1946¹⁰ compels agencies to justify most regulatory decisions based on the data, analyses, and other information collected and made part of a publicly available record.¹¹ Additionally, regulators should be able to demonstrate they are benefitting people’s lives by creating policies that address a “compelling public need,” as directed by Executive Order 12866.¹²

Regulation intended to increase consumer privacy benefits by simultaneously restricting the collection, storage, use, and/or sharing of data also imposes costs on society; a framework that produces evidence-based regulation requires assessment of the net effects of tradeoffs among expected benefits, costs, and other impacts of regulation.¹³ NTIA’s high-level goals should recognize that regulation is only an appropriate policy instrument for achieving a privacy outcome “upon a reasoned determination that the benefits of the intended regulation justify its costs.”¹⁴

The agency repeatedly mentions its intent to “advance consumer privacy while protecting prosperity and innovation.” Achieving this balance will require recognizing that it may not make sense for regulators to use NTIA’s list of outcomes as a checklist (i.e., as a prerequisite) for designing effective privacy regulation. As the Office of Management and Budget notes in its guidance for conducting regulatory analysis, absent a clearly identified market failure, regulation

⁸ The Promise of Evidence-Based Policymaking: Report of the Commission on Evidence-Based Policymaking (September 2017). Available at: <https://www.cep.gov/content/dam/cep/report/cep-final-report.pdf>

⁹ Peacock, Miller, and Pérez, “A Proposed Framework for Evidence-Based Regulation” The George Washington University Regulatory Studies Center. (February 2018). Available at: https://regulatorystudies.columbian.gwu.edu/sites/g/files/zaxdzs1866/f/downloads/Peacock-Miller-Perez_Evidence-Based-Regulation.pdf

¹⁰ Pub.L.No. 79-404, 60 Stat. 237.

¹¹ Ibid. p. 4.

¹² Executive Order 12866, “Regulatory Planning and Review,” September 30, 1993.

¹³ Peacock et al., above at 10.

¹⁴ Executive Order 12866, “Regulatory Planning and Review,” September 30, 1993.

can disrupt competition and lead to misallocation of resources—potentially leaving consumers worse off.¹⁵

In short, deciding that an outcome is worth achieving via regulation prior to assessing the evidence on the expected benefits and costs puts the proverbial cart before the horse (i.e., it is several steps along in the process of regulatory design).¹⁶

Evidence: Empirical Estimates of Privacy Benefits and Costs

Operationalizing the concept of privacy is complex, and thoughtful research designs to estimate the benefits and costs of privacy controls are most valid within the context of particular privacy issues.¹⁷ In this regard, NTIA’s list of privacy outcomes is a valuable approach since it attempts to operationalize privacy into discrete categories. However, as the agency notes, “they should [also] be read as a set of *inputs* for building better privacy protections.”¹⁸ Deciding what combination of inputs would likely generate net benefits via regulation to increase privacy protection requires empirical measures of benefits and costs.

Research attempting to generate measures of the benefits and costs of various privacy controls indicates that it is difficult to generate valid (and stable) estimates of consumers’ willingness to pay (WTP) to protect their privacy.¹⁹ In addition, these estimates are context-dependent (i.e., they are contingent on the way privacy is being operationalized and are highly sensitive to consumer characteristics such as gender) and also highly contingent on endowment effects (i.e., whether policies take away something consumers already have or grants them something they currently do not have).²⁰ Nonetheless, carefully specified research designs can generate useful “plug-in” values of both the social benefits and social costs of privacy regulation.²¹

¹⁵ Office of Management and Budget, Circular A-4: Regulatory Analysis (September 17, 2003). Available at: <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>

¹⁶ See: Peacock et al., above at 10, p. 6. See also: Adam Thierer, “A Framework for Benefit-Cost Analysis in Digital Privacy Debates,” *George Mason Law Review*, Vol. 20, No. 4 (Summer 2013).

¹⁷ Cordes and Pérez, above at 4, p. 12.

¹⁸ Emphasis added.

¹⁹ See: Cordes and Pérez, above at 4, p. 13.

²⁰ Ibid. Regarding the endowment effect on estimates of privacy valuations, see: Acquisti, John, and Loewenstein, “What is Privacy Worth?” *Journal of Legal Studies*, Vol 42 (2013), pp. 249-74. Given that most people effectively pay nothing for digital services (they provide their private information in exchange for “free” use) Cass Sunstein recently refers to this as a “superendowment effect.” See: Sunstein (2018) “How Much Would You Pay to Use Facebook? A Behavioral Perspective,” Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3173687.

²¹ Cordes and Pérez, above at 4, p. 14.

Substantial Benefits of the Digital Economy

Although the stated preference of U.S. consumers—generally speaking—is that they value their privacy highly,²² their behavior in the market suggests that at a minimum, they receive a commensurate benefit from the use of social media, smartphone applications, and other digital content requiring them to exchange their PII for access. For example, a 2013 study found that a representative U.S. consumer was willing to pay between \$1 and \$4 to conceal various types of personal information (e.g., browser history, phone’s unique identification number) from companies and third parties when downloading smartphone apps.²³ Notably, given that the typical app in the market is provided for free, the study estimated a lower-bound benefit to consumers from use of apps of approximately \$17 billion—or around \$5.00 per app.²⁴

The fact that access and use of much of the digital economy is “free”—or, more appropriately stated: provided in exchange for user data which is then monetized in various ways by companies—is often considered problematic for generating valid estimates of consumers’ willingness to pay for privacy (i.e., they usually pay nothing and exchange varying amounts of their PII). Nonetheless, researchers often find clever ways to design studies such that they provide more valid estimates. For instance, this might involve the use of deception to (albeit temporarily) fool participants into thinking they are making binding commitments to either pay or receive compensation in exchange for their choices.²⁵ A recent pilot experiment of this type estimated that Facebook users would have to be compensated about \$60 per month to voluntarily give up access to the social media platform.²⁶

Evidence of Social Costs

Currently, a survey of the peer-reviewed literature on privacy generates no systematic evidence of social welfare losses incurred by consumers as a result of *most* uses of their data. The notable exception involves data misuse with the intent to cause economic harm (such as identity theft and other financial fraud). But this is an issue of data protection rather than data privacy.²⁷ For example,

²² For example, a 2014 survey conducted by Pew found that “91% of Americans ‘agree’ or ‘strongly agree’ that people have lost control over how personal information is collected and used by all kinds of entities. Available at: <http://www.pewresearch.org/fact-tank/2018/03/27/americans-complicated-feelings-about-social-media-in-an-era-of-privacy-concerns/>.

²³ Savage and Waldman “The Value of Online Privacy” (2013) SSRN. Available at: <https://ssrn.com/abstract=2341311>

²⁴ Ibid. p. 3. The authors assumed that the typical app in the market is free, requires users to allow advertising, and requires the user to exchange their personal information including their location data and phone unique identification number.

²⁵ See Cordes and Pérez, above at note 4, p. 13.

²⁶ Sunstein, above at note 21.

²⁷ See, for instance: Brody, Mulig, and Kimball (2007), “Phishing, Pharming and Identity Theft” *Academy of Accounting and Financial Studies Journal*, Vol. 11, No. 3.

a recent study estimated financial losses incurred in the U.S. due to identity fraud in 2016 of \$16 billion.²⁸ Even here, the full amount does not accrue as a social cost to consumers—who bear approximately only 10% of these losses.²⁹ This is partly a design of existing U.S. consumer protection laws.³⁰ The substantial losses incurred by credit card companies and other financial institutions suggests that they have powerful incentives to invest in data security.

Other scholars have suggested theoretical scenarios where regulation might be justified including preventing PII from being used for price discrimination³¹ or ameliorating potential information asymmetries between consumers and firms.³² Contrary to the presumption of information asymmetry, a recent empirical study of 1,600 randomly-selected Internet users in the U.S. found that 90% of respondents were generally familiar with Google’s business practices concerning the use of consumer PII, 75% knew that Google collected their location data, and 88% knew that Google used their browser search data.³³

The dearth of evidence of privacy-related harms to consumers suggests that regulators should be cautious of imposing restrictions that reduce the benefits that consumers seem to enjoy.

Recommendations

Before proceeding with privacy guidelines, NTIA should review the literature cited here and follow long-standing analytical practices³⁴ adopted to ensure federal policies do more good than harm. The first two recommendations below are absent from NTIA’s outcomes or high-level goals and conform to current legal and administrative requirements on regulatory policymaking as well as best practices for producing evidence-based regulation.³⁵

1. **Privacy regulation should be based on evidence that regulation will actually advance privacy outcomes in ways that consumers value.** NTIA should avoid assuming, *a priori*,

²⁸ Javelin Strategy and Research, “2017 Identity Fraud Study” Available at:

<https://www.javelinstrategy.com/coverage-area/2017-identity-fraud>

²⁹ Brody, Mulig, and Kimball, above at note 28.

³⁰ For instance, the Fair Credit Billing Act and the Electronic Fund Transfer Act offer various protections against fraud related to credit cards and use of other electronic fund transfers. See:

<https://www.consumer.ftc.gov/articles/0213-lost-or-stolen-credit-atm-and-debit-cards>

³¹ For instance, see: Borgesius and Poort “Online Price Discrimination and the EU Data Privacy Law” *Journal of Consumer Policy*, Vol. 40, No. 3 (September 2017).

³² Hirsch, “The Law and Policy of Online Privacy: Regulation, Self-Regulation, or Co-Regulation?” *Seattle University Law Review*, Vol. 34, No. 1 (Fall 2010).

³³ Caleb Fuller, “Is the Market for Digital Privacy a Failure?” (2017) Available at:

https://www.ftc.gov/system/files/documents/public_comments/2017/11/00019-141720.pdf

³⁴ Executive Order 12866, OMB Circular A-4 *Regulatory Analysis* (2003). Available at:

<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>

³⁵ Peacock et al. above at note 10.

that more stringent privacy regulation would result in net benefits for consumers or that regulatory action should use the NTIA list of desired outcomes as a checklist.³⁶ Evidence indicates that consumers are consistently willing to trade their private data for what they perceive as the substantive benefits of using social media platforms, smartphone applications (apps), and various other digital goods—often provided for “free” (i.e., their cost is subsidized by company revenue generated by sales to advertisers or other uses of user data).³⁷ Scholars often refer to these people as “privacy pragmatists”—routinely willing to exchange their personal information for these benefits—and find little evidence that regulatory intervention to increase consumer privacy would be likely to generate net benefits for society.³⁸

2. **The benefit of regulating consumer privacy should exceed the social cost—including costs consumers will bear as a result of regulation.** NTIA should explicitly consider costs, as well as benefits of any government action, as required by longstanding regulatory principles.
3. **Further research should focus on generating useful empirical estimates of the benefits and costs of privacy controls.**³⁹ NTIA lists incentivizing privacy research among its high-level goals and asks for public comment on the recommended focus and desired outcomes of exploring commercial data privacy-related issues. I suggest that further research should generate additional estimates of consumers’ willingness to pay for privacy protections to increase the evidence of the social benefits and social costs of privacy regulation.⁴⁰

³⁶ Alan McQuinn notes that “creating stronger privacy laws is simple. But creating stronger privacy laws that do not undermine the digital economy is much harder.” See: Alan McQuinn, “Understanding Data Privacy” Real Clear Policy. Available at:

https://www.realclearpolicy.com/articles/2018/10/25/understanding_data_privacy_110877.html

³⁷ See: Sunstein (2018) above at note 21. Sunstein estimates a median monthly WTP for users in the U.S. to use Facebook of \$1 while finding that the same user would need to be offered \$59 to cease using Facebook for a month. Sunstein refers to this disparity as a “superendowment effect” that results from the intense opposition of people being asked to pay for a good that they had enjoyed for free.

³⁸ For instance, in a public interest comment submitted to the Federal Communications Commission on its proposal in 2016 to regulate the privacy practices of broadband Internet access service providers in an attempt to increase consumer privacy, Howard Beales noted that the agency’s proposed regulatory intervention would likely result in a net loss to consumers and reduced innovation. See: Howard Beales, “Public Comment on Protecting the Privacy of Customers of Broadband and Other Telecommunications Services” The George Washington University Regulatory Studies Center, May 27, 2016. Available at: <https://regulatorystudies.columbian.gwu.edu/public-comment-protecting-privacy-customers-broadband-and-other-telecommunications-services>

³⁹ Cordes and Pérez, above at note 4.

⁴⁰ Id. p. 3.

MEASURING COSTS AND BENEFITS OF PRIVACY CONTROLS: CONCEPTUAL ISSUES AND EMPIRICAL ESTIMATES¹

Joseph J. Cordes² & Daniel R. Pérez³

INTRODUCTION

As increasing amounts of personal information become potentially available to internet providers, the government, and employers, a lively debate has emerged concerning the role of public policy in ensuring a proper balance between the various parties who may benefit from greater access to information and the protection of individual rights to privacy. A recent example is legislation passed in Congress repealing a regulation that “would have required internet service providers—like Comcast, Verizon and Charter—to get consumers' permission before selling their data.”⁴ As Robert Hahn, Anne Layne-Farrar,⁵ and Adam Thierer⁶ have noted, it is desirable that this debate be informed by a formal cost-benefit analysis based on empirical measures of costs and benefits.

Additionally, emerging technologies such as highly automated vehicles (HAVs or driverless cars) and unmanned aircraft systems (UAS or drones) bring privacy concerns to the forefront—particularly regarding the proper role of federal regulatory agencies. Accordingly, agencies such as the National Highway Traffic and Safety Administration (NHTSA) and the Federal

¹ This article reflects the views of the authors and does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://regulatorystudies.columbian.gwu.edu/policy-research-integrity>.

² Professor of Economics, Public Policy and Public Administration, and International Affairs, Trachtenberg School of Public Policy and Public Administration, the George Washington University. Co-Director of the George Washington University Regulatory Studies Center. PhD University of Wisconsin-Madison Economics (1977).

³ PhD Student, Public Policy and Public Administration, Trachtenberg School of Public Policy, the George Washington University. Senior Policy Analyst at the George Washington University Regulatory Studies Center.

