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"Falling Short in the Data Age"

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Week 8

SCHEDULE FOR FALL 2019 NYU TAX POLICY COLLOQUIUM

(All sessions meet from 4:00-5:50 pm in Vanderbilt 202, NYU Law School)

1. Tuesday, September 3 – Lily Batchelder, NYU Law School.
2. Tuesday, September 10 – Eric Zwick, University of Chicago Booth School of Business.
3. Tuesday, September 17 – Diane Schanzenbach, Northwestern University School of Education and Social Policy.
4. Tuesday, September 24 – Li Liu, International Monetary Fund.
5. Tuesday, October 1 – Daniel Shaviro, NYU Law School.
6. Tuesday, October 8 – Katherine Pratt, Loyola Law School Los Angeles.
7. Tuesday, October 15 – Zachary Liscow, Yale Law School.
8. Tuesday, October 22 – Diane Ring, Boston College Law School.
9. Tuesday, October 29 – John Friedman, Brown University Economics Department.
10. Tuesday, November 5 – Marc Fleurbaey, Princeton University, Woodrow Wilson School.
11. Tuesday, November 12 – Stacie LaPlante, University of Wisconsin School of Business.
12. Tuesday, November 19 – Joseph Bankman, Stanford Law School.
13. Tuesday, November 26 – Deborah Paul, Wachtell, Lipton, Rosen, and Katz.
14. Tuesday, December 3 – Joshua Blank, University of California at Irvine Law School.

Oei & Ring Draft 10/12/19. Please do not circulate beyond the workshop. For discussion purposes only.

Note to NYU Readers:

This draft is in the early stages. We look forward to your comments and feedback as we continue to work on the project.

--DMR & SYO

FALLING SHORT IN THE DATA AGE

Shu-Yi Oei & Diane M. Ring[*]

ABSTRACT

Humans are imperfect and do not always comply with the law, but the reality is that we are sometimes permitted to fall short of law's requirements without consequences. This informal space to fall short and not be held accountable—which may arise from a confluence of information imperfections, resource constraints, politics, or luck—exists in addition to formal legal provisions that allow flexibility and discretion (such as tiered penalties or equitable provisions allowing leniency under specified circumstances). Fall-short spaces often pass unnoticed, but are in fact quite significant in intermediating the relationship between humans and the law.

This Article examines how the increasing access to data and information will change the availability and shape of law's fall-short spaces. We introduce a taxonomy of fall-short spaces, outlining the various reasons they exist and the different ways in which they are deployed. Applying this taxonomy, we show how increasingly ubiquitous data and information will cause some fall-short spaces to contract (and in fact is already doing so) and highlight the risk that data will generate disparate contraction of fall-short spaces for different populations.

Building on these observations, we articulate a bounded defense of fall-short spaces. We argue that, while fall-short spaces may compromise rule-of law-values, raise separation of powers concerns, and provide incentives for bad laws to stay on the books indefinitely, there are also contexts in which they serve a valuable function and where their loss might be problematic. We articulate potential policy solutions to help manage the challenge of contracting fall-short spaces in the data age, including data silos, limitations on data collection, and redesign of underlying laws for the data age.

[*] Author's note.

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INTRODUCTION

It is by now widely recognized that we live in an age of increasingly ubiquitous data.[1] Large stashes of data are increasingly being collected and stashed, and much of that data can be processed to generate information[2] about us that can be put to various uses, ranging from surveillance to marketing and advertising to development of algorithms to academic research.[3] As data and information become more ubiquitous, scholars have become more aware of their upsides but also the risks.[4] While some scholars have noted that data and information can help law enforcement, improve security, and cure problems arising from information asymmetries, scholars have also have noted that the accompanying loss of privacy can lead to a decline in intellectual flourishing, excessive government intrusion in the interests of surveillance, and discriminatory practices based on non-transparent metrics.[5] These concerns aren't altogether new,[6] but they have gained fresh salience and urgency in the data age.[7]

In this Article, we analyze how data will impact one particular dimension of how humans relate to government and the law—the existence of informal spaces where law is not fully enforced and where humans are thus allowed leeway to "fall short" of formal legal requirements. The fact of the matter is that, while humans are imperfect and do not always comply with the law, they are currently not always held accountable for their noncompliance. For

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[1] *See The Privacy Project*, https://www.nytimes.com/interactive/2019/opinion/internet-privacy-project.html, NY Times (compilation of articles exploring technology, data, and privacy implications); Elliot Bentley & Sarah Krouse, *Meet Chet: His Employer Knows What Time He Woke Up Today*, WSJ (July 15, 2019), https://www.wsj.com/graphics/company-tracking-employees/?mod=article_inline.

[2] *See infra* Part II.A (discussing difference between data, information, and insights in data analytics).

[3] Neil Richards, *The Dangers of Surveillance*, 126 HARV. L. REV. 1934 (2019) (discussing data and dangers of using data for surveillance); Kroll et. al, *Accountable Algorithms*, 165 U. PA. L. REV. 633 (2017) (discussing problem of ensuring that algorithmic decision making is accountable).

[4] Alessandro Acquisti, et al., *The Economics of Privacy*, 54 J. ECON. LIT. 442 (2016) (surveying literature on upsides and downsides of privacy; discussing tradeoffs); Andrew Guthrie Ferguson, *The "Smart" Fourth Amendment*, 102 CORNELL L. REV. 547 (2017); Mary Anne Franks, *Democratic Surveillance*, 30 HARV. J. L. & TECH. 425 (2017)/.

[5] *See sources* cited *supra* note 4 and 5; *see also* Daniel J. Solove, *A Taxonomy of Privacy*, 154 U. PA. L. REV. 477 (2006).

[6] *Cf.* ANITA ALLEN, WHY PRIVACY ISN'T EVERYTHING: FEMINIST REFLECTIONS ON PERSONAL ACCOUNTABILITY (2003) (example of scholarship on privacy prior to data age); Daniel Solove, *Data Mining and the Security-Liberty Debate*, 75 U. CHI. L. REV. 343 (2008).

[7] Jannis Kallinikos, *Reality Regained: An Inquiry into the Data Age*, *MIT Tech. Review* (Feb. 15, 2019), https://www.technologyreview.com/s/612818/reality-regained-an-inquiry-into-the-data-age/.

better or worse, as a factual matter, there are times when bad behaviors are let slide and the law is not enforced. This "space to fall short" often passes unnoticed, but in fact is quite significant in intermediating the relationship between humans and the law. As data becomes more ubiquitous, and as fuller enforcement is increasingly possible, there will inevitably be impacts on how humans are sanctioned for offenses and foot faults, and there will likely be contraction and reshaping of the space to fall short of law's requirements. We already see these dynamics in play across legal and regulatory fields. This Article's contribution is to introduce a systematic framework for conceptualizing and analyzing these dynamics. In particular, our goal is to articulate the circumstances in which such contraction and reshaping are likely to be a problem, when they are a positive, and whether coherent and tailored policy fixes are possible.

An important preliminary point to note is that fall-short spaces as we define them exist in addition to equitable or leniency features specifically written into the law itself (such as where a statute provides tiered penalties based on severity of the crime or where the law calls for exercise of equitable discretion or leniency in certain situations). Fall-short spaces—which are our dominant concern—exist informally and unsystematically alongside law's formal equitable features and are layered on top of them.[8] The space to fall short results from selective enforcement and blanket non-enforcement decisions, as well as luck, and it is shaped by factors such as resource constraints, politics, administrability considerations, and norms. These drivers, separately or in combination, create informal arenas in which humans may run afoul of laws and regulations but pay no consequences.[9]

This Article argues that data will cause law's fall-short spaces to contract, and in fact is already doing so, and that data will also likely generate disparate consequences for different populations. In some cases, ubiquitous data's effects on fall-short spaces will call basic aspects of law design into question, and may, in the long run, fundamentally change the relationship between government, individuals, and the law. Our evaluation of both the likelihood and desirability of these dynamics will depend on the type of fall-short space in question, which will in turn depend on the specific context (e.g., serious crimes vs. excessive monitoring for unjustified purposes) as well as why the fall-short space arose in the first place. Thus, this Article's first task is to delineate the different ways in which the leeway to fall short has traditionally arisen in law. Understanding the mechanisms that create fall-short spaces and the variety of circumstances in which they arise will enable us to assess their

[8] In close cases, it may be hard to draw a distinction between equitable features and fall-short spaces (for example, between prosecutorial charging decisions and plea bargaining). *See* discussion *infra* Part I.A.

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

desirability and design policy.

At the outset, a simple hypothetical may help illustrate the issues at stake. Imagine that you steal a pumpkin off your neighbor's porch. Will you be caught and punished? There are two broad scenarios under which you might not be. First, if the authorities don't detect your larceny. Second, if they detect but ignore it. The first scenario may be a function of luck (e.g., whether the police happened to drive by), purposeful policy (e.g., the number of patrols assigned to your neighborhood), or something in between. The second may also turn on some combination of luck (e.g., if the officer decides to lecture rather than arrest you), purposeful policy (e.g., decisions to allocate resources elsewhere), or in-between factors such as norms.[10] In any event, let us suppose that the end result is that your behavior has been let slide.

Now imagine a significant influx of data and information, for example, due to street cameras or facial recognition technologies.[11] This influx would likely make it easier to detect your theft. Data might make it harder for the police to ignore your theft if failure to prosecute becomes more observable to the public. Another possibility is that law enforcement might use increased information about minor theft to target offenders who have committed more serious crimes.[12] You yourself might stop stealing pumpkins if you perceive an increased risk of sanction.[13] Or, you might reason even if the authorities have increased information, they might focus on bigger fish. A data influx might eventually lead authorities to reconsider what punishment for theft should look like in a world of increasingly perfect information. If theft declines in response to data, perhaps current sanctions (e.g., prison sentences) are no longer so necessary. Perhaps a more efficient strategy is ubiquitous ex ante monitoring accompanied by automatic ticketing and fines, or rules tailored to personal circumstances.[14]

The above is a simple illustration of how data and information might

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[10] *See generally* Gary Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968) (optimal amount of crime is not zero).