⁴ Brian Naylor, *Congress Overturns Internet Privacy Regulation*, NPR (March 28, 2017, 6:10 PM), <http://www.npr.org/2017/03/28/521831393/congress-overturns-internet-privacy-regulation>.

⁵ See Robert W. Hahn & Anne Layne-Farrar, *The Benefits and Costs of Online Privacy Legislation*, 54 ADMIN. L. REV. 85, 142-61 (2002).

⁶ See Adam D. Thierer, *A Framework for Benefit-Cost Analysis in Digital Privacy Debates*, 20 GEO. MASON L. REV. 1055, 1056-57 (2013).

Aviation Administration (FAA) currently face the difficult task of balancing their objectives of issuing sensible regulations that offer protections to consumers and allowing continued innovation and use of these emerging technologies.

The regulatory process “incorporates significant requirements regarding the collection, use and accessibility of data that differ from other policymaking processes.”⁷ Statutes, such as the Administrative Procedure Act of 1946⁸ (APA), require agencies to “justify most regulatory decisions based on the data, analyses, and other information collected and made part of a publically available record.”⁹ Data and other evidence used by agencies to justify rulemaking become part of the public record and are particularly relevant in the case of judicial review, where regulations can be vacated if reviewing courts determine agency actions to be “arbitrary and capricious.”¹⁰ The APA is only one of numerous mandates that constrain and guide the rulemaking process.¹¹

Usable estimates of consumer privacy are a benefit to federal regulatory agencies because of the existing analytical requirements for collecting information under laws, such as the Paperwork Reduction Act (PRA).¹² The PRA requires agencies “to justify any collection of information from the public by establishing the need and intended use of . . . information . . . and showing that the collection is the least burdensome way to gather the information.”¹³ Agencies must receive approval from the Office of Information and Regulatory Affairs (OIRA) before initiating any information collection from ten or more people.¹⁴

⁷ Marcus C. Peacock, Sofie E. Miller & Daniel R. Pérez, *A Proposed Framework for Evidence-Based Regulation* (2018), <https://regulatorystudies.columbian.gwu.edu/proposed-framework-evidence-based-regulation> (detailing a framework for producing evidence-based regulation structured around the three main phases of regulating: design, decision-making, and retrospective review).

⁸ PUB. L. NO. 79-404, 60 Stat. 237.

⁹ Peacock, Miller & Pérez, *supra* note 7, at 2.

¹⁰ 5 U.S.C. § 706(2)(A).

¹¹ *See, e.g.*, The Privacy Act of 1974, 5 U.S.C. § 552(a). *See generally* Susan E. Dudley & Jerry Brito, THE MERCATUS CTR. AND THE GEO. WASH. UNI. REG. STUDIES CTR., *Regulation: A Primer*, 45-47 (2d ed. 2012) (for a thorough list of laws and executive orders affecting regulatory policymaking). *See also* Susan E. Dudley, *Putting a Cap on Regulation*, 42 REG. LAW NEWS, AM. B. ASS’N 4-6 (2017) (providing a detailed explanation of executive orders affecting the rulemaking process signed by President Trump which include: Exec Order No. 13,771, 82 Fed. Reg. 9339 (February 3, 2017) and Exec Order No. 13777, 82 Fed. Reg. 12285 (March 1, 2017)).

¹² 44 U.S.C. §§ 3501-3520.

¹³ MAEVE P. CAREY, CONGRESSIONAL RESEARCH SERVICE, COST-BENEFIT AND OTHER ANALYSIS REQUIREMENTS IN THE RULEMAKING PROCESS, CRS REPORT R41974 15 (2014).

¹⁴ *Id.*

In short, these mandates require agencies to base their rulemaking on a thorough analysis of regulatory costs and benefits, with added requirements to conduct retrospective *ex post* review of regulatory impacts. As the U.S. economy grows exponentially reliant on data generated by the collection of individuals' personally identifiable information (PII), regulatory agencies will need empirical measures of consumer valuations of privacy.

Our article strives to contribute to the development and greater use of such empirical measures. Drawing on the economics of privacy literature, we summarize why the costs and benefits of privacy controls should be measured *in principle*. We then discuss attempts that have been made to measure the costs and benefits of privacy control. Finally, we synthesize the various findings to advance promising practices for generating useful estimates of U.S. consumers' valuation of privacy.

I. THE BASIC FRAMEWORK FOR COST-BENEFIT ANALYSIS

As noted in a widely used textbook on cost-benefit analysis, the two foundational measures are: (1) willingness to pay (WTP) as measures of benefit to individuals who gain from a policy or as costs to individuals who are harmed; and (2) the social opportunity costs of inputs used to implement the policy.¹⁵

Willingness to pay can be measured in principle by the compensating variation (or in some cases equivalent variation) of a policy change, where the compensating variation equals the maximum amount of income a beneficiary of a policy would be willing to give up in order to have the policy implemented. Conversely, the compensating variation of someone harmed by the policy would equal the minimum amount of income that would need to be paid to someone harmed by the policy to leave them no worse than before the policy change. An alternative measure of willingness to pay, equivalent variation, equals the minimum amount of income that would need to be paid to a beneficiary of a policy in lieu of implementing the policy, or the maximum amount of income that someone harmed by a policy would be prepared to pay to prevent the implementation of the policy.

Defining the social opportunity cost of a policy is somewhat more straightforward. Namely, it is the value to society in its next best use of the resources that are used up in implementing a policy.

These measurement building blocks also apply to defining the benefits and costs of privacy controls, with appropriate adjustment for the somewhat distinctive nature of privacy markets, property rights, or both.

¹⁵ See ANTHONY BOARDMAN, DAVID GREENBERG, AIDAN VINING, & DAVID WEIMER, *COST-BENEFIT ANALYSIS* 27 (Pearson Economic Series, 4th ed. 2010).

A. *A Simple Model of the Valuation of Online Privacy*

To help organize the discussion, we begin by summarizing the main features of an economic model of privacy formulated by Savage and Waldman.¹⁶ In the Savage and Waldman model, the individual is assumed to maximize a utility function which has as its arguments consumption (c), leisure (L), and privacy (P), which in turn is a declining function of the number of apps (a), so that $P = P(a)$.¹⁷

Thus, the consumer's maximization problem can be stated as $max_{h,a} U(c, L, P(a))$ s.t. $c = y + wh - p \cdot a$; and $L = T - h - T(a, e)$

. In the problem, y represents unearned income, w is the wage rate, h is hours of work, and p is the per unit price of an app.¹⁸ The function $T(a, e)$ represents the impact of using apps on the amount of time the consumer uses for essential activities (essential time), which depends both on the number of apps used (a), and the individual's experience in using apps (e).¹⁹ Holding e constant, increased use of apps is assumed to decrease the amount of essential time (e.g. result in essential time savings).

A key result of the model is that the rational consumer will acquire additional apps up to the point where $-wT_a = p + \left(\frac{U_P}{U_C}\right) \cdot P_a$.²⁰ The left-hand side of the aforementioned expression is the marginal value of essential savings of the marginal app purchased. The right-hand side of the equation represents the marginal cost of the marginal app, which is comprised of the per-unit app price (p) added to the marginal value of privacy lost by purchasing an additional app, $\left(\frac{U_P}{U_C}\right) \cdot P_a$.²¹ The term $\left(\frac{U_P}{U_C}\right) \cdot P_a$ represents the marginal value to the consumer of giving up an additional unit of privacy at the margin, and hence represents the consumer's marginal valuation or willingness to pay for privacy.²²

II. EMPIRICAL ESTIMATES OF THE WILLINGNESS TO PAY FOR PRIVACY

There are several ways of estimating the willingness to pay for privacy. One can attempt to estimate the marginal willingness to pay directly using data from choices that consumers are observed to make in the marketplace.

¹⁶ See Scott Savage & Donald M. Waldman, *The Value of Online Privacy*, SSRN (2013), <https://ssrn.com/abstract=2341311>.

¹⁷ *Id.* at 9.

¹⁸ *Id.*

¹⁹ See *id.*

²⁰ See *id.* at 10.

²¹ See *id.*

²² See *id.*

Alternatively, one can use data from choices that consumers are observed to make in experimental settings or in surveys. Inferences can also be made from analogous markets, such as those that provide protections of consumer privacy. In this section, we summarize the results of such efforts.

It is worth noting in advance that a review of literature on privacy provides considerable evidence that consumer privacy preferences vary substantially across different characteristics of interest. For example, studies generally find that females have higher valuations for privacy protection relative to males. However, females also tend to value particular kinds of privacy protections over others (e.g. location data collected via a smartphone's GPS). In contrast, males tend to value concealing their browsing history more highly than hiding their location data.

Generating valid measures of consumer privacy is also made more difficult due to the so-called "privacy paradox" which notes that consumers' stated preferences for privacy protection are often completely uncorrelated with their behavior (i.e. what they actually pay to protect their PII).²³

A. *Savage and Waldman, The Value of Online Privacy*²⁴

Savage and Waldman estimated U.S. consumers' WTP to conceal various types of personal information from companies and third parties when downloading smartphone applications (apps).²⁵ The authors posed two primary research questions: (1) what is the value of online privacy for adults in the U.S., and (2) to what extent do these valuations vary with user experience?²⁶ They operationalized the concept of privacy by estimating U.S. consumers' WTP for smartphone apps in 2013.²⁷ Data on downloads of apps are generally useful for informing privacy valuations because consumers are required to relinquish various kinds of private information to app developers and third parties—in addition to the actual cost of the app—to benefit from using these apps on their smartphones.²⁸

a. Methodology

The research design involved administering an in-person survey to consumers, with a pre-test and post-test, either in their homes or public places

²³ See generally Patricia A. Norberg, Daniel R. Horne & David A. Horne, *The Privacy Paradox: Personal Information Disclosure Intentions versus Behaviors*, 41 J. CONSUMER AFF. 100-126 (2007).

²⁴ See Savage and Waldman, *supra* note 16.

²⁵ See *id.* at 2.

²⁶ *Id.* at 7-8.

²⁷ *Id.* at 2.

²⁸ See *id.* at 4.

during the summer of 2013.²⁹ Interviewers used the pre-test partly to classify participants as either “experienced” or “inexperienced” users. Interviewers then showed participants an app on the interviewer’s phone that was available to download in the marketplace.³⁰

Participants were told that the app developer was considering several versions of the app that were identical with the exception of different privacy permissions, prices, and whether they included advertisements.³¹ Participants were also told that they would have the opportunity to purchase the alternate version of their choice, which would soon be available in the market.³² Interviewers asked respondents two questions: (1) which app do you prefer, and (2) do you intend to download the app once it is available?³³

The post-test consisted of revealing to participants that the survey was conducted for research purposes only and that there were no alternative apps being developed, and asking questions to determine how likely participants were to follow through with their stated preference, in cases where they indicated they were going to download an alternate version of the app once it was available.

b. Primary Findings

The survey data indicated that the representative U.S. consumer is willing to pay \$2.28 to conceal browser history, \$4.05 to conceal list of contacts, \$1.19 to conceal location, \$1.75 to conceal a phone’s ID number, \$3.58 to conceal the contents of text messages, and \$2.12 per app downloaded on a smartphone to eliminate advertising.³⁴ The Appendix contains a detailed list of findings, but it is worth noting here that the authors found the following characteristics to have significant effects on privacy valuations: gender, age, level of user experience, and education.³⁵

B. *Acquisti, John & Loewenstein, What is Privacy Worth?*

Most of the studies summarized in this article attempt to generate specific estimates for consumers’ WTP for privacy. However, Acquisti, John, and Loewenstein focused their efforts on investigating the extent to which contextual, non-normative factors affect estimates for privacy preferences.³⁶

²⁹ *Id.* at 16.

³⁰ *Id.* at 12.

³¹ *Id.* at 13.

³² *Id.*

³³ *Id.* at 13-14.

³⁴ *See id.* at 22.

³⁵ *Id.* at 25.

³⁶ Alessandro Acquisti, Leslie K. John & George Loewenstein, *What is Privacy Worth?*, 42 J. LEGAL STUD. 249 (2013).

The authors note that findings from behavioral economics and decision research frame their assumption that consumer preferences for privacy are not as consistent or easy to measure as assumed by traditional economic theorists. In short, they generally question the validity of estimates for consumers' WTP generated by research designs that tend to rely only on a single method of data collection.

a. Methodology

The authors conducted a field experiment in which they offered two types of Visa gift cards to female shoppers at a mall in the U.S. in exchange for participating in a survey.³⁷ The subjects were offered, under various configurations, the options of: (1) a \$10 "anonymous" gift card, for which purchases would not be linked to PII, and (2) a \$12 "identified" gift card, for which purchases made would be tracked under their name and additional identifying information.³⁸ The authors provide a summary of the five conditions used to offer gift cards to subjects.³⁹ Conditions one and two test for endowment effects, conditions three and four check for order effects, and condition five is a rationality check control condition, offering a \$12 anonymous card or a \$10 identified card, to see if participants understood the trade-offs being presented.⁴⁰ The conditions are summarized below:

1. \$10 endowed: Keep the anonymous \$10 card or exchange it for an identified \$12 card.
2. \$12 endowed: Keep the identified \$12 card or exchange it for an anonymous \$10 card.
3. \$10 choice: Choose between an anonymous \$10 card and an identified \$12 card.
4. \$12 choice: Choose between an identified \$12 card and an anonymous \$10 card.
5. Rationality check control condition: choose between a \$10 identified card or a \$12 anonymous card.⁴¹

b. Primary Findings

Over half of the participants endowed with the anonymous \$10 card rejected an offer of \$2 to reveal their future purchase data, while over 90% of the participants endowed with the identified \$12 card refused to pay \$2 to

³⁷ *See id.* at 260-62.

³⁸ *See id.* at 263.

³⁹ *See generally id.* at 261.

⁴⁰ *Id.*

⁴¹ *Id.*

protect their privacy, e.g. not accepting the offer to switch to the \$10 gift card.⁴² These findings indicate that consumers' willingness to accept (WTA) is greater than or equal to \$2 while consumers' WTP is less than \$2.⁴³ The findings of this study raise substantial validity concerns for research that does not take into account insights from behavioral economics, including order and endowment effects into the design of the study.

C. *Beresford, Kübler & Preibusch, Unwillingness to Pay for Privacy: A Field Experiment*

Beresford, Kübler, and Preibusch conducted a field experiment in the form of a revealed preference test to estimate consumers' WTP for privacy protection, pertaining to the disclosure of their monthly income, during business transactions requiring the disclosure of PII.⁴⁴ The findings of this study are a substantial outlier relative to the other studies discussed in this article.

a. Methodology

The experiment involved 225 participants who were students at the Technical University of Berlin; 74 of the participants provided data via the option to purchase a DVD from one of two online stores.⁴⁵ The authors partnered with Amazon to create fictitious branches for two different retail stores that were ostensibly part of a known, multichannel retailer of DVDs in Germany.⁴⁶ Both stores were set up with different privacy disclosure requirements.⁴⁷ The treatments consisted of: (1) a scenario where both stores offered the same selection of DVDs for the same price, and (2) a scenario where one store offered the same selection of DVDs but at a discount of one Euro.⁴⁸ The store offering the one Euro discount required consumers to disclose their monthly income in exchange.⁴⁹

⁴² *See id.* at 264-65.

⁴³ *See id.* at 267.

⁴⁴ Alastair R. Beresford, Dorothea Kübler & Sören Preibusch, *Unwillingness to pay for privacy: A field experiment*, 117 *ECON. LETTERS* (2012).

⁴⁵ *Id.* at 26.

⁴⁶ *Id.* at 25.

⁴⁷ *See id.* at 25-26.

⁴⁸ *Id.* at 26.

⁴⁹ *Id.*

b. Primary Findings

The authors indicated that consumers are generally unwilling to pay for privacy.⁵⁰ When faced with a trade-off between providing less sensitive, private information and a modest discount in price, approximately 92% of participants chose the discount.⁵¹ Interestingly, the experiment also seemed to indicate that varying privacy disclosure requirements without varying price resulted in no significant effect on consumer decision-making. However, it is worth reiterating here that this study's findings are a substantial outlier in the privacy literature's estimates for consumer valuations of privacy. This is likely not only a result of sample selection bias, the sample having been college students, but also a result of the way that the authors chose to operationalize the concept of privacy, through disclosure of monthly income.

D. *Hann, Hui, Lee & Png, Overcoming Online Information Privacy Concerns: An Information-Processing Theory Approach*

Hann et al. administered a survey to estimate consumers' WTP to protect their PII during online transactions.⁵² The authors administered the survey to university students from both the U.S. and Singapore.⁵³ The survey questions asked as part of the pre-test were motivated by the authors' choice to conduct a conjoint analysis of the data based on the expectancy theory of motivation.⁵⁴ The pre-test involved asking participants to rate their reasons for valuing privacy across several dimensions. Answers from the pre-test were later compared to results of stated valuations to determine if there were any significant drivers that motivate participants to prefer more or less privacy under different contexts.

a. Methodology

The authors administered a survey to undergraduate students in both the U.S. and Singapore.⁵⁵ The students were first asked to rank their level of concern for privacy generally and then asked to rank specific reasons that

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Il-Horn Hann, Kai-Lung Hui, Sang-Yong Tom Lee & Ivan P.L. Png, *Overcoming Online Information Privacy Concerns: An Information-Processing Theory Approach*, 24 J. MGMT. INFO. SYS. 13 (2007).

⁵³ *Id.* at 21.

⁵⁴ *Id.* at 21.

⁵⁵ *Id.* at 21.

motivated that belief. The participants then made a series of choices concerning the use of websites that facilitated transactions for different industries: financial, health care, and travel.

The websites presented to participants varied in two ways: (1) cost and (2) the ability given to users to manage the private information they would be required to disclose to websites in order to use them. Privacy management was broken down into three areas: (1) users' ability to review and correct private information disclosed to websites; (2) the ability to restrict private information against improper, third party access; and (3) the ability to prevent private information from being used for secondary uses, e.g. by someone other than the website for marketing purposes.

b. Primary Findings

The authors found U.S. participants' privacy to be worth between \$30.49 and \$44.62 (annually/person) while participants from Singapore valued their privacy at an average value of \$57.11.⁵⁶ Additionally, based on their pre-test questions, the authors claimed to have identified three distinct segments of internet users: "privacy guardians," "information sellers," and "convenience seekers."⁵⁷ The authors' breakdown of their survey results is as follows:

Value of Privacy (in U.S. dollars)⁵⁸

Web site privacy policy	United States	Singapore
Review for error	\$11.18-16.36	\$10.45
Restriction against improper access	\$11.33-16.58	\$19.73
Secondary use not allowed	\$7.98-11.68	\$26.93

E. *Schreiner & Hess, Why Are Consumers Willing to Pay for Privacy? An Application of the Privacy-freemium Model to Media Companies*

In addition to estimating a WTP for privacy protection, this study applied the theory of planned behavior (TPB) to explain the necessary conditions under which consumers would be willing to pay for additional privacy

⁵⁶ *Id.* at 29.

⁵⁷ *Id.* at 30.

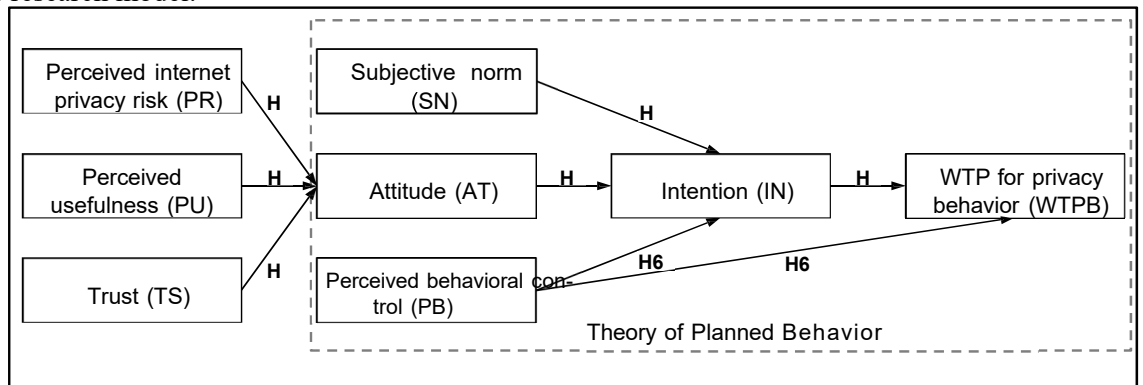
⁵⁸ *Id.* (modified from authors' Table 3).

protection when using online content platforms like Facebook.⁵⁹ Like the study by Acquisti, John & Loewenstein, the authors here generated valuable evidence regarding the contexts that shape consumers' preferences for privacy protection. Additionally, they provided a model, a framework based on TPB, that is useful for conceptualizing the various drivers and forces shaping consumer preferences to pay for privacy protection.

a. Methodology

The authors administered an online survey to 553 Facebook users in Germany.⁶⁰ The survey involved deceiving participants into believing that they were being offered the opportunity to bid on a soon-to-be-released premium version of Facebook with additional privacy control features in return for paying a monthly fee.⁶¹ The auction and deception components were valuable for estimating WTP via revealed, rather than stated, preferences.

A pre-test was administered to operationalize participants' motivations for privacy preferences across seven potential drivers: attitude, intention, perceived behavioral control, perceived internet privacy risk, perceived usefulness, subjective norms, and trust. Measures for each driver were estimated by using respondents' answers to questions within each category on a seven-point Likert scale.⁶² The authors used these results to describe the potential drivers of their consumer WTP estimate. The following is an illustration of their research model:⁶³



⁵⁹ Michel Schreiner & Thomas Hess, *Why Are Consumers Willing to Pay for Privacy? An Application of the Privacy-freemium Model to Media Companies*, 164 ECIS COMPLETED RES. PAPERS 2 (2015).

⁶⁰ *Id.* at 9.

⁶¹ *See id.* at 8.

⁶² *Id.* at 7.

⁶³ *Id.* at 6.

b. Primary Findings

The authors estimated a consumer WTP for additional privacy protection of 0.63 Euros per month when using online content platforms like Facebook.⁶⁴ The authors also performed an analysis on the various motivational coefficients, captured during the pre-test, to determine the relationship to revealed consumer WTP estimates. The authors found that participants' perceived usefulness (PU) and levels of trust (TS) in the fictitious premium version of Facebook significantly affected consumers' attitude (AT) about subscribing.⁶⁵ In this model, PU is a measure of the extent to which users believe that the privacy solutions offered by the premium version of Facebook are likely to address their privacy concerns.⁶⁶ Trust is a measure of the degree to which users believe Facebook is a trustworthy company. Attitude is a more direct measure of participants' perception of actually subscribing to the premium version.⁶⁷

Interestingly, the authors did not find a significant relationship between consumers' levels of perceived internet risk (PR) and consumers' attitudes towards the premium version of Facebook.⁶⁸ Overall, PR, PU, and TS explained 52% of the observed variance in AT under the causal assumptions of the model.⁶⁹ Finally, it is worth noting that subjective norms (SN) were estimated to also have a significant effect on intention (IN).⁷⁰

F. *Cvrcek, Matyas, Kumpost, & Danezis, A Study on the Value of Location Privacy*

Cvrcek, Matyas, Kumpost, and Danezis conducted a survey to estimate the value of privacy, defined as participants' willingness to accept payment in exchange for use of their mobile phone data to track their location and movement on a daily basis for a month.⁷¹ The auction involved the use of deception to convince participants that they were submitting bids to receive actual compensation in exchange for disclosure of their location data.⁷² The

⁶⁴ *See id.* at 9.

⁶⁵ *Id.* at 12.

⁶⁶ *Id.* at 5.

⁶⁷ *Id.*

⁶⁸ *Id.* at 12.

⁶⁹ *Id.* at 11.

⁷⁰ *Id.*

⁷¹ Dan Cvrcek, Vashek Matyas, Marek Kumpost & George Danezis, *A Study on the Value of Location Privacy*, PROCEEDINGS OF THE 5TH ACM WORKSHOP ON PRIVACY IN ELECTRONIC SOCIETY, 110 (2006).

⁷² *Id.*

experiment indicated that several consumer attributes might drive consumers' WTA payment for location data including: gender; nationality; the use of data, academic and commercial; and the duration of collection.⁷³

a. Methodology

The study involved surveying 1,200 people from five different countries: Belgium, Czech Republic, Germany, Greece, and Slovenia.⁷⁴ The survey was structured using three separate auctions: (1) a one-month study with tracking data to be used for academic purposes only, (2) a one-month study where tracking data would be used for academic and commercial purposes, and (3) a year-long study that extended the conditions of the second auction.⁷⁵ It is worth noting that the authors re-calculated the values of bids submitted across different countries using a value of money coefficient, computed as a ratio of average salaries and price levels within a particular country.⁷⁶

b. Primary Findings

The median bid, calculated using exchange rates in August 2006, was 43 Euros under the condition where participants chose to disclose their location data for academic purposes during a period of one month.⁷⁷ A breakdown of the data illustrates substantial variation among participants with certain characteristics. For instance, females' bids for the first condition were similar to males, but were 1.4 times higher for commercial use and 1.8 times higher for extending the study from one month to one year.⁷⁸ Finally, participants' nationalities also accounted for variations in bids. For example, German and Slovak bids were five times the median bid.⁷⁹

III. SYNTHESIS OF ARTICLE FINDINGS

A look across the findings within this article yields valuable information for future research to generate estimates for consumer valuations of their privacy. The Appendix contains a detailed list of findings for each study. The following are several key takeaways.

⁷³ See *id.* at 113.

⁷⁴ *Id.* at 112.

⁷⁵ See *id.* at 113.

⁷⁶ *Id.*

⁷⁷ *Id.* at 118.

⁷⁸ *Id.* at 113.

⁷⁹ *Id.* at 116.

A. *Operationalizing Privacy is Highly Context Dependent*

The studies demonstrate that, although privacy is a complex concept, thoughtful research designs can generate useful estimates of consumers' WTA or WTP for privacy. However, these estimates are most valid given a context-specific definition of the privacy issue in question. For example, it would be of questionable validity to say with any certainty that an individual's privacy, broadly speaking, is worth \$X to them; it is substantially more plausible to state that male consumers in the U.S. using social media platforms online are willing to pay \$X every month to prevent private companies from sharing their browsing information with third parties.

Interestingly, since the use of various technologies requires almost identical kinds of privacy disclosures, e.g. location tracking, estimates that are sufficiently well specified, i.e. location tracking provided to whom for what duration, are transferable across conditions. This is particularly valuable for regulatory agencies, all of which work under considerable time constraints, as it prevents them from having to reinvent the wheel to find estimates for the costs and benefits of consumer privacy that can be used as evidence to support their rulemaking.⁸⁰ This applies even to cases where agencies are considering regulation of emerging technology.

B. *Privacy Valuations are Not Necessarily Stable*

Acquisti, John, and Loewenstein point out that most studies within existing privacy literature operate under the assumption that a rational consumer's WTP and WTA should be equal. In fact, our literature review indicates that consumer valuations fluctuate substantially under different conditions and are highly dependent on certain decisions made in the research design. For example, researchers should pay close attention to the role that endowment effects could have in driving estimates of consumer privacy. This applies to both stated and revealed preference studies. Do participants begin with a default expectation of privacy? Are consumers paying for a benefit they don't currently have or are they being offered money in exchange for disclosure of their PII?⁸¹

Even estimates of well-specified privacy conditions can vary with minor differences, such as changes in the recipient of PII, even within the same industry. For instance, consumers might state or reveal certain WTP to protect their data from a company they consider trustworthy but may be willing

⁸⁰ See RAY PAWSON, *THE SCIENCE OF EVALUATION: A REALIST MANIFESTO* 159 (2013) (discussing the transferability of knowledge generated across fields and institutions).