[11] *See, e.g.*, Amy Harmon, *As Cameras Track Detroit's Residents, a Debate Ensues Over Racial Bias*, NY Times, (July 8, 2019), https://www.nytimes.com/2019/07/08/us/detroit-facial-recognition-cameras.html; Matt McFarland, *London is Tracking Passengers on the Underground*, CNN (July 12, 2019), https://www.cnn.com/2019/07/12/tech/london-subway-tracking/index.html; Cade Metz, *Facial Recognition Tech is Growing Stronger, Thanks to Your Face*, NY Times (July 13, 2019), https://www.nytimes.com/2019/07/13/technology/databases-faces-facial-recognition-technology.html.

[12] *See generally* Al Capone, FBI, https://www.fbi.gov/history/famous-cases/al-capone (describing tax evasion charges against Al Capone).

[13] Becker, *supra* note 10 (positing rational criminal actors).

[14] *See, e.g.*, Anthony Casey & Anthony Niblett, *The Death of Rules and Standards*, 92 Ind. L.J. 1401; Anthony Casey & Anthony Niblett, *A Framework for the New Personalization of Law*, 86 U. Chi. L. Rev. 333 (2019).

influence human behavior, enforcement choices, and the ideal design of existing laws. In particular, it demonstrates the possibility that data will lead to a higher likelihood of sanction—a contraction of the leeway to fall short and not be punished. How we regard such contraction, were it to occur, will surely depend on the type of conduct at issue. More serious crimes like murder or assault[15] may provoke different reactions than medical marijuana prohibition,[16] laws prohibiting adultery, fornication,[17] or sodomy,[18] prohibitions against physician-assisted suicide,[19] unjust laws, laws that are out of step with societal expectations, or areas of complex regulation (such as local regulation, occupational licensing, and taxation).[20] Our attitudes towards contraction and reshaping of fall-short spaces may also depend on the reason the fall-short space exists in the first place. For example, decisions not to detect and punish may be a function of insidious factors such as race, socioeconomic status, differential power, or politically favored status.[21] More generally, the merits of flexibility and forbearance in the law on the one hand and the risks of selective and uneven enforcement on the other have long been in tension,[22] and fall-short spaces carry the risk of enabling the latter. Depending on context, fall-short spaces may also compromise rule of law values, raise separation of powers concerns, and provide incentives for bad

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[15] Misha Valencia, *When a Restraining Order Fails, a GPS Tracker and Save Lives*, NY TIMES (July 30, 2019), https://www.nytimes.com/2019/07/30/opinion/domestic-violence-ankle-bracelet.html.

[16] National Conference of State Legislatures, http://www.ncsl.org/research/civil-and-criminal-justice/marijuana-overview.aspx (summarizing states law legalizing and decrimininalizing medical marijuana); http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx (summary of states medical marijuana laws).

[17] *See, e.g.*, Minn. Stat. § 609.34 ("When any man and single woman have sexual intercourse with each other, each is guilty of fornication, which is a misdemeanor."); Ill. State. § 11-40 (making fornication a Class B misdemeanor). S.C. Stat. § 16-15-60 (criminalizing adultery and fornication and specifying fines or jail time penalties); Mich. Penal Code Act 328, § 750-30 (adultery is a felony).

[18] Sodomy laws were in place in the U.S. as recently as 2003. *See* Lawrence v. Texas, 539 U.S. 558 (2003).

[19] Physician-assisted suicide is legal in a minority of U.S. states but is a felony in others. See generally Assisted Suicide Laws in the United States, Patient Rights Council, http://www.patientsrightscouncil.org/site/assisted-suicide-state-laws/ (summarizing state assisted suicide laws); *Physician-Assisted Suicide Fast facts*, CNN (last updated Aug 1, 2019), https://www.cnn.com/2014/11/26/us/physician-assisted-suicide-fast-facts/index.html (describing state laws allowing physician-assisted suicide).

[20] *See* Rachel Barkow, *The Ascent of the Administrative State and the Demise of Mercy*, 121 HARV. L. REV. 1332 (2019); *Cf.* Zachary Price, *Politics of Nonenforcement*, 65 CASE W. RES. L. REV. 1119 (2015) (discussing problematic dynamics that stem from not enforcing problematic laws); see also discussion *infra* Part II.B.

[21] *See* discussion *infra* notes 75–76.

[22] *Id.*

laws to be passed or to stay on the books indefinitely.[23]

In light of the fact that our reactions to fall-short spaces will likely vary based on context and justification, it is important to map the landscape of law's fall-short spaces at the outset. This Article proceeds by first introducing a taxonomy of law's fall-short spaces, paying attention to the contexts in which they arise and the reasons why they may occur. We then make a series of predictions regarding the likely effects of increasingly ubiquitous data, emphasizing how data will likely cause some types of fall-short spaces to shrink, and to shrink disproportionately for certain groups, such as less sophisticated populations and targeted groups. We argue that while increased sunshine that accompanies more widespread data may help mitigate such uneven shrinkage, this will likely prove insufficient to offset it altogether. We also predict that ubiquitous data may in some contexts call law design into question, particularly laws designed on the premise that information is incomplete. For example, if a statute contains strong sanctions or high fines designed for deterrence given low likelihoods of detection, a data influx may cause the penalty to no longer be optimal. Or, if increased data makes it easier for judges to accurately assess harm and compute monetary damages, this may suggest more situations in which awarding damages is more efficient than issuing an injunction.[24] Any resulting legal changes may be an improvement but may also raise ethics and design questions.

In light of its taxonomy and predictions, this Article articulates a framework for considering the circumstances in which fall-short spaces are more or less desirable or justifiable. It identifies policy levers that might be pressed to manage the effects of data on law's fall-short spaces. The goal is not to articulate an ideal and optimal combination of policies but rather to outline in broad brush strokes how to think about possible policy solutions.

Part I discusses law's fall-short spaces and, based on a reading of the relevant academic literatures, outlines a taxonomy of how they arise. Part II describes how data is likely to transform the existence and operation of fall-short spaces and outlines the implications for rule design. Part III defends the preservation of fall-short spaces in certain circumstances, and identifies key policy levers for designing and managing them. To keep the discussion coherent, this Article mainly focuses on data's impacts on fall-short spaces in criminal law and regulatory compliance (such as taxation, determination of welfare benefits and eligibility, and other non-criminal regulation). However, the analysis may apply to other legal areas as well, including insurance law, contract, tort, and other private law.

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[23] *See* Price, *supra* note 20.

[24] *See* generally Guido Calabresi & A. Douglas Melamed, Property Rules, *Liability Rules, and Inalienability: One View of the Cathedral*, 85 Harv. L. Rev. 1089 (2972) (setting framework for thinking about the question).

Fall-short spaces have long existed—often without fanfare or explicit recognition—in the law, and the impact of data on them could fundamentally transform the relationship among humans, governments, and the law. Like them or not, these dynamics ought to be actively managed.

I. WHEN HUMANS FALL SHORT

Legal systems employ a variety of tools to intentionally incorporate flexibility, nuance, and penalty attenuation into their regimes. Among the most traditional are the use of simple standards, equitable relief, and statutory penalty ranges. These formal avenues may be written into statutes, or may be exist due to agency regulation. Through them, the legal system acknowledges that not every violation of law should or will be sanctioned once the equities are considered. Their existence decreases the likelihood of the law applying inappropriately by introducing discretion and attenuation into the system.

Beyond formal features, however, legal systems universally tolerate informal spaces where law is not enforced and humans can fall short without sanction. In this Part, we describe these informal spaces in greater detail and discuss how they relate to formal flexibility (I.A). We then articulate a taxonomy of these spaces, delineating the ways they arise (I.B).

A. Law's Fall-Short Spaces

As noted, we use the term "fall-short space" to capture the phenomenon whereby behaviors that fall short of full legal compliance are let slide in ways not formally specified in advance. The concept refers to informal places in which enforcers (governments, regulators, and third-party enforcers[25]) exercise discretion in deciding not to notice, not to sanction, or to sanction less harshly than the law stipulates. It also encompasses situations in which resource-constrained enforcers lack information and hence cannot enforce. Fall-short spaces exist in addition to formal equitable features, which include penalty attenuation and broad standards such as willfulness or reasonableness. Our definition necessarily raises questions at the boundaries, which Part I.B explores, but serves as a useful starting heuristic.

To see the difference between the operation of formal flexibility and informal fall-short spaces, consider the innocent spouse relief rules in federal tax law. Despite the general rule that spouses are jointly and severally liable

[25] Corporations are an example of a third-party enforcer, in that prosecutors may trade granting of deferred-and non-prosecution agreements in return for diligence on employees being performed by the corporation. [See Buell; Garnett; corporate prosecutions literature]. Other examples of third-party enforcers include withholding agents in tax and those subject to information reporting requirements.

for taxes, penalties and interest on a joint return,[26] tax law provides relief for an innocent spouse where the fraud or error was due to the other spouse, the relief-seeking spouse had no knowledge, and holding the latter responsible would be unfair.[27] The law also provides relief in cases of divorce, separation, or maintenance of separate households.[28] On top of that, the statute specifically provides equitable relief if imposing liability would be unfair but relief is not otherwise available under other statutory categories.[29] In addition, though, running parallel to these formal statutory relief provisions for innocent spouse relief is the reality that there are many cases in which the IRS either has difficulty detecting fraud or error or deems non-compliance minor enough to ignore. In these cases, both the offending spouse and the non-innocent spouse may "fall short" of tax law's requirements yet not be held accountable.

Tax law also includes substantive rules that provide relief in specified circumstances. For example, tax law includes a safe harbor that allows taxpayers who rent their primary residence for fewer than 15 days a year to not report the rental income (and correspondingly not deduct any associated expenses).[30] This rule is a formal recognition of the reality that the administrative burden on taxpayers seems unwarranted for such minimal rental activity. At the same time, an informal fall-short space exists in parallel with this safe harbor. The IRS is unlikely to learn about—and also probably also unlikely to enforce the law against—rentals of a primary residence for periods exceeding 14 days, say 17 days. Moreover, the IRS might even not learn about rentals of private residences that go on for much longer. The existence of such non-detection or non-enforcement may be a function of information asymmetries and agency resource constraints. In the case of *de minimis* violations, it may also reflect a judgment that administrative burdens remain high for a 17-day rental and enforcement is just not worth it.