⁸¹ See Acquisti, John & Loewenstein, *supra* note 35.

to pay substantially more to protect their PII from a company they personally consider untrustworthy.⁸²

C. *Improving the Validity of Privacy Estimates*

The most convincing research efforts seem to make use of auctions, deception, or both to more closely approximate actual consumer market behavior. Assuming the privacy paradox remains valid, research designs generating estimates using participants' stated preferences are not likely to yield valid results. Designs that either require participants to make purchases with their own money, or successfully deceive participants into believing that they are receiving payment, or studies that actually do pay participants, using an auction system are more likely to generate more useful estimates of consumer valuations of their PII.

D. *Consumer Characteristics Matter*

Finally, research that treats consumers as a homogenous group is unlikely to produce useful estimates. Almost all of the studies covered by this article indicate that consumer characteristics are highly correlated with their valuations of particular kinds of privacy. For example, gender may affect WTP for certain privacy areas, such as location, but not others, such as duration.⁸³ Country of origin, a proxy for admittedly difficult to conceptualize cultural differences, also affects privacy valuations. This is worth noting, in particular, because it presents substantial limits on the estimates that U.S. regulatory agencies can use to support their rulemaking, i.e. consumer valuations of privacy in Singapore or Germany are likely to vary considerably relative to consumer valuations of privacy in the U.S.⁸⁴

CONCLUSION

Adam Thierer, who argues for the need for cost-benefit balancing in evaluating privacy regulations, also noted that the empirical data needed for such balancing might be difficult to come by.⁸⁵ Our survey offers a somewhat more optimistic view.

Although estimating the economic value of privacy is challenging, it is not impossible. Estimations of the social costs of implementing privacy regulations are comparable in difficulty to estimations of social costs in other

⁸² Cvrcek, Matyas, Kumpost & Danezis, *supra* note 66.

⁸³ *Id.*

⁸⁴ *Id.* See also Hann, Hui, Lee & Png, *supra* note 50.

⁸⁵ Thierer, *supra* note 6.

policy areas. Not surprisingly, estimating individual willingness to pay to protect privacy is more difficult. However, both theoretical and empirical frameworks exist for doing so. Indeed, there appears to be enough empirical literature to provide plug-in values of both the social costs and social benefits of privacy regulations to be used in undertaking cost-benefit analysis. An important next step will be to adapt such estimates for the purposes of undertaking actual and proposed regulation of privacy.

Appendix: Empirical Estimates of Consumer Privacy Valuations

Study	Country	Empirical Estimates	Additional Findings
Savage & Waldman (2013)	U.S.	<p>U.S. consumer WTP for privacy (per app):</p> <ul style="list-style-type: none"> • \$2.28 to conceal browser history • \$4.05 to conceal list of contacts • \$1.19 to conceal location data • \$1.75 to conceal unique phone ID • \$3.58 to conceal text messages • \$2.12 to eliminate advertising <p>Given typical app in U.S. marketplace:</p> <ul style="list-style-type: none"> • Benefit of app must be at least \$5.06 • Estimated \$17.08 billion benefit of app marketplace 	<ul style="list-style-type: none"> • WTP varies substantially with level of user experience • Consumer preferences are heterogeneous and vary across race, gender, income, education, and level of technological experience.
Acquisti, John & Loewenstein (2013)	U.S.	<p>U.S. consumer WTP \neq WTA to conceal purchasing data:</p> <ul style="list-style-type: none"> • WTA \geq \$2.00 • WTP $<$ \$2.00 	<ul style="list-style-type: none"> • Privacy estimates generated are sensitive to framing of research design (e.g. endowment and order effects) and other contextual, nonnormative factors.⁸⁶

⁸⁶ See Acquisti, John & Loewenstein, *supra* note 35 at 249.

Beresford, Kübler & Preibusch (2012)	Germany	German consumer WTP to conceal monthly income during online purchases < 1 Euro.	
Hann, Hui, Lee & Png (2007)	U.S. and Singapore	Consumer WTP to protect PII across 3 different categories during online purchases (protection against errors, improper access, and secondary use of personal information): <ul style="list-style-type: none"> • Between \$30.49 - \$44.62 in the U.S. • \$57.11 in Singapore 	<ul style="list-style-type: none"> • Participants from Singapore valued privacy more highly relative to U.S. participants. • Study identifies three distinct groups of subjects based on behavior toward privacy: privacy guardians, information sellers, and convenience seekers
Schreiner & Hess (2015)	Germany	WTP for additional privacy protection when using online content platforms like Facebook of 0.63 Euros per month.	<ul style="list-style-type: none"> • Consumer WTP for privacy protection highly contingent upon the <i>perceived trustworthiness</i> of the company making the offer and the <i>belief</i> that the product addresses the underlying privacy concern.
Cvrcek, Matyas, Kumpost, & Danezis (2006)	Belgium, the Czech Republic, Germany, Greece, and Slovenia.	Participants' median WTA for disclosure of location tracking data (6 months, for academic purposes) = 43 Euros.	<ul style="list-style-type: none"> • Consumer valuations of PII highly contingent upon <i>recipient</i> of PII (<i>i.e.</i> academic vs. commercial) and <i>duration</i> of tracking. • WTA payment for location data varies substantially across characteristics including <i>gender</i> and <i>nationality</i>.

A Proposed Framework for Evidence-Based Regulation

Marcus C. Peacock²

Sofie E. Miller³

Daniel R. Pérez⁴

The George Washington University Regulatory Studies Center

ABSTRACT

The systematic application of evidence-based approaches to improve policymaking has received serious treatment by both scholars and policymakers, but its successful implementation to improve regulatory outcomes requires a separate framework. Regulation is a distinct subset of federal policymaking that must be evaluated differently from other policy areas—particularly considering that many of the existing recommendations to improve the use of evidence are

¹ This working paper reflects the views of the author, and does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://regulatorystudies.columbian.gwu.edu/policy-research-integrity>.

² Marcus C. Peacock is Executive Vice President of the Business Roundtable in Washington, DC. While working on this working paper, he was a Research Professor at the George Washington University Regulatory Studies Center.

³ Sofie E. Miller is a Senior Policy Analyst at the George Washington University Regulatory Studies Center at 805 21st St. NW, Suite 611, Washington, DC 20052. She can be reached at SofieMiller@gwu.edu.

⁴ Daniel R. Pérez is a Policy Analyst at the George Washington University Regulatory Studies Center at 805 21st St. NW, Suite 608, Washington, DC 20052. He can be reached at DanielPerez@gwu.edu.

undesirable, or even illegal, when applied to the rulemaking process. Because evidence-based recommendations need to be tailored to the context of regulatory agencies, we propose the use of an Evidence-Based Regulation (EBR) framework. An EBR process plans for, collects, and uses evidence throughout the life a regulation to predict, evaluate, and improve outcomes.

This paper begins by detailing how the regulatory process differs from other federal policymaking and establishes our EBR framework. We proceed by discussing the main barriers that regulatory agencies face in implementing an EBR approach: 1) agency noncompliance with internal administrative requirements, 2) inadequate funding for evaluation of the outcomes of regulation, and 3) the complex nature of using data to build evidence. We also advance concrete proposals for overcoming these barriers; our policy prescriptions for implementing EBR balance stricter oversight with increased flexibility for regulatory agencies.

TABLE OF CONTENTS

I.	Introduction to Evidence-Based Regulation (EBR)	3
A.	The Regulatory Process Differs from Other Policymaking	3
B.	A Framework for Evidence-Based Regulation	5
II.	Challenges, Barriers, and Policy Prescriptions	6
A.	The Challenge of Noncompliance with Internal Directives	7
B.	Solving Noncompliance through Independent Review, Codification, and Competition.....	9
i.	Strengthening Independent Review	10
ii.	Codification of Accepted Practices	11
iii.	Changing Incentives by Creating Competition	12
C.	The Problem of Inadequate Funding	13
D.	Three Possible Solutions to the Problem of Inadequate Funding	14
i.	Allowing Greater Flexibility in Agency Budgets	14
ii.	Setting Aside Funding for Evaluation	14
iii.	Tailoring Evaluation to the Context	15
E.	The Challenge of Using Data to Generate Evidence	15
i.	Data and Findings Must be separated from Policy	16
ii.	Muddled Fact and Policy Causes Problems	18
F.	Clear Separation and Broad Access Addresses This Problem.....	18
i.	Access to Evidence Organized by ‘Program Theory’ Could Benefit Regulators	19
III.	Institutionalizing Retrospective Review as a Cornerstone of Rulemaking.....	20
IV.	Overly Prescriptive Analytical Requirements Should be Avoided.....	23
A.	Experiment and Evaluate Different Regulatory Approaches	24
V.	Conclusion	25
VI.	Recommendations for Implementing an Evidence-Based Regulation Framework	26

I. Introduction to Evidence-Based Regulation (EBR)

Regulation may have a larger impact on society than any other single federal policymaking process. Regulations protect public health, promote economic growth, and help preserve our environment. However, various estimates of regulation's costs on society vary from over \$260 billion to over \$2 trillion.⁵ By comparison, the total cost of all federal funding for research and development, for instance, is less than \$160 billion a year.⁶ The size and scope of this impact necessitates a careful evaluation of how regulatory resources are allocated and their ultimate effects.⁷ We posit that the results of these evaluations can be improved given that they are: 1) informed by evidence-based approaches and 2) sensitive to the existing administrative constraints and requirements that distinguish the regulatory process from other forms of government policymaking.

A. The Regulatory Process Differs from Other Policymaking

When considering strategies to build better evidence-based programs and policies throughout government, it is vital to understand the regulatory policymaking process already includes numerous requirements regarding the collection, use, and accessibility of data that differ from those in other policymaking processes. Scholars and practitioners have produced insightful work detailing approaches to expand the use of evidence in federal policymaking, but the promising practices they advance tend to focus on the evaluation of programs rather than regulations.⁸ As we describe throughout this article, the federal regulatory process is a distinct policy process that requires a tailored approach for successful implementation of evidence-enhancing strategies.

This is partly a function of the unique data constraints placed on regulatory policymaking. In some situations, a recommendation that may benefit most methods of policymaking may be undesirable, or even illegal, in the rulemaking process.⁹ For instance, certain agencies looking to

⁵ Maeve P. Carey, Congressional Research Service, *Methods of Estimating the Total Cost of Federal Regulations*, 2 (Jan. 21 2016). Available at <https://www.fas.org/sgp/crs/misc/R44348.pdf>

⁶ American Association for the Advancement of Science, *Historical Trends in Federal R&D*, (June 22, 2016). Available at <https://www.aaas.org/page/historical-trends-federal-rd>

⁷ Reeve T. Bull, Building a Framework for Governance: Retrospective Review and Rulemaking Petitions, 67 ADMIN. L. REV. 265 (2015); Sofie E. Miller & Susan E. Dudley, Regulatory Accretion: Causes and Possible Remedies, 67 ADMIN. L. REV. ACCORD 2.

⁸ See, for instance, The Commission on Evidence-Based Policymaking, THE PROMISE OF EVIDENCE-BASED POLICYMAKING (2017),

⁹ See, for example, the discussion of the Paperwork Reduction Act (PRA) in Miller, 2015. SOFIE E. MILLER, GEO. WASH. UNIV. REG. STUDIES CTR., LEARNING FROM EXPERIENCE: RETROSPECTIVE REVIEW OF REGULATIONS IN 2014 15 (2015), https://regulatorystudies.columbian.gwu.edu/sites/regulatorystudies.columbian.gwu.edu/files/Retrospective%20Review%20in%202014_MillerS_11_3.pdf. The Administrative Conference of the United

bolster their use of evidence might seek out particular types of data and experts in order to help determine where federal grants may have the greatest impact. However, regulatory agencies that follow formal or adjudicatory rulemaking procedures may be subject to charges of inappropriate *ex parte* communication if they undertook the same action.¹⁰ Even for informal notice-and-comment rulemaking, final actions are often subject to litigation,¹¹ which places additional constraints on the evidence in the record. In short, recommendations to improve the use of evidence-based approaches to regulation must be tailored to regulatory agencies.¹²

For instance, the Administrative Procedure Act of 1946¹³ (APA) requires regulatory agencies to both disclose, as well as request from the public, data or other information pertinent to a rulemaking.¹⁴ Likewise, the APA compels agencies to justify most regulatory decisions based on the data, analyses, and other information collected and made part of a publicly available record. If, for instance, a decision appears “arbitrary and capricious” compared to the evidence in the public record the resulting regulation may be vacated.¹⁵

The APA is not the only important mandate affecting the collection, dissemination, and analysis of data during regulatory policymaking. Other requirements unique to regulations include, but are not limited to:¹⁶

States (ACUS) noted in its 2014 recommendation that “agencies should be mindful of the potential applicability of the Paperwork Reduction Act” when devising plans for retrospective review. Admin. Conference of the United States, *Admin. Conference Recommendation 2014-5: Retrospective Review of Agency Rules* (December 4, 2014). Available at https://www.acus.gov/sites/default/files/documents/Recommendation%25202014-5%2520%2528Retrospective%2520Review%2529_1.pdf

¹⁰ Unlike designing a grant program, the prohibition of *ex parte* contact during certain rulemakings recognizes that making regulations can have the character of an adjudication with a decision ‘on the record’ by an impartial decision-maker. Because such contacts may not be monitored, they create a risk that the decision-maker’s neutrality may be compromised. See Edward Rubin, *It’s Time to Make the Administrative Procedure Act Administrative*, 89 CORNELL L. REV. 95 (2003) Available at <http://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=2940&context=clr>

¹¹ See, for instance, on the prevalence of private litigation and the U.S. federal regulatory process at Sean Farhang, *The Litigation State* (2010).

¹² ACUS similarly recommended in 1995 that “processes for review of existing regulations should not be “one-size-fits-all,” but should be tailored to meet agencies’ individual needs” and that the scope of retrospective review should be determined by agency-specific circumstances. United States. Admin. Conference of the United States, *Admin. Conference Recommendation 95-3: Review of Existing Agency Regulations* (June 15, 1995). Available at <https://www.acus.gov/sites/default/files/documents/95-3.pdf>

¹³ PUB.L. NO. 79–404, 60 Stat. 237.

¹⁴ See, for instance, the requirements to disclose information at 5 U.S.C. § 552(a) and to request information at 5 U.S.C. § 553(c).

¹⁵ 5 U.S.C. § 706(2)(A).

¹⁶ This list is adapted with permission and updated from SUSAN E. DUDLEY & JERRY BRITO, *The Geo. Wash. Uni. Reg. Studies Ctr., and The Mercatus Ctr. REGULATION: A PRIMER*, 45-7 (2d ed. 2012).

- The Regulatory Flexibility Act of 1980 which requires agencies collect and assess data regarding the effect of major proposed regulations on small businesses;
- The Unfunded Mandates Reform Act of 1995 which established a requirement to collect and analyze data regarding certain regulatory burdens on state and local governments;
- The Small Business Regulatory Enforcement Fairness Act of 1996 requiring *ex ante* evaluations of the impact of certain regulations on small businesses;
- The Congressional Review Act of 1996 requiring the submission of certain regulatory data and documentation to Congress;
- The Truth in Regulating Act of 2000 allowing Congress to request the Government Accountability Office (GAO) evaluate certain proposed and final rules;
- Executive Orders 12,866, 13,563 and 13,579, as well as the Office of Management and Budget’s Circular A-4 regarding analyses that must be performed before certain rulemakings can be proposed or finalized;
- These Executive Orders and Executive Order 13,610 also encourage agencies to perform *ex post* reviews of the effectiveness of regulations; and
- Executive Orders 13,771 and 13,777, which instruct agencies to remove two rules for each new significant rule issued and create task forces to evaluate existing regulations, respectively.

In addition, there are other laws affecting data collection and use which, while not unique to the regulatory process, originated due to concerns regarding regulations. Such laws include the Paperwork Reduction Act of 1980¹⁷ (affecting the government collection of information) and the Information Quality Act of 2000¹⁸ (which established minimum requirements for the utility, integrity, and objectivity of information used by government).

B. A Framework for Evidence-Based Regulation

Regulators should be able to demonstrate they are benefitting peoples’ lives by creating policies that address a “compelling public need,” as directed by Executive Order 12,866.¹⁹ Increasing the use of evidence within the rulemaking process will make agencies smarter, improve regulatory decisions, and, ultimately, result in better outcomes for society. Recognizing this, we offer the following integrated framework describing a system that produces evidence-based regulation

¹⁷ PUB.L. NO. 96-511, 94 Stat. 2812.

¹⁸ PUB.L. NO. 106-554, 114 Stat. 2763.

¹⁹ EXEC. ORDER NO. 12,866, 58 Fed. Reg. 51735 (Sept. 30, 1993).

(EBR) (see box below). *An EBR process plans for, collects, and uses evidence throughout the life of a regulation to predict, evaluate, and improve outcomes.*

The framework is structured around the three main phases of regulating: design, decision-making, and retrospective review. It creates a feedback loop (through retrospective review) during implementation of the rule so that data are not only used in developing the regulation but also in periodically reassessing its value and modifying the rule as appropriate. Notably, this framework incorporates important and current requirements of the federal rulemaking process pertinent to the collection and use of data.

Evidence-Based Regulation Framework

I. Regulatory Design

- A. Identify the problem (state the “compelling public need”).
- B. Evaluate whether modifications to existing rules can address the problem.
- C. Identify and assess available alternatives to direct regulation.
- D. If regulating, determine that the preferred alternative addresses the problem.
- E. Set clear performance goals and metrics for outputs and outcomes.
- F. Exploit opportunities for experimentation.
- G. Plan and budget for retrospective review.

II. Regulatory Decision-making

- A. Assess the expected benefits, costs, and other impacts.
- B. Clearly separate scientific evidence from policy judgments.
- C. Make relevant data, models and assumptions available to the public.

III. Retrospective Review

- A. Reassess planned retrospective review and modify if necessary.
- B. Gather necessary data on regulatory outputs and outcomes.
- C. Implement retrospective review plan.
- D. Compare measured outcomes to original performance goals.
- E. Reassess the rule using new information and the factors in the regulatory design.

II. Challenges, Barriers, and Policy Prescriptions

The following sections identify several types of challenges and existing barriers that agencies face in expanding their use of evidence in the regulatory process. We identify each in turn and suggest concrete proposals to improve regulation using an EBR framework. These issues

include: agency noncompliance with internal administrative requirements, inadequate funding of program evaluation, the complex nature of using data to build evidence, difficulties in conducting truly effective retrospective review, and determining appropriate research designs. In addition to the following in-depth treatment of each issue, we summarize our policy recommendations in Appendix A.

A. The Challenge of Noncompliance with Internal Directives

One barrier to evidence-based regulation is a lack of faithful compliance with internal administrative requirements.²⁰ For instance, since 1981 presidents have required regulators who were considering a new regulation to identify and disclose the problem they intended to solve by regulating and assess different regulatory alternatives to solving that problem (these are items I.A. and I.C. under “Regulatory Design” in the EBR Framework shown above). In addition, each president since Jimmy Carter has required regulators to assess and disclose both the expected benefits and the expected costs of the regulatory alternatives²¹ (the estimation of both benefits and costs is shown in item II.A. in the EBR Framework).

Identifying the problem to be solved is a prerequisite for designing a regulation that provides net social benefits²² and for evaluating the effectiveness of a rulemaking once it is in place.²³ Absent a clearly identified market failure, regulation and other forms of government intervention can disrupt competition and lead to misallocation of resources.²⁴ Thus, targeting a fundamental problem rather than relying on anecdotes to support regulation is important, not only for regulatory design but for knowing what data to collect. Likewise, laying out policy alternatives²⁵ and using data to assess expected benefits and costs²⁶ is a fundamental method of informing

²⁰ See, for instance, Colin Kirkpatrick and David Parker (eds). *Regulatory Impact Assessment: Towards Better Regulation?* (2007).

²¹ See, for instance, EXEC. ORDER NO. 12,044, 43 Fed. Reg. 12661 (March 24, 1978).

²² According to EXEC. ORDER NO. 12,866, 58 Fed. Reg. 51735 (Sept. 30, 1993) (“Each agency shall identify the problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new agency action) as well as assess the significance of that problem.”).

²³ Miller, *supra* note 9

²⁴ Office of Management and Budget, *Circular A-4: Regulatory Analysis* (Sept. 17, 2003). Available at https://www.whitehouse.gov/omb/circulars_a004_a-4

²⁵ EXEC. ORDER NO. 12,866, 58 Fed. Reg. 51735 (Sept. 30, 1993) states, (“Each agency shall identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.”).

²⁶ EXEC. ORDER NO. 12,866, 58 Fed. Reg. 51735 (Sept. 30, 1993) states, (“Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.”).

decision-makers. Nonetheless, in 2014 GAO estimated that less than a fourth of new significant rules complied with these four basic presidential requirements.²⁷

A more recent example of agency noncompliance with internal administrative requirements regards the retrospective review of regulations (items I.G. and III. in the EBR Framework).²⁸ Every president since Jimmy Carter has required the *ex post* evaluation of regulations (retrospective review).²⁹ Most regulatory decisions rely on predictive models and assumptions, but rarely are those hypotheses evaluated based on real world evidence.³⁰ A requirement to evaluate whether predicted effects of regulations were realized would provide a powerful incentive to improve *ex ante* regulatory impact analyses, as well as improve regulations that are already in place.³¹

With this in mind, in 2011 and 2012 President Barack Obama signed three Executive Orders attempting to get agencies to more aggressively adopt retrospective review of regulations: Executive Order 13,563 “Improving Regulation and Regulatory Review,”³² which reinforced the requirements of Executive Order 12,866; Executive Order 13,579,³³ which expanded the requirements to independent regulatory agencies; and Executive Order 13,610, which emphasized that “further steps should be taken...to promote public participation in retrospective review.”^{34,35} However, an independent review of high-impact rules issued in 2014 found that the key requirements in these directives were seldom followed.³⁶

²⁷ Government Accountability Office, *Federal Rulemaking: Agencies Included Key Elements of Cost Benefit Analysis, but Explanations of Regulations’ Significance Could Be More Transparent*, 18 (Sept. 2014). Available at <http://www.gao.gov/assets/670/665745.pdf>

²⁸ Bull, *supra* note 7

²⁹ JOSEPH E. ALDY, ADMIN. CONFERENCE OF THE UNITED STATES LEARNING FROM EXPERIENCE, 6, (2014). <https://www.acus.gov/sites/default/files/documents/Aldy%2520Retro%2520Review%2520Draft%252011-17-2014.pdf>.

³⁰ See, for instance, on the challenges of conducting rigorous ex-post evaluation of regulatory outcomes SUSAN E. DUDLEY, THE GEO. WASH. UNI. REG. STUDIES CTR., *Retrospective Evaluation of Chemical Regulations*, OECD Environmental Working Papers 118 (2017).

³¹ SUSAN E. DUDLEY, THE GEO. WASH. UNI. STUDIES CTR., *A Retrospective Review of Retrospective Review*, 2 (May 2013). Available at <http://regulatorystudies.columbian.gwu.edu/files/downloads/20130507-a-retrospective-review-of-retrospective-review.pdf>

³² EXEC. ORDER NO. 13,563 was followed by implementation guidance. See Memorandum from OIRA Administrator Cass Sunstein to the Heads of Executive Departments and Agencies, *Retrospective Analysis of Existing Significant Regulations*, (April 25, 2011). Available at <https://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-19.pdf>

³³ EXEC. ORDER NO. 13,579, 76 Fed. Reg. 41587 (July 14, 2011).

³⁴ It should be noted that, in addition to these Executive Orders, some laws require the retrospective review of certain regulations. For instance, section 812 of the Clean Air Act Amendments of 1990 requires the Environmental Protection Agency to periodically assess the benefits and costs of regulations promulgated under

For example, the identification of measurable metrics that could be subsequently used to evaluate the impacts of rules were only identified in one-third of the regulations and even fewer for rules issued by independent agencies. To be clear, this is not a recent problem. As a general matter, such levels of noncompliance with presidential Executive Orders and other internal Executive Branch guidance in modern times are not unusual.³⁷

More recently, President Donald Trump signed two Executive Orders providing agencies with incentives for conducting retrospective review and instructing them to identify rules for removal based on review. Executive Order 13,771, “Reducing Regulation and Controlling Regulatory Costs,” requires agencies to identify two regulations for removal for every new significant regulation issued by Executive Branch agencies.³⁸ Executive Order 13,777 enforces this “two-for-one” policy by establishing regulatory reform task forces within executive agencies to implement EOs 13,563 and 13,771 and evaluate existing rules and make recommendations for reform.³⁹

C. Solving Noncompliance through Independent Review, Codification, and Competition

In examining how to improve the performance of people working in government bureaucracies, management expert William Medina has laid out three ways to change behavior.⁴⁰

- compel them (forced change);
- persuade them (through education); and/or
- change their incentives.

the Act.

³⁵ EXEC. ORDER NO. 13,610, 77 Fed. Reg. 28469 (May 10, 2012).

³⁶ SOFIE E. MILLER, THE GEO. WASH. UNI. REG. STUDIES CTR. *Learning from Experience: Retrospective Review of Regulations in 2014*, (Nov. 2015). Available at https://regulatorystudies.columbian.gwu.edu/sites/regulatorystudies.columbian.gwu.edu/files/Retrospective%20Review%20in%202014_MillerS_11_3.pdf. As a general matter, other researchers have also concluded that there is generally a lack of compliance with retrospective review requirements. See Reeve T. Bull, *Building a Framework for Governance: Retrospective Review and Rulemaking Petitions*, 67 ADMIN. L. REV. 265 (2015).

³⁷ See, for instance, the lack of compliance with eight government-wide reforms since 1965 discussed in MARCUS C. PEACOCK, THE GEO. WASH. REG. STUDIES CTR., *Improving the Accountability of Federal Regulatory Agencies Part II: Assessing Eight Government-wide Accountability Reforms*, (June 28, 2016). Available at https://regulatorystudies.columbian.gwu.edu/sites/regulatorystudies.columbian.gwu.edu/files/downloads/RegInsight_Peacock-Reforms-Improving-Accountability_pt2.pdf

³⁸ EXEC. ORDER NO. 13,771, 82 Fed. Reg. 9339 (January 30, 2017).

³⁹ EXEC. ORDER NO. 13,777. 82 Fed. Reg. 12285 (February 24, 2017).

⁴⁰ William A. Medina, *Changing Bureaucracies: Understanding the Organization Before Selecting the Approach*, 118-9 (1982).

A recent review of a lack of faithful compliance of government-wide reforms aiming to improve compliance within U.S. federal agencies over a period of fifty years found three possible ways to improve behavior: create independent organizations to help execute the rules; codify administrative requirements into law; and create competition.⁴¹ The first two methods force change while the third attempts to change incentives.

i. Strengthening Independent Review

There are many examples of governments tackling the problem of internal noncompliance by creating independent organizations to either monitor compliance (such as the Inspectors General) or to faithfully execute the requirements themselves. A specific example of the latter strategy is found in the European Union (EU).⁴² Concerns regarding a lack of compliance with internal guidelines requiring the self-evaluation of the effectiveness of policies⁴³ resulted in the EU creating a separate *ex post* evaluation body. This new organization is completely independent from the member nations and reports directly to the European Parliament.⁴⁴

Independent review does not necessarily entail creating a new entity. For instance, one approach could be to enlist the U.S. court system to improve compliance. Judicial review has been largely successful in achieving compliance with the public notice and evidentiary requirements codified in the APA.⁴⁵ Agencies know their regulations can be nullified unless they can convince a court that the standards of transparency and assessment set out in the APA have been met. Expanding the existing judicial review of regulations to include one or more elements of the EBR Framework, such as determining whether a final rule includes an adequate plan for retrospective review, would undoubtedly improve compliance with those elements. For instance, Cass

⁴¹ See MARCUS PEACOCK, THE GEO. WASH. UNI. REG. STUDIES CTR., *Improving the Accountability of Federal Regulatory Agencies Part III: What Reforms Work Best*, 22 (Sept. 12, 2016). Available at <https://regulatorystudies.columbian.gwu.edu/improving-accountability-federal-regulatory-agencies-part-iii-what-reforms-work-best>

⁴² CÉLINE KAUFFMANN, THE GEO. WASH. UNI. REG. STUDIES CTR., *The OECD Perspective on Good Regulatory Practices and International Regulatory Cooperation*, (Dec. 19, 2014). , Available at <https://regulatorystudies.columbian.gwu.edu/oecd-perspective-good-regulatory-practices-and-international-regulatory-cooperation>

⁴³ See, in particular, Court of Auditors, Special Report No. 1/2006 on the contribution of the European Social Fund in combating early school leaving, together with the Commission's replies, C 99 O.J. 01 (2006). This audit found that agencies allocating funding for the purpose of keeping students in school generally did not utilize readily available performance data.