More broadly, tax law includes graduated formal tailoring of penalties to reflect the range of reasons that taxpayers fail to comply. At the one end, noncompliance may just require the taxpayer to pay the additional tax due plus interest. More serious noncompliance may trigger set but not dramatic penalties (e.g., failure to withhold a sufficient amount of tax during the taxable year).[31] More significant violations may trigger civil fraud

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[26] IRC §6013(d)(3).
[27] IRC §6015(b).
[28] IRC § 6015(c).
[29] IRC §6015(f).
[30] I.R.C. § 280A(g).
[31] *See, e.g.*, IRC § 6654 (penalty for underpayment of estimated tax, which is basically an interest charge); see also, IR 2019-03, https://www.irs.gov/newsroom/irs-waives-penalty-for-many-whose-tax-withholding-and-estimated-tax-payments-fell-short-in-2018 (IRS waiver of estimated tax penalties for 2018 year).

penalties.[32] Finally, taxpayers guilty of willful evasion face criminal penalties and even jail time.[33] Thus, through a complicated series of attenuated penalty regimes (including differing burdens of proof, statutes of limitations, and defenses) formal tax law recognizes the varied context in which noncompliance occurs, even if imperfectly. But running parallel to this formal infrastructure is the reality that the IRS sometimes has difficulty detecting non-compliance or sometimes ignores such non-compliance as *de minimis*.[34]

Formal equitable features are also commonplace in criminal statutes, taking the form of tiered penalties or tiered severity of the crime's categorization. For example, a crime initially classified as a misdemeanor may be upgraded to a felony subject to graduated penalties if aggravating factors exist (such as use of a weapon, death, or bodily harm).[35] Federal criminal statutes—including statutes criminalizing assault, arson, and interference with federally protected activities such as voting—routinely contain graduated penalties and categorization of offenses.[36] While such provisions may not explicitly describe their features as "equitable," provision of tiered sanctions reflects law's understanding that differing circumstances may render a crime more or less severe, which is in turn a reflection of formally taking facts, circumstances, and equities into account. On top of these explicit features, however, it is also well understood that a good deal of conduct described by such criminal statutes goes unpunished. This may be due to clearly articulated allocation of enforcement resources elsewhere, may be an element of just plain luck, or may result from idiosyncratic actions of on-the-ground enforcers (who may, for example, decide to not arrest a firs-time offender but instead let them go with a warning).

Tax and criminal law aside, fall-short spaces are a feature of virtually all non-criminal regulatory regimes where enforcement is not 100%, such as local regulations and ordinances, occupational licensing, securities law, and banking law. There are also analogues in private law areas, even though the inquiry there is less about enforcement by government actors and more about

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[32] *See, e.g.*, IRC § 6662 (civil penalty for underpayment of tax).

[33] IRC §§ 7201-07 (criminal tax penalties).

[34] *See, e.g.*, Enforcement: Examinations, IRS, https://www.irs.gov/statistics/enforcement-examinations (IRS audit data, including that rate for 2017 tax returns was 0.5%).

[35] *See, e.g.*,18 USC § 242 (misdemeanor offense of deprivation of rights under color of law upgraded to felony if aggravating factors exist).

[36] *See, e.g.*, 18 USC § 111 (assault of officers and employees of the United States is subject to enhanced penalties if deadly weapon is used or assault results in bodily injury); 18 U.S.C. § 245(b) (provided graduated consequences for interference with federally protected activities if aggravating circumstances exist); 18 U.S.C. § 81 (more severe penalties for arson if life is placed in jeopardy).

decisions and negotiations between private parties.[37] Even in these regimes, somebody must decide whether to pursue remedies and judges must decide how and whether to award damages. These decisions turn on a combination of information and discretion. And because information is imperfect and discretion pervasive, these areas of law may also allow actors some informal room to injure, breach, trespass without sanction.[38]

Notably, fall-short spaces also exist at the level of very small acts that might not in and of themselves rise to the level of civil, criminal, or regulatory transgression but may, in the data age, hold unexpected consequences. For example, Lenddo, a Singapore-based micro-lender, uses a cutting edge algorithm that relies on non-traditional data to illuminate "social nuances," including whether the prospective borrower: (1) avoid[s] one-word subject lines in emails (signaling whether the person cares about details); (2) regularly uses financial apps on their smartphone (signaling whether the person takes finances seriously); and (3) has a higher ratio of smartphone selfies (signaling youth, and enabling the lender to group prospective borrowers).[39] Such alternative lending algorithms open the lending market up to traditionally "unbanked" individuals and may appear justifiable on these grounds.[40] But if these types of data become routinely used in other contexts, whether by more mainstream private sector actors or by government actors

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[37] For example, contract law deals with voluntary exchanges in situations where transaction costs are not so high as to discourage ex ante dealing. R.H. Coase, *The Problem of Social Cost*, 3 J. L. Econ. 1 (1960). Tort law governs involuntary exchanges and interactions in which transaction costs are high enough that ex ante bargaining won't necessarily occur, so the law must step in to dictate ex post consequences. And property law is the law governing ownership of real and personal property, and correspondingly, the right to exclude others or to demand compensation for trespass or other violations. Calabresi & Melamed, *supra* note 24 (distinguishing property vs. liability rules).

[38] While a full treatment of fall short spaces in private law areas is beyond the scope of this Article, a quick example may be illustrative: In tort negligence, for example, plaintiffs must prove duty, breach, causation, and damages to prevail. But in making these determinations, information and its absence play vital a role. Breach and causation may be difficult to prove, and will result in costly and time-consuming discovery. Thus, not every tort that is committed results in a lawsuit, due in part to difficulty of acquiring information and proof. Scenarios in which one might commit a tort but not be held accountable may be described as a fall-short space. As with criminal law and regulation, increased availability of information may affect decisions whether to sue, whether to settle, how much to settle for, and may cause us to think differently about tort law's design.

[39] Emily Bary, *How artificial intelligence could replace credit scores and reshape how we get loans*, Market Watch (Oct 29, 2018), available at https://www.marketwatch.com/story/ai-based-credit-scores-will-soon-give-one-billion-people-access-to-banking-services-2018-10-09; see also https://lending-times.com/2016/02/29/lenddo
-the-google-of-lending-algorithms/.

[40] *Id.*

(for example, to determine eligibility for government or quasi-government benefits or favorable classifications (e.g., TSA Pre-Check)), then we might start to conceptualize this development as a shrinking fall-short space: Whereas before, one could use one-word subject lines or keep one's phone free of financial apps without fear of what inadequacies this might signal, the use of one-word subject lines now has consequences in the data age.

To this point, our discussion has sought to distinguish formal equitable features from informal fall-short spaces, but it may sometimes be unclear whether a feature is a formal or informal one. For example, widely recognized prosecutorial authority to not pursue a case, charge more lightly, or to drop charges stems from the reality that prosecutorial decisions are not reviewable.[41] Such discretion could be considered a formal relief feature, in that the law recognizes and allows it.[42] But it may also be better described as an informal fall-short space, because there is an element of luck or discretion not specified by statute. Perhaps on balance, one could argue that it is a mixed case. The existence of mixed cases does not undercut our broader point, which is that in many contexts, the informal ability to fall-short without consequence exists in tandem with formal features. Because of this paired existence, our assessment—articulated in Part III—of the desirability of the former will depend in part on the design and existence of the latter.[43]

B. A Taxonomy of Fall-Short Spaces

The discussion above suggests that informal fall-short spaces may crop up somewhat randomly. While this may be so, it is possible to delineate more clearly the types of realities and reasoning that may trigger them. Breaking fall-short spaces down into a more detailed organizational taxonomy will help clarify whether their existence is justified and whether they should be safeguarded in the data age. The taxonomy is necessarily a rough categorization. There are likely many mixed cases. For examples, decisions driven by executive politics usually have a resource-scarcity component, but may also be driven by mercy.

1. Scarce Enforcement Resources

A key way in which fall-short spaces arise is when enforcers have scarce resources. Resource prioritization is inevitable where enforcement resources

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[41] See, e.g., Rebecca Krauss, The Theory of Prosecutorial Discretion in Federal Law: Origins and Development, 6 Seton Hall Cir. Rev. 1 (2012).

[42] Id.

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

are scarce.[44] Prioritization can range from decisions by a local police force to allocate police patrols to certain neighborhoods (which may lead to crimes in other neighborhoods not being observed) to high-level decisions by federal agencies to prioritize enforcement in certain areas. The IRS, for example, a federal agency that has experienced highly public budget woes in recent years, regularly announces enforcement "campaigns" and prioritizes enforcement resources in that direction.[45]

Consequentialist and economic approaches to criminal and regulatory enforcement suggest that resource prioritization makes sense. Some analyses regard less than 100% enforcement as socially optimal,[46] while others suggest that high penalties with low detection probabilities (i.e., low enforcement) may be optimal because enforcement takes resources, which by implication recommends some degree of imperfect enforcement. But of course, the flip side of nonenforcement is that some behaviors that "fall short" are not sanctioned. This presents tradeoffs, for example, in the form of expressive, morale, unfairness, and other impacts. Moreover, it may be difficult to pinpoint optimal penalty and enforcement levels in advance; particularly as situations change and optimal strategies have to adjust.[47]

In light of these tensions, scholars have sought to draw doctrinal lines, such as suggesting that politically driven non-enforcement is not acceptable but underenforcement decisions stemming from resource allocation and constraint considerations are acceptable.[48] It is not clear, however, that these lines can be effectively administered in reality, nor is it clear whether such doctrinally drawn lines are welfare-optimal.[49]

2. Lack of Information

An important aspect of enforcement resource scarcity is information barriers, but because information is central to our Article, we treat it separately. Lack of information is a barrier to full enforcement, and is one of the most important factors that leads fall-short spaces to exist. That barrier can be overcome, but only with greater allocation of enforcement resources.

For example, IRS tax gap figures suggest that underreporting of individual business or self-employed income are a significant contributor to

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[44] Stuntz, *supra* note 74; Steiker, *supra* note 73; Osofsky, *supra* note 86.

[45] For example, in 2019 there are 13 active "campaigns" by the IRS Large Business and International Division. See https://www.irs.gov/businesses/large-business-and-international-launches-compliance-campaigns.

[46] Becker, *supra* note 10. Economic approaches may also treat crime (theft) as a utility transfer with a cost, so crime does not necessarily destroy all value.

[47] Max Minzner, *Should Agencies Enforce?*, 99 Minn. L. Rev. 2113 (2015).

[48] Delahunty & Yoo, *supra* note 74; Osofsky, *supra* note 86.

[49] *See* sources cited *supra* note 48.

the gross tax gap (generally, the difference between taxes owed and those actually paid on time).[50] Unlike wage or dividend and interest income, such business/self-employed income is not subject to third-party withholding or information reporting. Because the IRS does not receive corroborating information from third-parties (e.g., banks) about the existence of the income, compliance remains low. The IRS could increase audits to detect such income, but this is costly.

In various contexts, law has been designed to overcome information barriers. For example, use of non-prosecution and deferred prosecution agreements in corporate prosecutions paired with *respondeat superior* liability incentivizes corporations to leverage their superior access to information and insider knowledge to monitor employees and hold them accountable.[51] Third-party income reporting and tax withholding has long been used to lower information asymmetries between the government and taxpayers and encourage compliance.[52] However, there remain contexts in which these types of solutions are not available. Here, non-compliance may persist and stay undetected.

Fall-short spaces that are caused by information asymmetries or shortages are perhaps most likely to shrink as data and information become more cheaply and easily available. However, it is clearly not the case that data by itself will cause increased enforcement. For example, some laws may be so strange and out-of-step that enforcement will probably remain low. For example, in South Carolina a set of long-standing laws against minors playing a pinball machine,[53] against adultery,[54] and against operation of a public dance hall on Sundays[55] that remain on the books despite a 2016 legislative effort to amend them.[56] Data is unlikely to materially change non-enforcement of such laws.

3. Deliberate Non-Enforcement as Response to Imperfect Laws

Enforcement resource and information scarcity aside, fall-short spaces may also occur where enforcers make deliberate decisions not to enforce.

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[50] IRS Tax Gap Estimates 2011-13, https://www.irs.gov/pub/irs-pdf/p1415.pdf.

[51] See, e.g., Jennifer Arlen & Samuel Buell, The Law of Corporate Investigations and the Global Expansion of Corporate Criminal Enforcement, 92 USC L. Rev. (forthcoming 2020).

[52] See, e.g., I.R.C. § 6041 (relating to information reporting at source).

[53] S.C. Code Ann. § 63-19-2430 ("It is unlawful for a minor under the age of eighteen to play a pinball machine.")

[54] S.C. Code Ann. § 16-15-60.

[55] S.C. Code Ann. § 52-13-10.

[56] Bill Tracking for S.C. H.B. 4535 (March 10, 2016), https://legiscan.com/SC/bill/H4535/2015 (bill died in Senate Judiciary Committee).

Some such deliberate non-enforcement decisions may stem from judgments that the law on the books is flawed or questionable in a way that makes enforcement problematic.

Flawed laws may come in different flavors:

Out-of-Step Laws. Some laws (like the South Carolina pinball law)[57] may be outdated or out-of-step with contemporary expectations, or just plain strange.[58] Others (including laws criminalizing adultery and sodomy) may reflect values that, while agreed upon in the past, have become increasingly contested. Enforcers may demonstrate reluctance to enforce laws that have become increasingly controversial, thus creating a fall-short space. For example, in 2019, prospective jurors in Louisiana were unwilling to consider convicting the defendant on felony marijuana charges. As a result, the judge had to halt jury selection after running through the available jury pool for the day. The prospective jurors had voiced objections to the criminalization of marijuana laws.[59] Still, cultural moves towards non-enforcement of such laws are likely to occur unevenly and we cannot assume that such laws will never be enforced.

Too Much Law. Relatedly, another reason fall-short spaces may develop is if law is perceived as too onerous, "too much," or otherwise overkill, such that total compliance is viewed as impossible.[60] Some have noted the

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[57] *See supra* notes 53–56.

[58] *See, e.g.*, Ark. Title II. Sec. 18-54 ("No person shall sound the horn on a vehicle at any place where cold drinks or sandwiches are served after 9:00pm (Code 1961, Sec. 25-74)"); 2331.12 Ohio Revised Code, Title XXIII Courts-Common Please, Ch. 2331 ("No person shall be arrested during a sitting of the senate or house of representatives, within the hall where such session is being held, or in any court of justice during the sitting of such court, or on Sunday or on the fourth day of July.[Unless a case of treason, felony, breach of the peace – or arrests made on a river" available at http://codes.ohio.gov/orc/2331.12; Ordinance No,. 1984-2 ("Slaying of a Sasquatch which is deemed a misdeameanor shall be punishable by a $500.00 fine and up to 6 months in the county jail, or both"), http://www.skamaniacounty.org/ordinance/Ord_1984-2.pdf; Kentucky Title XL. Crimes and Punishments. Chapter 436**,** § 436.600 ("No person shall sell, exchange, offer to sell or exchange, display, or possess living baby chicks, ducklings, or other fowl or rabbits which have been dyed or colored; nor dye or color any baby chicks, ducklings, or other fowl or rabbits; nor sell, exchange, offer to sell or exchange or to give away baby chicks, ducklings, or other fowl or rabbits, under two (2) months of age in any quantity less than six (6), except that any rabbit weighing three (3) pounds or more may be sold at an age of six (6) weeks. Any person who violates this section shall be fined not less than $100 nor more than $500." https://apps.legislature.ky.gov/law/statutes/statute.aspx?id=19037.

[59] Matt Sledge, *A New Orleans man faced a felony marijuana charge; too many potential jurors wouldn't consider it*, The Times Picayune (Oct. 9, 2019) at https://www.nola.com/news/courts/article_b01d0794-eade-11e9-8114-0f789d4d4ccc.html. Ultimately, the defendant agreed to pled to a misdemeanor charge instead. *Id.*

[60] *See, e.g.*, Bayless Manning, *Hyperlexis: Our National Disease*, 71 Nw. U. L. Rev. 767 (1976); cf. Mila Sohoni, *The Idea of "Too Much Law*, 80 Fordham L. Rev. 1585 (2012).

tendency of criminal law to be overinclusive, partly a function of legislator incentives to enact draconian laws as a "tough against crime" signal while leaving hard enforcement choices to judges, prosecutors, and those on the ground.[61] Such political process dynamics may cause a norms to develop in which enforcers understand that not all criminal behavior can or should be sanctioned.

Poorly Calibrated Laws. It is also possible that deliberate non-enforcement may occur where penalties are perceived to be too severe in relation to the crime. There is some evidence that jurors may be more less likely to convict as penalties become more severe.[62] It is plausible that this may be true of other types of enforcers as well, including police and regulators, who may choose non-enforcement as a "rough justice" solution to a penalty perceived as too high of a crime designation (e.g., felony).

Unjust Laws. Fall-short spaces may also arise where enforcers perceive the underlying law to be simply unjust and therefore choose not to enforce it. Unjust laws may be a subspecies of poorly calibrated laws or out-of-step laws, but encompasses laws that are more fundamentally unfair. Historical examples of unjust laws commonly pointed to in the scholarly literature include legal obedience in Nazi Germany and obedience to the law in aiding

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[61] William Stuntz, *The Pathological Politics of Criminal Law*, 100 Mich. L. Rev. 505, 507. 510 (2001) (noting that American criminal law "covers far more conduct than any jurisdiction could possibly punish"; arguing that this occurs due not just to "the politics of ideology and public opinion, but the politics of institutional design and incentives" and that "the story of American criminal law is a story of tacit cooperation between prosecutors and legislators, each of whom benefits from more and broader crimes, and growing marginalization of judges, who alone are likely to opt for narrower liability rules rather than broader ones"). With respect to criminal law on the books, there is an implicit idea that there is political payoff to having too-strict laws that are then underenforced. Robert J. Delahunty & John C. Yoo, *Dream on: The Obama Administration's Nonenforcement of Immigration Laws, the Dream Act, and the Take Care Clause,* 91 Tex. L. Rev. 781 & n. 437 (2013) (citing Cox & Rodriguez). Delahunty and Yoo outline the idea that strict laws, combined with a large offender population, and constrained enforcement resources inevitably lead to a situation in which executive discretion is virtually inevitable. *Id*. at 856-57. Stringent laws make it likely that average humans will fall short too, which then suggests discretion is necessary (mercy, per Barkow). But discretion/mercy are also problematic because rule of law issues, incentives for legislatures to leave bad laws on the books, promulgate bad laws. *See* Price, *infra* note 81; cf. Stephanos Bibas, *The Need for Prosecutorial Discretion*, 19 Temp. Pol. & Civ. Rts. L. Rev. 369 (2010).

[62] Kerr, N. L. (1978). Severity of prescribed penalty and mock jurors' verdicts. Journal of Personality and Social Psychology, 36(12), 1431-1442; James Andreoni, *Reasonable Doubt and the Optimal Magnitude of Fines: Should the Penalty Fit the Crime?* 22 RAND J. Econ. 385 (1991); Vidmar, Neil. *Effects of decision alternatives on the verdicts and social perceptions of simulated juror*s. Journal of personality and social psychology 22 2 (1972): 211-8. Cf. Martin F. Kaplan; Sharon Krupa, *Severe Penalties under the Control of Others can Reduce Guilt Verdicts*, 10 Law & Psychol. Rev. 1 (1986).

fugitive slaves.[63] A contemporary example might be grossly unfair sentencing guidelines.

The problem of unjust or immoral laws has spawned a vast theoretical literature regarding whether such laws are legitimate and whether citizens have a duty to obey them.[64] Here, legal positivists (dominant in the American legal tradition) tend to view law as separate from morality, viewing even bad laws as legitimate, if enacted through legitimate government authority.[65] This stands in contrast to some natural law approaches, which view immoral or evil laws as not having the authority of law.[66] Some legal positivists may leave room for disobedience in cases of particularly unjust laws,[67] in contrast to firm adherents of the doctrine of political obligation.[68] Yet, most hold a qualified view of political obligation, conceding that political obligation's reach does not apply to some types of laws.[69] Philosophical debates about obligation to obey unjust laws has clear implications for the evaluation of fall-short spaces. If there is plausibly no duty to obey unjust laws despite political obligation, the fall-short spaces become important and justifiable, not just because of human imperfections but because of law's. Loss of that flexibility—for example, if monitoring of law breaking becomes easier due to vast information troves—might allow governments to force compliance with unjust laws, which may be a negative.[70]

4. Exercise of Mercy

Another reason why fall-short spaces may develop is if enforcers exercise

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[63] *See, e.g.*, Olson *supra*; Robert Cover, Justice Accused: Antislavery and the Judicial Process (Yale 1984).

[64] *See, e.g.*, J.C. Oleson, *The Antigone Dilemma: When the Paths of Law and Morality Diverge*, 29 Cardozo L. Rev. 669 (2007).