⁴⁴ This is the Ex Post Impact Assessment Unit in the European Parliamentary Research Service. See European Parliament, *Evaluation and ex-post impact assessment at EU level*, (Sept. 2016). Available at [http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/581415/EPRS_BRI\(2016\)581415_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/581415/EPRS_BRI(2016)581415_EN.pdf)

⁴⁵ *Supra*, note 6.

Sunstein notes that whenever a statute authorizes a regulatory agency to use benefit-cost analysis to estimate whether a regulation is likely to increase social welfare and it chooses not to use this approach, courts can find that the agency acted arbitrarily (in violation of the APA).⁴⁶ Relying on the courts would also avoid the cost of creating a new entity within the federal government.

ii. Codification of Accepted Practices

Another approach to motivating agencies to comply with internal administrative requirements is to codify such requirements in law. For instance, the last section below includes a recommendation that elements of the EBR Framework that have been adopted by consecutive presidents over a long period of time be more firmly institutionalized by putting them in law. This would be an incremental step in improving compliance, as it would increase their permanence and subject compliance to greater oversight—particularly by Congress.

For example, Senators Heidi Heitkamp (D-N.D.) and James Lankford (R-Okla.) have proposed the Smarter Regulations Act⁴⁷ which would require agencies to include in major rules a framework for reassessing the rule, including the timeframe for reassessment,⁴⁸ the metrics that should be used to gauge efficacy,⁴⁹ and a plan to gather relevant data to compile these metrics.⁵⁰ The framework established in this proposed legislation was approved by a Senate committee by voice vote in October 2015 and was reported out of committee with an amendment in June 2016 during the 114th Congress.⁵¹ The bill is consistent with the EBR Framework and our recommendation below.

More recently, the House passed the Searching for and Cutting Regulations that are Unnecessarily Burdensome Act (SCRUB Act)⁵² which would establish a Retrospective Regulatory Review Commission to review and identify existing regulations for repeal. The SCRUB Act would also require new rules to include a prospective plan for retrospective review⁵³ and would facilitate judicial review of agency compliance with these review provisions.⁵⁴

⁴⁶ CASS R. SUNSTEIN, COST-BENEFIT ANALYSIS AND ARBITRARINESS REVIEW. Harvard Pub L. Working Paper 16-12 (2016).

⁴⁷ SMARTER REGS ACT OF 2015, S. 1817, 114th Cong. (2015).

⁴⁸ S. 1817, § 2(f)(1)(D).

⁴⁹ S. 1817, § 2(f)(1)(B).

⁵⁰ § 2(f)(1)(C).

⁵¹ For more information on S. 1817 see <https://www.congress.gov/114/crpt/srpt282/CRPT-114srpt282.pdf>

⁵² SEARCHING FOR AND CUTTING REGULATIONS THAT ARE UNNECESSARILY BURDENSOME ACT OF 2017, H.R. 998, 115th Cong. (2017)

⁵³ H.R. 998, §301

⁵⁴ H.R. 998, §401

iii. *Changing Incentives by Creating Competition*

It would be a mistake to assume that creating an independent organization or codifying best practices would completely solve the problem of unfaithful execution. For instance, presidents have relied on the Office of Information and Regulatory Affairs (OIRA) in the U.S. Office of Management and Budget (OMB), in part, to better enforce administrative benefit-cost analysis requirements on regulatory agencies. Yet compliance with these standards remains far from perfect.⁵⁵

In addition to relying on independent organizations and codification to help defeat unfaithful execution, it may be effective to change the incentives of federal agencies by making them compete with each other or other entities. Competition has long been recognized as an extremely powerful motivator of federal agencies.⁵⁶ While it may not seem obvious, federal agencies already compete with each other. For instance, they are in constant and robust competition to maintain or increase their budgets. As proof of competition's effects, this long running competition for funding has resulted in a panoply of clever budget strategies.⁵⁷

One way to create a healthy competition among federal agencies is to use comparison data. While their effects may vary, comparison data have been shown to be a strong motivator in state governments⁵⁸ particularly if the data are accessible and trustworthy. Indeed, federal agencies themselves are increasingly using comparison data to change the incentives of the entities they regulate including everything from colleges⁵⁹ to nursing homes⁶⁰ to chemical manufacturers.⁶¹ One idea would be to look for federal programs that have very similar goals but achieve them in different ways, such as through grants, regulations, tax credits, and/or loan guarantees.⁶² A third

⁵⁵ Patrick McLaughlin et al., *Continuity, Change, and Priorities: The Quality and Use of Regulatory Analysis Across U.S. Administrations*, 7 REGUL. GOV. 2, 153-73 (Aug. 13, 2012). Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1748-5991.2012.01149.x/full>

⁵⁶ See, for instance, William A. Niskanen, *Competition among Government Bureaus*, IN CAROL H. WEISS & ALLEN H. BARTON (EDS.) MAKING BUREAUCRACIES WORK, 167-74 (1980).

⁵⁷ Aaron Wildavsky, *The Politics of the Budgetary Process*, 64-84 (4th ed. 1984).

⁵⁸ See E. Blaine Liner et al., The Urban Institute, *Making Results-based Government Work*, 18 (April 2001). Available at <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/310069-Making-Results-Based-GovernmentWork.PDF>

⁵⁹ The U.S. Department of Education *College Scorecard*, Available at <https://collegescorecard.ed.gov/>

⁶⁰ The Medicare program's *Nursing Home Compare* Available at <https://www.medicare.gov/NursingHomeCompare/About/Ratings.html>

⁶¹ Jason Scorse, Penn State University, *Do Pollution Rankings Affect Facility Emissions Reductions?: Evidence From The Toxic Release Inventory (2003)*. Dissertation available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.511.173&rep=rep1&type=pdf>

⁶² Budget subfunctions may be a method for narrowing these programs down. See <https://www.whitehouse.gov/tax-receipt/functions>

party, GAO, for instance, could then collect data regarding the efficiency of each program and rank the various programs on this criterion. This may mean, for instance, estimating the reduction in greenhouse gas emissions for every dollar spent on abatement, or estimating the quantity and quality of environmentally sensitive land set-aside from agricultural production for every dollar given to farmers.

One might initially expect large differences in the results agencies achieve. For instance, both the Center for Disease Control (CDC) and the Environmental Protection Agency (EPA) have regulatory programs to reduce instances of lung cancer: CDC by discouraging smoking, and EPA by targeting the indoor pollutant radon. However, a 2017 back-of-the-envelope analysis found that CDC's regulatory programs are significantly more cost-effective than EPA's at reducing lung cancer because radon causes lung cancer primarily in individuals who already smoke.⁶³ The periodic publication of such data from a reliable source could result in agencies having strong incentives to collect, analyze, and act on evidence to improve their program and achieve a better ranking.⁶⁴ Evidence-based policymaking could become the method by which agencies in compete in a "race to the top."

D. The Problem of Inadequate Funding

Another barrier to evidence-based regulation is funding for *ex ante* and *ex post* analysis and evaluation. Like the barrier of noncompliance, this problem is not unique to EBR but can block the collection and evaluation of data regardless of program. It may be that some of the substantial resources currently spent on *ex ante* regulatory review could be more prudently shifted to conducting a retrospective review of federal rules. Such a reallocation could in turn strengthen *ex ante* analyses by providing direct information on the causal outcomes one would expect as the result of regulatory policy.⁶⁵

⁶³ Richard Williams found that CDC's campaign cost \$540 per case of lung cancer avoided vs. a cost of \$10.7 million per case for programs targeting radon emissions. Richard Williams, LNT AND ECONOMIC ANALYSIS, SOCIETY FOR RISK ANALYSIS CONFERENCE: M4-A BENEFITS, COSTS, AND RISKS FOR HEALTH ENVIRONMENT (2017).

⁶⁴ In some respects, the *Best Places to Work in the Federal Government* rankings released by the Partnership for Public Service provide a model for such a system of comparison. Available at <http://bestplacestowork.org/BPTW/>

⁶⁵ SUSAN E. DUDLEY, THE GEO. WASH. UNI. REG. STUDIES CTR., *Retrospective Evaluation of Chemical Regulations*, OECD Environmental Working Papers 118 (2017).

E. Three Possible Solutions to the Problem of Inadequate Funding

i. Allowing Greater Flexibility in Agency Budgets

One means of accomplishing this goal without significantly altering the federal budget is for Congress and OMB to more readily allow the reallocation of resources from current *ex ante* regulatory impact analyses to gathering the data and evaluation tools necessary to subsequently test *ex ante* predictions. This may simply require the appropriation of less “one-year money” and more “multi-year money” to allow agencies greater flexibility in when they use their budget authority.⁶⁶ Currently, the vast majority of funding for analyses is spent upfront and very little is used after rules are promulgated. It seems extremely unlikely this is an optimal balance.

ii. Setting Aside Funding for Evaluation

Another possible solution is to allow, or require, a small percentage of funds be set aside for program evaluation or for policies based on program evaluation. This is not unprecedented. In 1978 Congress allowed the U.S. Department of Agriculture (USDA) to set aside up to 0.5 percent of the program funds allocated for its Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) to evaluate the program’s performance, including experimenting with different pilot projects.⁶⁷ More recently, the Senate Appropriations Bill for FY 2014 allowed five percent of mental health block grants to states be used for “evidence-based programs that address the needs of individuals with early serious mental illness, including psychotic disorders.”⁶⁸

Constrained budgets tend to result in agencies “curtailing the funds needed for evaluation studies and performance monitoring systems.”⁶⁹ However, there is considerable evidence that the use of evaluation not only leads to improved regulatory outcomes, but also provides additional benefits for nonregulatory agencies—particularly those operating in an environment of stagnant or decreasing budgets. For example, Newcomer *et al.* detail several instances where the results of evaluation data on program performance caused agencies to shift funding and effort away from less successful programs towards better-performing initiatives. The data made available to Congress regarding success in achieving outcomes allowed agencies to maintain or even expand their programs during periods of significant cuts in federal domestic spending during the 1980s.

⁶⁶ “One-year money” is budget authority that expires at the end of the fiscal year in which it was appropriated.

⁶⁷ Kathryn E. Newcomer, Harry P. Hatry & Joseph S. Wholey (eds). *Handbook of Practical Program Evaluation*, 807 (2015).

⁶⁸ S. REP. 113-71, 114 (2013).

⁶⁹ NEWCOMER ET AL., *supra* at 807.

These programs included the Department of Labor’s Job Corps program and the aforementioned WIC program at USDA.⁷⁰

iii. Tailoring Evaluation to the Context

Finally, it is important to note that the cost of both *ex ante* and *ex post* analyses and evaluation need not be high. An important principle is that the cost of conducting a regulatory analysis should reflect the potential value of such analysis and, if necessary, can be quite inexpensive.⁷¹ Joseph Wholey proposes that evaluators use “a sequential purchase of information” approach such that “resources are invested in further evaluation only when the likely usefulness of the new information outweighs the costs of acquiring it.”⁷² EBR would benefit from such flexible standards regarding what constitutes useful analysis and evaluation.⁷³

F. The Challenge of Using Data to Generate Evidence

In regulatory processes agencies are compelled, with narrow exceptions, to make data, analysis, and other evidence used by decision-makers available to the public.⁷⁴ As noted above, agencies must place information they use in decision-making in a public record and justify their decisions based on the evidence in that record.⁷⁵

We support the bedrock regulatory principle of openness, and this is reflected in item II.C. of the EBR Framework under Regulatory Decision-making. With regards to information that will be used to make regulatory decisions, as much information as possible should be made widely available to the public. The public has a right to know what evidence policy officials consider in making decisions that affect them.

We offer two suggestions to improve the use of data, research results, and findings from evaluation in the regulatory process. The first relates to the need for transparency in regulatory decision-making. The second regards how evidence may be best organized to promote its best use.

⁷⁰ NEWCOMER ET AL., *supra* at 829.

⁷¹ Christopher Carrigan & Stuart Shapiro, What’s wrong with the back of the envelope? A call for simple (and timely) benefit–cost analysis. 11 REGUL. GOV. 2. 203-12 (April 26, 2016).

⁷² NEWCOMER ET AL., *supra* at 89. This approach is one of several suggestions contained within Wholey’s framework of Evaluability Assessment which proposes several techniques for evaluators to leverage low cost information for substantive program improvement.

⁷³ See, for example, the recommendations for tailoring review to agency needs and circumstances in ACUS, *supra* note 12

⁷⁴ *Supra* note 8 on 5 U.S.C. § 552(a).

⁷⁵ *Supra* note 7.

i. Data and Findings Must be separated from Policy

Regulatory agencies are generally compelled to provide the public an opportunity to submit data and other feedback on proposed regulations and consider any “relevant matter presented” in their final rulemaking.⁷⁶ However, the opportunity for public comment should include access to the various data, statistics, findings and other information the agency is using to make a regulatory decision. Public review can provide agencies with valuable information and insights they may not have otherwise fully considered.⁷⁷

The EBR Framework addresses important guidance on how data and other evidence should be used and communicated. In particular, in regulatory decision-making the presentation of evidence should be separated from policy decisions so that the public understands what is a fact (what *is*) and what is a policy judgment (what *ought to be*).⁷⁸ This has important implications for public access to the data, models and assumptions used to make regulatory decisions, particularly when it comes to scientific information.