[65] [HLA Hart; cf. Bentham, Austin.]

[66] *See, e.g.*, Kent Greenwalt, *The Natural Duty to Obey the Law*, 85 Mich. L. Rev. 1 (1986) (discussing five theories about natural duty to obey the law and their foundations; discussing application to unjust laws).

[67] [Bentham, Austin, Hart.]

[68] https://plato.stanford.edu/entries/political-obligation/; Michael Huemer, The Problem of Political Authority: An Examination of the Right to Coerce and the Duty to Obey (Palgrave-McMillan 2012); John Rawls, A Theory of Justice (Harvard, rev'd ed. 1999)

[69] Michael Huemer, *The Duty to Disregard the Law*, 12 Crim. L. & Phil. 1 (2018) (sketching out scholarly views that hold qualified view of political obligation doctrine, in context of evaluating jury nullification) (citing Thomas Christiano, The Constitution of Equality: Democratic Authority and Its Limits (Oxford 2008); Dan Markel, *Retributive Justice and the Demands of Democratic Citizenship*, 1 Va. J. Crim. L. 1 (2012)). Of course, more behavioral and consequentialist approaches may note that the relationship between the justness laws and the propensity of the governed to obey them may be endogenous. Nadler, *Flouting the Law*, 83 Tex. L. Rev. 1399 (2005).

[70] [Hohfeld (rights and duties as jural correlatives).]

ad hoc discretion to be merciful or forbear from punishment. The importance of mercy in generating fall-short spaces is evidenced by the fact that debates over mercy are ubiquitous in criminal law and moral philosophy,[71] with scholars arguing over how mercy squares with the retributivist goals of criminal law.[72] Some argue that there is no role for mercy in criminal law, though equitable discretion—attenuating punishment in a way tied to the severity of the crime or mitigating circumstances—may be appropriate and even necessary,[73] particularly given the tendency of criminal law to be overbroad and overinclusive.[74]

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[71] *See, e.g.*, JEFFRIE MURPHY & JEAN HAMPTON, FORGIVENESS AND MERCY (Cambridge U. Press 1988); AUSTIN SARAT & NASSER HUSSAIN, EDS., FORGIVENESS, MERCY, AND CLEMENCY (Stanford U. Press 2006) (collection of essays on the subject); Dan Markel, *Against Mercy*, 88 MINN. L. REV. 1421 (2004), Rachel Barkow, *The Ascent of the Administrative State and the Demise of Mercy*, 121 HARV. L. REV. 1332 (2019) (arguing that ascent of administrative state and the conceptions of law accompanying it has led to increased skepticism of executive clemency and jury nullification).

[72] *See generally* Michael Moore, Placing Blame: A General Theory of the Criminal Law (1997) (defending retributivism); Douglas Husak, *Retribution in Criminal Theory*, 37 San Diego L. Rev. 959 (2000) (critiquing Moore and offered a more "tempered" defense of retributivism).

[73] *See, e.g.*, Murphy & Hampton, *supra* note 71, at []; Markel, *supra* note 71, at []. *See generally* Carol Steiker in Sarat & Hussain, *supra* note 71 (referring to these as "mercy skeptics"). For example, Dan Markel distinguishes equitable discretion from mercy. Equitable discretion means meting lesser punishments in a manner tied to severity of the crime or to mitigating circumstances such as diminished capacity. Markel, *supra* note 71, at []. Mercy is "remission of deserved punishment" and is suspect in a system of retributivism. *Id*. at []. Equitable discretion is "leniency that is motivated by other reasons that are more properly viewed as triggering equitable or justice-enhancing discretion." *Id*. Mercy, by contrast, is suspect because it awards lesser punishment for reasons of "compassion, bias, corruption, or caprice." *Id*.

[74] William Stuntz, *The Pathological Politics of Criminal Law*, 100 Mich. L. Rev. 505, 507. 510 (2001) (noting that American criminal law "covers far more conduct than any jurisdiction could possibly punish"; arguing that this occurs due not just to "the politics of ideology and public opinion, but the politics of institutional design and incentives" and that "the story of American criminal law is a story of tacit cooperation between prosecutors and legislators, each of whom benefits from more and broader crimes, and growing marginalization of judges, who alone are likely to opt for narrower liability rules rather than broader ones"). With respect to criminal law on the books, there is an implicit idea that there is political payoff to having too-strict laws that are then underenforced. Robert J. Delahunty & John C. Yoo, *Dream on: The Obama Administration's Nonenforcement of Immigration Laws, the Dream Act, and the Take Care Clause*, 91 Tex. L. Rev. 781 & n. 437 (2013) (citing Cox & Rodriguez). Delahunty and Yoo outline the idea that strict laws, combined with a large offender population, and constrained enforcement resources inevitably lead to a situation in which executive discretion is virtually inevitable. *Id*. at 856-57. Stringent laws make it likely that average humans will fall short too, which then suggests discretion is necessary (mercy, per Barkow). But discretion/mercy are also problematic because rule of law issues, incentives for legislatures to leave bad laws on the books, promulgate bad laws. *See* Price, *infra* note 81; cf. Stephanos Bibas, *The Need for Prosecutorial Discretion*, 19

The analytical distinction between mercy and equitable discretion reflects a tension in criminal law: Discretion and forbearance are necessary, but discretion can lead to bias and uneven enforcement. Carol Steiker has described the "paradox of mercy" as follows: Mercy in criminal justice "is extremely attractive as a way of mitigating the draconian harshness of our current penological regime"[75] but at the same time "it is likely that the institutional opportunities for the exercise of mercy in the criminal justice system are also sources of a substantial part of the system's disparate impact along the lines of race, ethnicity, and class."[76] The issue for mercy-skeptical scholars is that while some discretion and flexibility are necessary to do justice, unprincipled mercy and compassion based on warm feelings can lead to disparities and biases in punishment.[77] This is particularly risky if certain groups are more adept at expressing remorse or asking for lighter punishment, for example because they possess more cultural capital.[78] The problem is compounded by the fact that it can be difficult to distinguish between appropriate exercise of discretion and unprincipled granting of merciful dispensation in actual practice.

5. Executive Politics

Fall-short spaces may also be created as a result of higher-level politics, for example, in the context of deliberate executive non-enforcement of law.[79] For example, presidential executive orders are sometimes issued to not enforce certain laws, including marijuana prohibitions and immigration laws—as is the case with President Obama's Deferred Action for Childhood

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Temp. Pol. & Civ. Rts. L. Rev. 369 (2010).

[75] *See also* sources cited *supra* note 74.

[76] Steiker, *supra* note 73.

[77] *See, e.g.*, Susan Bandes, Remorse and Demeanor in the Courtroom: Cognitive Science and the Evaluation of Contrition, in Jill Hunter et al., The Integrity of the Criminal Process: From Theory to Practice (2016).

[78] *See, e.g.*, Even Hannan, *Remorse Bias*, 83 Mo. L. Rev. 301 (2018); Bandes, supra note 77; Stephen Porter & Leanne ten Brinke, *Dangerous decisions: A theoretical framework for understanding how judges assess credibility in the courtroom*, 14 Legal & Criminological Psychology 119 (2009) (examining problems with determinations of trustworthiness based on defendant criminal expressions); Jeremy A. Blumenthal, J.D., Ph.D., *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 Neb. L. Rev. (1993)

[79] Note that the issue is not altogether new, though it has received increased visibility in the Obama administration. *See* Peter L. Strauss, *The President and Choices Not to Enforce, 63 J. L. Contemp. Prob*. 107 (2000) for an earlier treatment; Kate Andrias, *The President's Enforcement Power*, 88 NYU L. Rev. 1031 (2013); Mary M. Cheh, *When Congress Commands a Thing to be Done: An Essay on Marbury v. Madison, Executive Inaction, and the Duty of the Courts to Enforce the Law*, 72 Geo. Wash. L. Rev. 253 (2003).

Arrivals (DACA) program and Deferred Action for Parents of Americans and Lawful Permanent Residents (DAPA) initiatives).[80] As scholars have noted, the Reagan and the two Bush administrations also engaged in so-called "deregulation through non-enforcement."[81] We classify executive non-enforcement decisions as informal fall-short spaces because, even though they are not strictly informal in the sense of happening off the books, it is not possible to predict or notify upfront when such non-enforcement will occur. Thus, in terms of impact, executive non-enforcement functions more like an informal fall-short space.

Like the cases of unjust laws and exercise of mercy, a substantial literature deals with the extent to which the president may legitimately order blanket non-enforcement of laws, and the risks such executive non-enforcement presents.[82] Scholars have questioned whether deliberate non-enforcement violates separation of powers principles, whether it contravenes the "taking care" clause, whether it causes bad laws to remain on the books,[83] and, more generally, whether it undermines the rule of law.[84] Scholars have also attempted to articulate the boundaries of permissible presidential non-enforcement.[85] Most, but not all, have argued that while non-enforcement based on resource constraints is permissible and unavoidable, non-enforcement based on blanket substantive policy preferences is not.[86]

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[80] *See*, *e.g.*, Jeffrey A. Love & Arpit K. Garg, *Presidential Inaction and the Separation of Powers*, 112 Mich. L. Rev. 1195 (2014). Zachary Price, *Enforcement Discretion and Executive Duty*, 67 Vand. L. Rev. 671 (2014); Delahunty & Yoo, *supra* note 74; Michael Sant' Ambrogio, *The Extra-Legislative Veto*, 102 Geo. L.J. 351 (2014).

[81] *See* Daniel T. Deacon, Note, *Deregulation Through Nonenforcemen*t, 85 N.Y.U. L. Rev. 795, 796 (2010); Price, supra note 20(discussing non-enforcement on the part of both Republican and Democrat administrations).

[82] *See* sources cited *supra* notes 79–81.

[83] Price, *supra* note 20, at 1146 (noting that "[w]hile prosecutorial discretion provides a crucial safety valve against rigorous enforcement of outdated or unrealistic laws, persistent nonenforcement also permits laws to remain in place that would be politically intolerable if fully enforced").

[84] Price, *supra* note 20; David S. Rubenstein, *Taking Care of the Rule of Law*, 86 Geo. Wash. L. Rev. 168 (2018).