The boundary between objective science and policymaking is inherently fuzzy.⁷⁹ Creating clarity regarding where this boundary is and the role of scientists at this boundary is important.⁸⁰ In our democracy, the public must be able to hold regulatory policymakers, typically the president and his or her appointees, accountable for their decisions. It is for this reason the regulatory process already mandates requirements for policymakers to reveal and explain how they reached a regulatory decision based on publicly available evidence.⁸¹ This process assumes the public is

⁷⁶ *Supra* note 8 on 5 U.S.C. § 553(c).

⁷⁷ Public review and input address what economist Friedrich Hayek termed the local knowledge problem, wherein relevant knowledge is distributed among many participants and not fully encompassed in a single centralized policymaking entity. Friedrich A. Hayek, *The Use of Knowledge*, XXXV AMER. ECON. REV. 4, 519-30 (1945).

⁷⁸ Susan E. Dudley and Marcus C. Peacock, *Improving Regulatory Science: A Case Study of the National Ambient Air Quality Standards*, SUPREME COURT REV. 24 (2018 forthcoming). *See also*, The Bipartisan Policy Center provided recommendations tailored to science and regulation in a 2009 report, noting that “policy debate would be clarified and enhanced if a systematic effort were made to distinguish between questions that can be resolved through scientific judgments and those that involve judgments about values and other matters of policy when regulatory issues comprise both. This transparency would both help force values debates into the open and could limit spurious claims about, and attacks on science.” Bipartisan Policy Center, *Improving the Use of Science in Regulatory Policy*, 15 (2009). Available at <http://www.bipartisanpolicy.org/sites/default/files/BPC%20Science%20Report%20fnl.pdf>

⁷⁹ *See*, for instance, the discussion in Susan E. Dudley & George M. Gray, *Improving the Use of Science to Inform Environmental Regulation*, in JASON S. JOHNSON (ED.), INSTITUTIONS AND INCENTIVES IN REGULATORY SCIENCE, 165-98 (2012). *See also* Allan Mazur, *The Dynamics of Technical Controversy* (1981).

⁸⁰ *See* Ann Campbell Keller, *Science in Environmental Policy: The Politics of Objective Advice* (2009).

⁸¹ *Supra*, note 8.

able to separate the evidence the decision-maker considered from the judgments they made. Evidence-based policy expert Ray Pawson explains:

Evidence does not deliver decisions; its function is to deliver decision support. When evidence is called into play in policy formation, it is never a case of simply ‘following the evidence’ but rather one of ‘interpreting the evidence’ and then ‘adapting the evidence’ to local circumstances. No method of synthesis can tell the policy maker what to do.⁸²

Given both the fuzzy boundary between evidence and policy and the need to keep scientific and policy judgments as separate as possible for reasons of accountability, the solution is for regulatory agencies to be as open as possible regarding the decisions they make. Recounting his experience as the Administrator of the EPA from 1977 to 1980, Doug Costle has explained:

People tend to think science is hard and numerical and precise. It’s not, particularly in the environmental area. But there is one way, and only one way, to deal with that, and that is just to be absolutely open and honest about the gray areas. Anyway you cut it, we’re making judgments, social policy judgment calls...⁸³

A notable example of conflating evidence and policy is application of the precautionary principle. In short, the precautionary principle advocates for the use of preemptive regulation in the face of scientific uncertainty regarding possible threats to the health of humans or ecosystems.⁸⁴ The application of the precautionary principle is not a purely scientific decision. Indeed, it confuses scientific uncertainty with scientific ignorance and is squarely inconsistent with an approach built on a foundation of evidence. As Ray Pawson has pointed out:

The precautionary principle betokens a move from evidence to advocacy. It forecloses debate and stifles the search for further evidence. By definition the zero

⁸² Ray Pawson, *Science of Evaluation: A Realist Manifesto*, 190 (2003).

⁸³ Ronald Brand et al., TRUE GREEN: EXECUTIVE EFFECTIVENESS IN THE U.S. ENVIRONMENTAL PROTECTION AGENCY, 77 (2012). In his seminal work on the fuzzy boundary between scientific evidence and policy, *Science and Trans Science*, 10 MINERVA 2, 209-22, (1972). Alvin Weinberg put it another way, (“Though the scientist cannot provide definite answers to trans-scientific questions any more than can the lawyer, the politician or a member of the lay public, he does have one crucially important role: to make clear where science ends and trans-science begins.”).

⁸⁴ Marco Martuzzi & J. Ann Tickner (eds.), World Health Organization, *The precautionary principle: Protecting public health, the environment and the future of our children* (2004).

emission, zero concentration, zero tolerance standards are not empirically derived—they concede that the evidence is not yet in.⁸⁵

ii. Muddled Fact and Policy Causes Problems

Despite the necessity of separating what *is* from a decision regarding what *ought to be*, scientific evidence and policy decisions have become increasingly muddled.⁸⁶ This results in a host of significant problems including degrading the perceived integrity of evidence-based policymaking. As the Bipartisan Policy Center notes:

Policy makers often claim that particular regulatory decisions have been driven by, or even required by science; their critics, in turn, have attacked the quality or the interpretation of that science. Such conflict has left the U.S. with a system that is plagued by charges that science is being “politicized” and that regulation lacks a solid scientific basis. As a result, needed regulation may be stymied, dubious regulations may be adopted, issues can drag on without conclusion and policy debate is degraded. Moreover, the morale of scientists is weakened, and public faith in both government and science is undermined.⁸⁷

The Bipartisan Policy Center concludes that “a tendency to frame regulatory issues as debates solely about science, regardless of the actual subject in dispute, is at the root of the stalemate and acrimony all too present in the regulatory system today.”⁸⁸

G. Clear Separation and Broad Access Addresses This Problem

The EBR Framework calls for the separation of these elements during regulatory decision-making (see item II.B.). If not clearly separated, the increased use of evidence may ironically harm, rather than improve, the integrity of the regulatory process. As the Bipartisan Policy Center concluded, “the Administration needs to devise regulatory processes that, in as many situations as possible, could help clarify for both officials and the general public which aspects of disputes are truly about scientific results and which concern policy.”⁸⁹ “This transparency would

⁸⁵ PAWSON, *supra* at 174.

⁸⁶ The scientific community increasingly wrestles with fact more and more scientists are being encouraged to become engaged with the public policy process. *See*, for instance, Deborah Runkle & Mark S. Frankel (ed.), *Advocacy in Science: Summary of a Workshop convened by the American Association for the Advancement of Science*, 2-3 (May 1, 2012).

⁸⁷ Bipartisan Policy Center, *Improving the Use of Science in Regulatory Policy*, 10 (2009). Available at <http://www.bipartisanpolicy.org/sites/default/files/BPC%20Science%20Report%20fnl.pdf>

⁸⁸ Bipartisan Policy Center, *supra* note 87 at 11.

⁸⁹ Bipartisan Policy Center, *supra* note 87 at 4.

both help force values debates into the open and could limit spurious claims about, and attacks on science.”⁹⁰

Given the need to make it clear what the data show vs. what policymakers decide, the public should have as broad an access to data, statistics, results of research, and findings from evaluation as possible so that people are better able to make their own judgments regarding the interpretation of data. President Obama’s March 2009 Scientific Integrity Memo supports this goal, stating that “[t]o the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking.”⁹¹

Access to the “results of research” should include risk assessments, models, and the assumptions that were used to synthesize data for the purpose of making regulatory decisions. The National Research Council has concluded that there should be “unrestricted access” to public-use data that pose no confidentiality problems.⁹² This category should also include any models and other analytic tools used to assess data that, by their nature, do not pose concerns about the breach of individual, household or other confidential personal information. If such a tool was used to materially inform a regulatory decision, the public should have access to that tool. As is being shown in the case of opening up competing proprietary climate change models, scrutiny from others will very likely improve the models’ credibility and accuracy and result in the data’s “best use.”⁹³

i. Access to Evidence Organized by ‘Program Theory’ Could Benefit Regulators

The use of evidence may also benefit from modifying the approach to how evidence is organized. Regulatory evaluations are often categorized under their substantive program area (e.g., environment, health, or education). As a practical matter this can limit the amount of data that is consulted during regulatory design and decision-making, such as during the consideration of alternatives (see item I.C. in the EBR Framework). Evaluation data could additionally be categorized under broader criteria of program theory domains. This approach groups policy interventions by the approach used to affect outcomes (e.g., incentives, target setting, or behavior change) rather than narrowly by issue-area. Consulting the widest possible range of evaluation

⁹⁰ Bipartisan Policy Center, *supra* note 87 at 5.

⁹¹ *Scientific Integrity*, Memorandum for the Heads of Executive Departments and Agencies from Barack Obama, 74 Fed. Reg. 10671 (March 9, 2009). Available at <https://www.gpo.gov/fdsys/pkg/FR-2009-03-11/pdf/E9-5443.pdf>

⁹² National Research Council Panel on Data Access for Research Purposes, *Expanding access to research data: reconciling risks and opportunities*, 3 (2005).

⁹³ Paul Voosen, *Climate scientists open up their black boxes to scrutiny*, 354 SCIENCE 6311, 401-02 (Oct. 28, 2016).

data for similar program theory domains allows regulators to survey a broader knowledge base and help discover more constraints or barriers that might, for instance, limit the expected benefits or increase the expected costs of regulations.

Theoretically, existing efforts to make evaluation data available across agencies—such as in a clearinghouse, will help create a wider distribution of evidence going forward. However, grouping evidence by program theory can tie together seemingly different interventions and help regulators identify unintended consequences or important contexts to consider during their early design of potential regulatory approaches.⁹⁴ For example, Ray Pawson’s organizing principles of evaluation science suggest that such a level of abstraction “provides the means of establishing a common language to draw out the similarities between different interventions...to link their evaluations” and increase learning.⁹⁵

An example of this is evaluations from state/local “ban the box” legislation, which prevents employers from asking prospective applicants about their criminal record with the intention of decreasing discrimination against those with a criminal record. Evaluations of these programs indicate that in several contexts they have the unintended/perverse effect of increasing discrimination against minorities, particularly African Americans.⁹⁶ Rather than thinking of this, conceptually, as a “lesson learned” for officials at the Department of Labor, there is a broader finding that is applicable to other federal agencies: namely, the unintended consequence of trying to incentivize certain behavior by limiting data availability. Additionally, this framework helps shift evaluation thinking from simply inquiring whether a program “works” towards the more nuanced and effective “what works for whom in what contexts.”⁹⁷

III. Institutionalizing Retrospective Review as a Cornerstone of Rulemaking

Ex post regulatory evaluation (retrospective review) is a vital and integral element of the EBR Framework (see items I.G. and III). Retrospective review advances knowledge over the mere hope that regulations are delivering the benefits society expects. However, it must be incorporated into regulatory design in order to facilitate this evaluation. Similar to other federal

⁹⁴ See also Robert Merton, *On Theoretical Sociology: Five essays old and new* (1967).

⁹⁵ PAWSON, *supra* at 190.

⁹⁶ Amanda Y. Agan & Sonja B. Starr, Princeton Uni. Dept. of Econ. & Uni. of Mich. L. *Ban the Box, Criminal Records, and Statistical Discrimination: A Field Experiment*, (June 15, 2016). See also: Jennifer Doleac, Brookings Institute, ‘*Ban the Box*’ does more harm than good, (May 2016). Available at <https://www.brookings.edu/opinions/ban-the-box-does-more-harm-than-good/>

⁹⁷ PAWSON, *supra* at xiii.

programs, waiting until after a regulation is implemented to plan *ex post* measurement can greatly hamper retrospective review.⁹⁸

Both OMB⁹⁹ and the Administrative Conference of the United States (ACUS) have recommended that agencies design their rules prospectively for retrospective analysis. For instance, in his report to ACUS, Joseph Aldy concludes:

Well-designed regulations should enable retrospective analysis to identify the impacts caused by the implementation of the regulation. For a given select, economically significant rule [sic], agencies should present in the rule's preamble a framework for reassessing the regulation at a later date. Agencies should describe the methods that they intend to employ to evaluate the efficacy of and impacts caused by the regulation, using data-driven experimental or quasi-experimental designs where appropriate.¹⁰⁰

These recommendations echo a larger body of research. For instance, in a study for the World Bank, Paul Gertler *et al.* conclude that the appropriate methods for conducting program evaluation, or retrospective review, should be identified “at the outset of a program, through the design of prospective impact evaluations that are built into the project’s implementation.”¹⁰¹ This allows evaluators to fit their evaluation methods to the program being reviewed, and to plan for review itself through the design and implementation of the program (or regulation).

For these reasons, we have prominently included retrospective review as a necessary element of regulatory design in the EBR Framework, and we recommend this design requirement be codified in law to emphasize its importance.¹⁰²

It should be noted that the strong connection between regulatory design and retrospective review also strengthens the need to complete other elements of the regulatory process in the design

⁹⁸ Other reasons to plan evaluations in advance include compliance with the Paperwork Reduction Act which requires the prior approval of the U.S. Office of Management and Budget before collecting information from 10 or more members of the public. *See* 5 C.F.R. 1320.8(b)(3)(iii) (2015).

⁹⁹ U.S. Office of Management and Budget. 2015 Draft Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities, 7, (2015).

¹⁰⁰ Joseph E. Aldy, *Learning from Experience: An Assessment of the Retrospective Reviews of Agency Rules and the Evidence for Improving the Design and Implementation of Regulatory Policy*, 6, (2014).

¹⁰¹ Paul J. Gertler et al., *The World Bank, Impact Evaluation in Practice*, xiii-xiv (2011).

¹⁰² See section II(B)ii of this paper for a discussion of legislation that seeks to institutionalize these and similar practices for agency retrospective review.

stage. For instance, in addition to planning for retrospective review, the EBR Framework requires regulators to:¹⁰³

- Identify the problem they are trying to solve.
- Evaluate whether modifications to existing rules can address the problem.
- Identify and assess available alternatives to direct regulation.
- If regulating, determine that the rule addresses the problem.
- Set clear performance goals and metrics for outputs and outcomes.
- Exploit opportunities for experimentation.