[85] Andrias, *supra* note 79 (calling for more agency coordination, disclosure, and transparency)

[86] *See*, *e.g.*, Price, supra note 80, at 675, 689 (arguing that presidential non-enforcement authorities does not extend to "prospective licensing of prohibited conduct" or to "policy-based nonenforcement of federal laws for entire categories of offenders"); Delahunty & Yoo, *supra* note 74, at [] (arguing that "[p]residential prerogative does not justify a refusal to enforce the immigration laws in ordinary, noncritical circumstances"; arguing that there are defenses to a presidential breach of duty including (1) unconstitutionality of the law, (2) interference with another constitutional power of the president (3) equity, and (4) resource constraints. *See also* Leigh Z. Osofsky, *The Case for Categorical Nonenforcement*, 69 Tax L. Rev. 73, 78 (2015) (noting that "scholars have reached a near consensus that policy-based nonenforcement is impermissible, whereas nonenforcement resulting from enforcement

Legal scholars have also debated agency non-enforcement.[87] As part of the executive branch, agency non-enforcement also implicates separation of powers, fairness, and procedural concerns.[88] With a few exceptions, agency nonenforcement decisions are generally not reviewable by courts.[89] While some scholars have argued that there are merits to allowing agencies to categorically underenforce the law,[90] other have pointed out the risks. These include the risk of underenforcement due to regulatory capture,[91] the risk of undesirable dynamics between state and private actors,[92] and the risk that underenforcement discretion may be fed by—and may in turn feed—the passage of overly broad or aggressive laws.[93] Yet, it is also clear from administrative law scholarship that nonenforcement is inevitable in agency practice due to resource constraints and the need to prioritize.[94]

The foregoing discussion suggests that fall-short spaces arise for different reasons, including resource and informational constraints, deliberate

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resource limitations may be permissible."). *Cf.* Peter L. Markowitz, *Prosecutorial Discretion Power at Its Zenith: The Power to Protect Liberty*, 97 B.U. L. Rev. 489 (2017) (arguing that the presidential non-enforcement power reaches its "zenith" when physical liberty and its deprivation are at stake).

[87] Osofsky, *supra* note 86; Aaron L. Nielson, *How Agencies Choose Whether to Enforce the Law: A Preliminary Investigation*, 93 Notre Dame L. Rev. 1517 (2018); Aaron Nielson, Admin. Conf. of the U.S., Waivers, Exemptions, and Prosecutorial Discretion: An Examination of Agency Nonenforcement Practices (2017), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3064284.

[88] Nielson, *supra* note 87, at 1520 (noting that "nonenforcement implicates basic notions of fairness and administrative regularity"; raising concerns about abuse and noting that 'government by waiver,' if taken too far, is antithetical to liberty").

[89] Heckler vs. Chaney, 470 US 821 (1985); see also Cass Sunstein, Reviewing Agency Inaction after Heckler v. Chaney, 52 U. Chi. L. Rev. 653 (1985); Note, Jentry Lanza, *Agency Underenforcement as Reviewable Abdication*, 112 Nw. U. L. Rev. 1171 (2018).

[90] Osofsky, *supra* note 86.

[91] Max Minzner, *Should Agencies Enforce*, 99 Minn. L. Rev. 2113 (2015) (challenging superiority of specialized agency enforcement, including in making nonenforcement and selective enforcement decisions; noting that "regulatory capture can produce underenforcement").

[92] *See* Richard A. Epstein, "*Government By Waiver,*" 7 National Affairs 39 (2011), https://www.nationalaffairs.com/publications/detail/government-by-waiver.

[93] Epstein, *supra* note [] (identifying the Patient Protection and Affordable Care Act and the Wall Street Reform and Consumer Protection Act as two complex statutes that will implicate and exacerbate nonenforcement and "government by waiver").

[94] Osofsky, *supra* note 86; Nielson, *supra* note 87; Delahunty & Yoo, *supra* note 74, at 856 (noting, with respect to immigration law that the Obama administration's nonenforcement decisions "is the almost inevitable outcome of…a de facto delegation system that Congress has established in the immigration area" and that "the combination of a massive illegal immigrant population, extremely stringent laws regarding deportability, and the inadequate resourcing of enforcement gives the President virtually unfettered control to decide who remains in the country and who is removed.").

underenforcement of problematic laws of various kinds, decisions to exercise mercy, and politics. Various existing strands of scholarly literature have addressed the desirability of not enforcing (and correspondingly, allowing humans to fall short) in these contexts. Our discussion has sought to bring these threads together conceptually.

Our discussion has also previewed the insight that fall-short spaces hold both positives and negatives. Paired with formal equitable features in the law, fall-short spaces allow flexibility to accommodate human imperfections and imperfect laws, and they may be inevitable in light of resource constraints. But they may also carry the risk of selective enforcement, bias, and politically driven decisions, and may raise rule of law and separation of powers concerns.

II. FALLING SHORT IN THE DATA AGE

Part II now turns to how data and information may transform law's fall-short spaces and in doing so, how they will transform the relationship among humans, governments, and the law. Part II.A unpacks the critical significance of data in contemporary society. Part II.B identifies the potential impacts that data will have on fall-short spaces and the implications of this for design of legal rules.

A. Ubiquitous Data and Information

Data refers to raw and discrete facts or statistics, which can by processed, refined, and analyzed into information, which may then be used to yield insights into the data subject.[95] In analytics' parlance, data, information, and insights mean different things: data is not useful until it can be processed into information that generates insights.[96] In this Article, we use the shorthand "data" to refer to data as well as the information and insights it generates.

The lifecycle view of data that permeates the data management literature highlights key phases in data use, including: planning, collection, use, storage and reuse.[97] Although the lifecycle view can be useful in articulating the distinct ethical and policy considerations relevant at each phase (along with those that run throughout all phases, such as privacy and security), it is not a definitive statement on the ways in which data is actually deployed in society.

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[95] *See generally* Brent Dykes, *The Missing Link between Data and Business Valu*e, Forbes (Apr. 26, 2019), https://www.forbes.com/sites/brentdykes/2016/04/26/actionable-insights-the-missing-link-between-data-and-business-value/#2f5a28b951e5.

[96] *Id.*

[97] *See, e.g.*, Jeannette A. Wing, *The Data Life Cycle* (2019), Harvard Data Science Review (2019). https://doi.org/10.1162/99608f92.e26845b4.

Data about individuals can be found in various places, including government and private databases, private emails or messages, and public or semi-public online postings. It takes various forms, including photos, video, and text. It is collected when humans engage in mundane activities, including going to the doctor, surfing the internet, and walking down the street. It is gathered via mechanisms ranging from cell phones to hand-filled out forms.

Massive amounts of data on the ideas, finances, and behavior of humans and entities are increasingly being collected, normalized,[98] analyzed, and used for social, economic, and commercial purposes.[99] Data has, in the words of one analyst, become the "new oil," a critical raw material for business, commerce, and governments.[100] As a result of the growing hunger for data, human activity is increasingly susceptible to being surveilled, often without the subject's knowledge or consent, and there is significant risk that such data will never be "forgotten."[101] This raises questions about how privacy rights should apply in the data and information age.[102] As an indicator of the currency of these issues, the New York Times recently launched a "Privacy Project," a series of articles discussing data and surveillance and evaluating the implications for privacy and its protection.[103] Privacy debates aside,

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[98] Normalization means making data into comparable units. See Introduction to Data Normalization: A Database "Best Practices," http://agiledata.org/essays/dataNormalization.html.

[99] Dykes, *supra* note 95.

[100] *The World's Most Valuable Resource is No Longer Oil, But Data*, THE ECONOMIST (May 6, 2017), https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data. The original quote is usually attributed to mathematician Clive Humby.

[101] It is fair to say that there is currently systematic path by which data is effectively "forgotten" in the US. See generally Tim Wu, *How Capitalism Betrayed Privacy*, NY Times (Apr. 10, 2019), https://www.nytimes.com/2019/04/10/opinion/sunday/privacy-capitalism.html. A sweeping literature examines the theoretical underpinning of a right to be forgotten, and the trade offs at stake in prioritizing individuals rights to set limits on the extent to which their information remains an active part of the data landscape. *See, e.g.*, Urs Gasser, Jonathan L. Zittrain, Robert Faris and Rebekah Heacock Jones, *Internet Monitor 2014: Reflections on the Digital World: Platforms, Policy, Privacy, and Public Discourse*, Berkman Center Research Publication No. 2014-1 (Dec. 17, 2014), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2538813; Giancarlo Frosio, *Right to Be Forgotten: Much Ado About Nothing*, 15(2) Colorado Technology Law Journal 307 (2017); Robert Walker, *The Right to be Forgotten*, 64 Hastings L. J. 257 (2012); Stefan Kulk and Frederik Zuiderveen Borgesius, *Privacy, Freedom of Expression, and the Right to Be Forgotten in Europe*, in Cambridge Handbook of Consumer Privacy (Jules Polonetsky, Omer Tene, and Evan Selinger, eds) (Cambridge University Press, 2017).

[102] *Id*.

[103] Privacy Project, *supra* note 1; Bill Hanvey, *Your Car Knows When You Gain Weight*, NY TIMES, (May 20, 2019), https://www.nytimes.com/2019/05/20/opinion/car-repair-data-privacy.html; Michael Kwet, *In Stores, Secret Surveillance Track Your Every Move*, NY TIMES (June 14, 2019), https://www.nytimes.com/interactive/2019/06/14/opinion/bluetooth-

ubiquitous data also has critical implications for law's operation and design, as this Article explores.

The claim of data's ubiquity is not a claim that until now, we have operated in a world of little or no data; rather, it is a recognition of the implications that the drastically changing scale and scope of data collection and analysis will have in the coming years. Recognition of this tectonic shift has prompted analogies to Jeremy Bentham's Panopticon[104] in analyzing data-driven dynamics and relationships in society.[105]

Conceptualizing data in terms of topical categories, actors, collection methods, and can help pinpoint theoretical and policy implications.

1. Topical Categories

Widespread collection, processing, and use of data can be observed in at least seven major areas: finance, security, medical, social, commercial, political, and regulatory.[106] Of course, data is likely non-rivalrous, such that multiple firms may be able to derive value from the same data, and data collected and processed for one purpose can be used for another.[107] How boundaries between uses should be designed is an important emerging policy

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wireless-tracking-privacy.html.

[104] Jeremy Bentham, *Panopticon, Works of Jeremy Bentham Published Under the Superintendence of His Executor, John Bowring*, New York, Russell and Russell, 1962 (11 vols), vol. IV, letter V, p. 44, available at https://oll.libertyfund.org/titles/bentham-the-works-of-jeremy-bentham-vol-4.

[105] *See, e.g.*, Sonia K. Katyal, *The New Surveillance*, 54 Case Western L. Rev. 297, 317-320 (2004) (exploring the Panoptic qualities of cyber peer to peer networks); Tjerk Timan, Maša Galič & Bert-Jaap Koops (2017), *Surveillance Theory and Its Implications for Law*, in: R. Brownsword, E. Scotford & K. Yeung (eds), The Oxford Handbook of Law, Regulation, and Technology, Oxford: Oxford UP, at 731-753 (2017) (offering an overview of surveillance theory and techniques); Julie E. Cohen, *Privacy, Visibility, Transparency, and Exposure*, 75 U. Chi. L. Rev. 1, 3 (2008) (noting that "[a]cademic privacy theorists have tended to favor the motif of the Panopticon" in evaluating the relationship between privacy and visibility); Oscar H. Gandy, Jr., *The Panoptic Sort: A Political Economy of Personal Information* (Westview, 1993) (offering a vision of the surveillance society); Thomas McMullan, *What does the panopticon mean in the age of digital surveillance?* The Guardian (July 23, 2015).

[106] This precise framing of the groups is not immutable, but rather offers an intuitive way of envisions data at work in society..

[107] Data's non-rivalry has provided the foundation for economic theories regarding ideal property rules for data ownership. Charles I. Jones & Christopher Tonetti, *Nonrivalry and the Economics of Data,* August 29, 2019, available at https://christophertonetti.com/files/papers/JonesTonetti_DataNonrivalry.pdf. For early studies in the field, see, e.g., George Joseph Stiller, *The Economics of Information*, 69(3) J. of Political Economy 213 (1961); George Joseph Stiller, *Information in the labor market*, in Investment in Human Beings at 94-105 (NBER 1962)); Michael Spence, *Job market signaling*, 87(3) Quarterly J. of Economics 355 (1973).

issue;[108] an emerging subfield of information economics focuses on privacy and the tradeoffs for both individuals and society from decisions to share or protect data.[109] Thus, these seven categories are not watertight and merely function as an initial organizational heuristic.

Finance. Data has long been gathered by financial entities. Some such data is person-specific, such as credit bureaus scores. In other cases, the data may be broader statistics on markets, investments, and debts. These types of data are already used in finance, forecasting, and other decisions, including use by algorithms that make lending decisions.[110] But financial entities also use data more unconventionally, as the Lenddo example illustrates.[111] Regardless of whether the factors utilized by Lenddo would be permissible in the United States, the case reveals the rapidly expanding ability to gather and incorporate data collected from unrelated settings into lending decisions in unexpected ways.

Data and finance will be increasingly linked as commerce shifts away from cash, allowing more expenditures to be traced, intercepted, or stolen by both governments and private actors.[112] It is possible that current limitations on uses of data and fiduciary obligations on data custodians may be insufficient to guard against some such uses.

Security: Data has also been gathered for security purposes, including both personal safety (such as home burglar alarms) and public safety (such as law enforcement, anti-terrorism, national security, border control, and protection of business assets and plant).[113] Such data is gathered, for example, through surveillance video, locational tracking, or biometric information. It may be organized in databases of perceived threats, which may then be used

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[108] Wu, supra note 101 (noting that "data and surveillance networks created for one purpose can and will be used for others); Jennifer Valentino-DeVries, Tracking Phones, Google Is a Dragnet for the Police (Apr. 13, 2019), https://www.nytimes.com/interactive/2019/04/13/us/google-location-tracking-police.html (discussing "if you build it, they will come" principle , i.e., "anytime a technology company creates a system that could be used in surveillance, law enforcement inevitably comes knocking").

[109] Acquisti, supra note 4 (seeking to establish the economic theories of privacy);

[110] *See, e.g.*, Richard P. Bartlett, Adair Morse, Richard Stanton & Nancy Wallace, *Consumer Lending Discrimination in the FinTech Era*, UC Berkeley Public Law Research Paper (May 2019) (examining discrimination in algorithmic lending), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3063448.

[111] *See supra* notes 39–40 and accompanying text.

[112] *See, e.g.*, Jeb Su, *Data Breach Alert: Over 1 Million Credit Card Data From The U.S., South Korea Have Been Leaked*, Forbes (Aug. 5, 2019), https://www.forbes.com/sites/jeanbaptiste/2019/08/05/data-leak-alert-over-1-million-credit-card-from-the-u-s-south-korea-have-been-stolen/#55e89e06928e.

[113] See, e.g., Glenn S. Gerstell, I work for the N.S.A. We Cannot Afford to Lose the Digital Revolution, NY Times (Sept. 10, 2019), https://www.nytimes.com/2019/09/10/opinion/nsa-privacy.html. Cf. Richards, supra note 3.

for other purposes.[114] As recent reporting has revealed, the data sources available to U.S. Immigration and Customs Enforcement (ICE) have increasingly expanded. Such data includes driver's licenses photos, phone records, jail bookings, insurance, utility bills, social media accounts, and taxes paid.[115] Thus, security is another case in which data generated for one purpose can be put to unenvisioned uses, and where law has allowed such cross-uses.

Medical: Data has long stood at the heart of medicine. Comprehensive medical records enable health care providers to make patient-care decisions. Data collected on larger populations provides valuable insights into promising drug and treatment options. In the age of ubiquitous data, such individual and population medical data collection and analysis has ramped up exponentially. For example, health monitoring devices (e.g. pedometers, heart rate and blood pressure monitors), can generate minute-by-minute, hourly, or daily data on different dimensions of health. Online genetic tests have given rise to vast databases of personal health information.[116] This very personal data help with a patient's treatment plan but may also be used for law enforcement, employee monitoring, insurance, and marketing purposes.[117] As with financial and security data, health-related data also has the same potential for unexpected cross uses, subject to regulatory constraints. For example, in 2018, San Jose police arrested a man for murder based in part based on data from the victim's Fitbit, which pinpointed a spike in heart rate followed by slowing and finally termination.[118]

Social: Perhaps the most universally recognized context in which data has become ubiquitous is in online social networking on platforms that track and use data. Platforms like Facebook, LinkedIn, Twitter, Instagram, SnapChat, and online dating sites collect and accumulate significant data on users, either through information directly provided by the user or by tracking

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[114] See generally Wu, supra note 101.

[115] McKenzie Funk, *How ICE Picks Its Targets in the Surveillance Age*, N.Y. Times Mag. (Oct. 2, 2019).

[116] See Julian Segert, Understanding Ownership and Privacy of Genetic Data, Harvard Univ. Science in the News (Nov. 28, 2018), http://sitn.hms.harvard.edu/flash/2018/understanding-ownership-privacy-genetic-data/.

[117] See, e.g., Sarah Zhang, *A DNA Company Wants You to Help Catch Criminals*, The Atlantic (Mar. 29, 2019), https://www.theatlantic.com/science/archive/2019/03/a-dna-company-wants-your-dna-to-catch-criminals/586120/; Ceylan Yeginsu, If Workers Slack Off, the Wristband Will Know. (And Amazon Has a Patent for It.), NY Times (Feb. 1, 2018), https://www.nytimes.com/2018/02/01/technology/amazon-wristband-tracking-privacy.html.

[118] Christine Hauser, *Police Use Fitbit Data to Charge 90-Year-Old Man in Stepdaughter's Killing*, N.Y. Times (Oct. 3, 2018), available at https://www.nytimes.com/2018/10/03/us/fitbit-murder-arrest.html. Such law enforcement use of a Fitbit is not an isolated instance. *Id.*

their behavior. Data collected may be used by the platforms themselves (e.g., for advertising) or may be sold to others or provided to governments. Contractual clauses and privacy policies described in user agreements do not eliminate all concerns because they may not be comprehensive, may be so comprehensive as to be unintelligible,[119] may not be salient to users (either current selves or future selves who may regret present decisions at a later time), and do not prevent data theft or illegal use.[120] Moreover, users themselves may find they are asked or required to surrender such data, for example, to enter the country.[121]

Commercial: Data is also used for commercial purposes in advertising, demographic targeting, employee retention, business strategy, and efficiency generation (e.g., inventory management, worker monitoring, and product development). In some cases, businesses have the data within their control and simply need to figure out how to convert it into usable information and intelligence. In other cases, businesses do not have the data and need to gain access, in which case a market for data may develop. In either case, the commercial use and acquisition of such data may or may not be legal.

To the extent the creation, use and dissemination of data introduces increased efficiencies, some strands of information economics theory advocate designing data rights to further expand the universe of available data.[122] If data rights are expansive and much data nonrival, then the commercial interest in acquiring vast quantities of data will likely grow, particularly as the ability to effectively manipulate the data increases.

Political: In politics, data is central to seizing and maintaining power. Perhaps most obviously, data about prospective voters can enable politicians,

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[119] Kevin Litman-Navarro, *We Read 150 Privacy Policies. They were an Incomprehensible Disaster*, NY Times (June 12, 2019), https://www.nytimes.com/interactive/2019/06/12/opinion/facebook-google-privacy-policies.html.

[120] Id. Disclosure also does not prevent hacks and leaks of information. *See, e.g.*, Robert Hackett, *What to Know about the Ashley Madison Hack*, *Fortune* (Aug. 26, 2015), https://fortune.com/2015/08/26/ashley-madison-hack/ discussing 2015 Ashley Madison data hack). *See also* Shu-Yi Oei & Diane Ring, 65 UCLA L. Rev. 521 (2018).

[121] *See, e.g.,* Fed. Reg. Notice by Homeland Security: Generic Clearance for the Collection of Social Media Information on Immigration and Foreign Travel Forms, (Sept. 4, 2019) available at https://www.federalregister.gov/documents/2019/09/04/2019-19021/agency-information-collection-activities-generic-clearance-for-the-collection-of-social-media (identifying new social media data to be collected for immigration and foreign traveler admissions); Karen ZraickMihir Zaveri, *Harvard Student Says He Was Barred From U.S. Over His Friends' Social Media Posts*, N.Y. Times (Aug. 27, 2019) (https://www.nytimes.com/2019/08/27/us/harvard-student-ismail-ajjawi.html (reporting a Harvard College freshman was denied entry to the United States based on social media postings).

[122]

political parties, and others to determine the most effective messaging or vote-garnering strategy. Such data may be more effective in combination with other information about how individuals process information and behave. In short, information *about* voters can tell political parties how to effectively disseminate information *to* voters, creating a two-way data flow.