All six of these design components directly relate to retrospective review. One purpose for incorporating these components into rules at the outset is to plan for review well before much of the crucial information necessary for an effective evaluation has been generated. Otherwise, agencies may not have identified the goal(s) of the regulation much less how to collect data on the regulation's impacts.¹⁰⁴ This information is crucial for assessing how well a rule has met its intended target and the extent to which there may be other, unintended, consequences. Independent regulatory agencies especially should make greater efforts to outline what they intend for their rules to accomplish.¹⁰⁵ This transparency allows the public to know what to expect from new regulations and what observers should strive to measure to assess the success of a rule.

Although few regulations have been designed to facilitate *ex post* review, the recent driverless cars policy guidance is an example of what may be possible. In September 2016, the National Highway Traffic Safety Administration (NHTSA) released its Federal Automated Vehicles Policy¹⁰⁶ establishing how the agency will address driverless car technology through its current regulatory structure and identifying new regulatory tools that could be used in the future.

Given the state of change in automated vehicle technology, NHTSA plans to update this policy in an iterative process so as to respond to new data and technologies as they emerge. For instance, in September 2017 NHTSA published a revised draft guidance making significant

¹⁰³ These components are adapted from Miller, *supra* 10.

¹⁰⁴ See, for example, the discussion of the Paperwork Reduction Act (PRA) in MILLER and ACUS *supra* note 9.

¹⁰⁵ Independent agencies are less likely than executive branch agencies to write rules that identify the problem they are intended to solve, provide metrics for assessing whether a problem has been solved, and link the proposed rule to intended outcomes. See SOFIE E. MILLER, THE GEO. WASH. UNI. REG. STUDIES CTR., *Learning from Experience: Retrospective Review of Regulations in 2014*, 18 (Nov. 2015).

¹⁰⁶ National Highway Traffic Safety Administration & the U.S. Department of Transportation, *Federal Automated Vehicles Policy: Accelerating the Next Revolution In Roadway Safety* (Sept. 2016). Available at <https://www.transportation.gov/sites/dot.gov/files/docs/AV%20policy%20guidance%20PDF.pdf>

changes from its initial policy.¹⁰⁷ This iterative approach combined with a commitment to collect and synthesize evidence as it comes in appears to reflect a thoughtful approach to regulating a new and promising technology.¹⁰⁸

Recent Executive Orders and Trump Administration regulatory policies build on previous presidential efforts to institutionalize retrospective review. Executive Order 13,771 institutes both an incremental regulatory cost cap and a regulatory offset system in which agencies are required to “offset” the costs of each new significant regulation by removing two existing rules.¹⁰⁹ Because review is tied to the promulgation of new rules, these policies provide agencies with stronger incentives to evaluate their existing stock of regulations and determine which ones have outlived their usefulness.

IV. Overly Prescriptive Analytical Requirements Should be Avoided

The EBR Framework does not specify what types of research designs should be used in analyzing or evaluating regulations. Rather, the rigor of the analysis should match the regulatory context and the value such analysis may offer decision-makers.¹¹⁰

Randomized controlled trials are well-regarded tools used by program evaluators to understand the effect of different treatments on outcomes.¹¹¹ However, where randomized trials are not feasible, pilot studies or approaches that allow for variation in regulatory treatments can provide valuable information for evaluating outcomes and their causal links.¹¹² According to Coglianese:

Variation in observational studies can arise in one of two ways: either over time or across jurisdictions. When regulations vary over time within a single jurisdiction, researchers can compare outcomes longitudinally, that is, before and after the adoption of the regulation. When the variation exists across jurisdictions, researchers can compare outcomes cross-sectionally, that is, comparing outcomes

¹⁰⁷ National Highway Traffic Safety Administration & the U.S. Department of Transportation, *Automated Driving Systems 2.0: A Vision for Safety* (Sept. 2017). Available at https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf

¹⁰⁸ Although NHTSA’s approach to review and iteration is well-aligned with the principles of the EBR Framework, the agency does discourage state-level competition which would be aligned with the principles explored in the section immediately below: *Keep Evaluation Options Flexible*.

¹⁰⁹ EXEC. ORDER NO. 13,771, 82 Fed. Reg. 9339 (January 30, 2017).

¹¹⁰ See *supra* note 24.

¹¹¹ See Angela Ambroz & Marc Shotland, Better Evaluation, *Randomized Controlled Trial (RCT)*, Available at <http://betterevaluation.org/plan/approach/rct>

¹¹² Sofie E. Miller & Susan E. Dudley. *Regulatory Accretion: Causes and Possible Remedies*, 67 ADMIN. L. REV. 2.

in jurisdictions with the regulation being evaluated with those in jurisdictions without that regulation.¹¹³

Designing regulations from the outset in ways that identify and exploit variations in compliance could be a valuable way to understand the relationship between regulatory actions and outcomes. A pilot study or “an experiment in which certain regulations would be imposed on some factories and not on others offers the real prospect of determining whether those regulations are useful.”¹¹⁴

In the U.S. federalist system, the states provide a particularly valuable opportunity for experimentation. For example, Oates suggests that “the introduction in the 1970s and 1980s of a variety of emissions trading systems at the state level demonstrated the feasibility of such systems and some of their very appealing properties—as well as certain pitfalls.” He suggests that this state-level experimentation with innovative solutions to emissions problems led to the successful introduction of the national system of tradable sulfur allowances under the 1990 Clean Air Act Amendments.¹¹⁵ Such approaches facilitate learning from experience in a way that implementing large-scale, irreversible regulatory programs do not.¹¹⁶

A. Experiment and Evaluate Different Regulatory Approaches

The EBR Framework calls on regulators to look for and exploit opportunities for experimentation during regulatory design. For instance, researchers have suggested how the statutorily required five-year National Ambient Air Quality Standards reviews could incorporate quasi-experimental techniques to gather and analyze epidemiology data and health outcome trends in different regions of the country and compare them against predictions.¹¹⁷

The EBR Framework also requires agencies to plan and budget for retrospective review as part of their regulatory design. This means agencies should lay out a program for empirical testing of assumptions and hypothesized outcomes. To incentivize more robust evaluation, they could also be required to test the validity of risk-reduction predictions before commencing new regulation that relies on models. For example, for regulations aimed at reducing health risks from environmental factors, quasi-experimental techniques should be used to gather and analyze

¹¹³ Cary Coglianese, OECD, *Evaluating the Impact of Regulation and Regulatory Policy*, (2012). Available at https://www.oecd.org/gov/regulatory-policy/1_coglianese%20web.pdf

¹¹⁴ John O. McGinnis, *Accelerating Democracy: Transforming Governance through Technology*, 112 (2013).

¹¹⁵ Wallace E. Oates, Resources for the Future (RFF), *Environmental Federalism* (2009). Available at <http://www.rff.org/Publications/WPC/Pages/Environmental-Federalism-Wallace-E-Oates.aspx>

¹¹⁶ Sofie E. Miller & Susan E. Dudley, *Regulatory Accretion: Causes and Possible Remedies*, 67 ADMIN. L. REV. 2.

¹¹⁷ Francesca Dominici et al., *Particulate Matter Matters*, 344 SCIENCE 257 (2014).

epidemiology data and health outcome trends in different regions of the country and compare them against predictions.¹¹⁸

V. Conclusion

Evidence-based policy continues to grow in prominence as a mechanism for improving program measurement and outcomes. However, evidence-based policy as it is currently understood is not designed to encompass the sphere of regulatory policy, which comes with its own constraints and preexisting requirements for data and analysis. Despite these limitations, federal regulation could benefit significantly from evidence-based policy practices by structuring the collection of data and improving analyses of regulatory outcomes.

By working within the existing statutory and executive constraints on agencies, an EBR framework plans for, collects, and uses evidence throughout the life of a regulation to predict, evaluate, and improve outcomes. By focusing on the design, decision-making, and retrospective review phases of regulation, an EBR framework creates a feedback loop rule so that data are not only used in developing the regulation but also in periodically reassessing its value and modifying the rule as appropriate.

¹¹⁸ Sofie E. Miller & Susan E. Dudley. *Regulatory Accretion: Causes and Possible Remedies*, 67 ADMIN. L. REV. 2.

VI. Recommendations for Implementing an Evidence-Based Regulation Framework

Finding	Observation	Recommended Action
<p>REGULATORY POLICY</p> <p>Regulatory policymaking is already subject to significantly different information requirements than other policymaking processes.</p> <p>The increased use of evidence will result in better regulatory decisions.</p>	<p>Actions to improve evidence-based policymaking should be tailored to the regulatory process.</p> <p>It would be beneficial to identify a model process for creating evidence-based regulations.</p>	<p>“OMB should integrate evidence more effectively in its...regulatory decisions by tracking and evaluating the results of the policies it issues.”¹¹⁹</p> <p>The president should consider commissioning a set of experts to describe an ideal evidence-based regulatory process and identify specific steps necessary to move to such a system.</p>
<p>ACCOUNTABILITY</p> <p>Regulatory decision-makers need to be held publicly accountable for the decisions they make.</p>	<p>The interpretive models, analyses and other tools used by regulators to make decisions should be accessible to the public.</p>	<p>The president should provide unrestricted access to all interpretive data tools used by regulators to make decisions.</p>
<p>COMPLIANCE</p> <p>Federal regulatory agencies do not always faithfully comply with presidential executive orders and other internal administrative guidance.</p>	<p>Compliance with presidential directives and administrative guidance should be improved.</p> <p>Codification of a requirement in law results in greater compliance than administrative guidance.</p>	<p>Regulatory principles accepted by the last five presidents¹²⁰ should be codified in law and subject to judicial review.</p> <p>Regulatory requirements in Executive Orders 13,563, 13,579 and 13,610 regarding retrospective review should be codified in law and subject to judicial review.¹²¹</p>

¹¹⁹ Recommendation of the Partnership for Public Service, *From Decisions to Results: Building a More Effective Government Through a Transformed Office of Management and Budget*, 24 (Oct. 2016). Available at <https://ourpublicservice.org/publications/viewcontentdetails.php?id=1349>

¹²⁰ See EXEC. ORDER NO. 12,866, 58 Fed. Reg. 51735 (Oct. 4, 1993). Available at https://www.reginfo.gov/public/jsp/Utilities/EO_12866.pdf

¹²¹ See Administrative Conference of the United States, Recommendation 2014-5, *Retrospective Review of Agency Rules*. Available at <https://www.acus.gov/recommendation/retrospective-review-agency-rules>

Finding	Observation	Recommended Action
<p>COMPETITION</p> <p>Competition can change the incentives and behavior of government organizations in positive ways.</p>	<p>The president and Congress should encourage methods of having programs with similar goals compete on the basis of program efficiency (e.g., desirable outcomes achieved per dollar spent by society).</p>	<p>The president and congress should commission experts to categorize federal programs with similar goals and identify metrics that could be used to compare their efficiency.¹²² A limited set of comparisons should be implemented within two years.</p>
<p>FUNDING</p> <p>Federal discretionary spending is likely to be flat or decreasing in the future while entitlement program spending will continue to increase.</p> <p>Lack of funding is a barrier to collecting and using evidence.</p> <p>The cost and depth of evaluations and their value to decision-making can greatly vary.</p>	<p>The collection and use of evidence will need to be funded by shifting discretionary funding from lower priorities.</p> <p>The type of evaluation performed should reflect its potential value to improving federal policy.</p>	<p>Congress should provide greater flexibility to reallocate discretionary funding from lower priority uses to the greater collection and use of evidence.</p> <p>The president and congress should refrain from institutionalizing any particular type of evaluation method.</p>
<p>EVIDENCE AND POLICY</p> <p>Government officials sometimes muddle a description of “what is” with “what ought to be.”</p>	<p>The use of evidence needs to better separate scientific descriptions from policy judgments.</p> <p>This confusion masks policy decisions. This degrades political accountability and harms the integrity of evidence-based policymaking.</p>	<p>The president should “promulgate guidelines (through executive orders or other instruments) to ensure that when federal agencies are developing regulatory policies, they explicitly differentiate, to the extent possible, between questions that involve scientific judgments and questions that involve judgments about economics, ethics and other matters of policy.”¹²³</p>

¹²² Such an effort could greatly benefit from the experience of the Council of State Governments’ State Comparative Performance Measurement Project. Available at <http://www.csg.org/programs/policyprograms/CPM.aspx>

¹²³ See Recommendation One at Bipartisan Policy Center, *Improving the Use of Science in Regulatory Policy*, 4 (2009).

Finding	Observation	Recommended Action
<p>RETROSPECTIVE REVIEW</p> <p>Regulatory retrospective review is best planned out when a regulation is initially designed.</p> <p>Regulatory retrospective review relies on other elements of regulatory design, such as defining the problem to be solved and identifying alternatives for comparison.</p>	<p>Regulatory design must include retrospective review and its supporting elements.</p>	<p>Regulatory requirements in Executive Orders 13,563, 13,579 and 13,610 regarding retrospective review should be codified in law and subject to judicial review.¹²⁴</p> <p>Regulatory principles accepted by the last five presidents that support retrospective review should be codified in law and subject to judicial review.¹²⁵</p>
<p>CATEGORIZATION OF EVIDENCE</p> <p>Regulators can benefit from learning lessons from programs not in their substantive expertise.</p>	<p>The best use of evidence may require it be organized by program theory (e.g., behavioral change) rather than issue area (e.g. transportation)</p>	<p>To the extent evidence of evaluations are consolidated, require “type of program theory” to be a characteristic that can be used to find evidence of federal program impacts.</p>
<p>EXPERIMENTATION</p> <p>The increased collection and use of evidence from regulatory evaluations will result in better regulatory decisions.</p>	<p>Randomized controlled trials to evaluate regulations are not always feasible.</p> <p>Pilot studies or approaches that allow for variation in regulatory treatments (“quasi-experiments” or QEs) can provide valuable information at less cost.</p>	<p>The president should encourage regulators to adopt QE techniques where more expensive evaluations may be infeasible or of less value.</p> <p>If necessary, Congress should amend regulatory authorities to allow agencies greater flexibility to design regulations to facilitate differences in implementation that allow quasi-experimentation. For instance, laws should allow limited pilot studies, or defer more to the natural experimentation possible at the state level.</p>

¹²⁴ This repeats a recommendation shown in the “Compliance” section above.

¹²⁵ This closely matches a recommendation shown in the “Compliance” section above.