Importantly, the political use of data is not limited to actors within a given political system. The use of fake Facebook accounts during the 2017 presidential election by parties acting on behalf of the Russian government in an effort to swing the U.S. election are a prominent instance of outside actors using data to influence a country's politics.[123] The political relevance of data is also not limited to the voting booth. It can be used to determine levels and likelihood of support of policies and may help suggest strategies for engagement with other countries. More sinisterly, data about political opponents or grassroots opposition may be used to quash such opposition, either directly or using pretextual legal means.[124]

Regulatory: Governments collect, maintain, and sometimes share information to assist with a myriad of functions at the national, state and local levels. Businesses and individuals may also be required to collect, maintain, and share data with the government. For example, tax law is replete with expectations for record-keeping and data reporting, both about the taxpayer and about third parties. Examples including offshore financial asset reporting obligations, multinational cross-border reporting, employee withholding, and property tax databases.[125] In some cases, stringent rules may already be in place restricting the sharing of such information (including rules constraining IRS ability to share tax return data). But in others, we have evidence that the information accumulated in the context of one government function has been used by another government entity for unrelated functions (such as use of driver's license databases by ICE).

It cannot be emphasized enough that data collected for one purpose may be sold to or shared with others for another.[126] Whether these uses generate the efficient outcomes envisioned by market theories of information ultimately depends on the process by which data is made available and the tradeoffs at stake.[127] But these types of data uses do confirm information economics' insights that the same information can mean very different things

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[123] *See, e.g.*, Lawrence J. Trautman, Governance of the Facebook Privacy Crisis (March 31, 2019), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3363002.

[124] [cite]

[125] See, e.g., I.R.C. §§ 1471–1474 (FATCA provisions), IRC § 6041 (information reporting); IRC § 3402 (employee withholding).

[126] *See* sources cited *supra* note 108.

[127] *See, e.g.*, Jones & Tonnetti, *supra* note __.

to different actors (a property tax bill as seen by a city tax collector v. ICE), that the value of information changes over time (for example, old tax return information might have more limited use to lending algorithms but be essential for determining correct tax basis), and perhaps most powerfully, that "the value and sensitivity of one piece of personal information will change depending on the other pieces of data with which it can be combined."[128]

2. Actors

Data can also be categorized based on who uses and collects it. *Governments* may collect and use data in the context of performing various functions, from regulating markets to taxation to administering welfare benefits to policing to national defense. Governments may analyze information already in its possession, such as census, taxpayer, or immigration data, or may require that data be generated or turned over by the data subject or by third parties. For example, agencies may request that companies like Facebook or Google turn over user information, or may impose third-party reporting obligations to collect taxes.[129] While governments already exercise these powers, their scope may multiply in the age of ubiquitous data. Specifically, the ease with which governments can access data transforms what may once have been merely legal capacity into a realistic ability to regularly incorporate data into agency operations.

To take another example, data analytics is transforming the audit function of the IRS, just as it transformed the lending business. Although the IRS has long-relied on data-driven methods for identifying audit targets (such as the famous DIF — Discriminate Inventory Function—System for determining audits that originated in the 1960s), new data technologies are allowing the IRS to move its use of data to a new level.[130] Signaling its commitment to building its data-based capacities, the IRS formed the Research, Applied Analytics, and Statistics Division in November 2016.

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[128] Acquisti, supra note 4, at 5.

[129] *See* sources cited *supra* notes 108 and 117. 26 U.S.C. § 6041 (collection of tax information at sources). A new type of required tax reporting, the country-by-country (CbC) reporting system, is underway globally and has generated significant concern about the nature and volume of data being organized and shared with governments about business activity. A product of the OECD's Base Erosion and Profit Shifting Project, CbC reporting has been adopted by 84 countries and requires multinationals to provided data on eight categories of information for each country in which it operates. OECD, Final Report Action 13 (2015); see also http://www.oecd.org/tax/beps/beps-actions/action13/. There are 82 signatories to the CbC multilateral agreement as of August 2019. http://www.oecd.org/tax/beps/CbC-MCAA-Signatories.pdf

[130] Carina Federico & David Blair, *Automation and Data Analytics to Drive LB&I Audit Selection*, Daily Tax Report (June 5, 2019).

Commercial actors, too, are significant creators and consumers of data. Business can condition access to goods, services, or employment on willingness to turn over data, can obscure the amount and type of data being collected and the uses to which it will be put, or can obtain data from other sources, legally or illegally. Businesses also possess the financial incentive to mine, process, and analyze existing data in innovative and unanticipated ways, as revealed by Lenddo's use of untraditional financial indicators in its lending algorithm.[131] Some businesses might have an advantage over governments in acquiring and working with evolving types and quantities of data. Moreover, some businesses operating outside of the United States may face less regulation but possess comparable or greater access to data. If such businesses have commercial, political or social impacts on the U.S., their greater data access paired with less regulation might prove problematic.

Finally, *individuals* also have increasing ability to access and analyze data concerning both themselves and others. For example, algorithmic technologies are increasingly able to provide real-time feedback to individuals in areas ranging from job performance to how well one drives.[132] In addition, thanks to digital technologies, the internet, and social media, individuals can easily disseminate information—both contemporary and historic—about others. For example, we have recently observed the rise of "internet vigilantism," online reviews, social media shaming, and the use of the "crowd" on social media platforms to find and sanction "bad" actors.[133] In contrast to governments and businesses, however, individuals acting in a personal capacity have limited ability to require the provision or maintenance of data. However, once they do acquire data, they may be less constrained in using it and may operate more erratically.

As is the case with topical categories, the ways in which governments, commercial actors, and private individuals collaborate with each other to share data or compete over control and use of data is an area of growing ethical and regulatory concern.

3. Method of Collection

Data may also be analyzed based on how it is collected. Collection may be direct: For example, a business may ask individuals to provide data

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[131] *See* Bary, *supra* note 39.

[132] Kevin Roose, *A Machine May Note Take Your Job, But One Could Become Your Boss*, NY Times (June 23, 2019), https://www.nytimes.com/2019/06/23/technology/artificial-intelligence-ai-workplace.html

[133] *See, e.g.*, Jessica A. Clarke, *The Rules of #MeToo*, U. Chi. L. Forum (forthcoming 2019), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3363875; Audrey Jia Jia Li, Who's Afraid of China's Internet Vigilantes (May 14, 2019), https://www.nytimes.com/2019/05/14/opinion/china-privacy.html.

in order to buy goods or receive services. Employers may demand data from employees.[134] The government may request data by subpoena or by require it by law,[135] with such obligations either being imposed directly on the data subject or on third-parties.[136] Governments may also obtain data through surveillance and monitoring. Market power and the power of governments as sole providers of certain goods and services often make acquiescence to these requests close to inevitable.

Data can also be requested by softer, less direct means. For example, businesses "request" data by linking it to discounts or other benefits. Websites use cookies—files that hold data that are stored on the user's computer, which may be accessed by the website's server or client to deliver content to the user.[137] Cookies can also be used to target advertising to users. While use of cookies is now usually disclosed, options to decline are limited.

Even when individuals do not actively post or turn over data, extraction of data is increasingly inevitable. "Big data" technologies mean that inferences can be made about us based on what other people around us post. Such inferences can be generated by computer algorithms and network analyses.[138] For example, Facebook can garner information about you even if you never post a status update online or are not even a user, by using information about you that is distilled from your friends.[139] This ability to lose privacy and control over one's data through our social links, which has been characterized as a function of "privacy dependencies,"[140] which may complicate efforts to control or systemize rights over data and data access.

Finally, data can be gathered by illegal means, such as hacking and leaking. Data that may have been legitimately collected may in this way become subject to illegitimate uses.

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[134] See, e.g., Yeginsu, supra note 120.

[135] See sources cited supra note 129.

[136] Id. See also, e.g., Foreign Account Tax Compliance Act, Pub. L. No. 111-147, 124 Stat. 71, 97 (2010) (codified as amended at I.R.C. §§ 1471–1474 (2012)) (bank account tax reporting regime that imposes reporting obligations on both taxpayers and banks).

[137] Jon Penland, Browser Cookies: What are They and Why Should You Care? (Sept. 7, 2019), https://www.whoishostingthis.com/resources/cookies-guide/.

[138] See Zeynep Tufekci, Think You're Discreet Online? Think Again, NY Times (Apr. 21, 2019), https://www.nytimes.com/2019/04/21/opinion/computational-inference.html.

[139] Id.

[140] Solon Barocas & Karen Levy, *Privacy Dependencies*, Wash. L. Rev. (forthcoming) (articulating a vision of the way in which "our privacy depends on the decisions and disclosure of other people") available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3447384. See also Deanna Paul & Susan Svrluga, A Harvard freshman says he was denied entry to the U.S. over social media posts made by his friends, Wash. Post (Aug, 27, 2019), https://www.washingtonpost.com/education/2019/08/27/harvard-freshman-says-he-was-denied-entry-us-over-social-media-posts-made-by-his-friends/?noredirect=on.

4. Uses

We can also think about data in terms of usage. Here, too, the categories may overlap, but identifying them illuminates the overlapping and competing interests that drive today's data landscape.

Data is often used to identify good policy strategies and flag bad ones. This can take place at a broad policy level or an individual level. As an example of broad policy, large population data sets are used to study public health, household financial trends, shifts in public opinion, or support for political parties or candidates. This can help guide public policy and warn individuals about public health and other risks. At an individual level, data can help improve behavior or performance. For example, financial analysis programs can help design investment and saving strategies. Health trackers can help one make better food and exercise decisions. These tools can also warn us when we are falling short of particular goals or benchmarks. Similarly, cars can now provide a mix of "best practices" guidance (including when to pull over and rest) along with warnings about problematic conduct (including notifying when reaction times are slowing).[141]

These uses of data to drive better decision making suggests that ubiquitous data holds many positives and can improve humans, systems, devices, and policies on measures that society values (e.g., health, safety). They therefore provide compelling arguments that data use and analysis should be supported by the legal system, and perhaps prioritized over other considerations such as privacy.[142] However, these data uses may also hold legal and regulatory implications. In a world in which humans increasingly have the information necessary to avoid bad decisions ex ante, certain failures may eventually be judged more harshly ex post.

Relatedly, data can be used to *streamline processes and make them more efficient*. For example, websites that remember your last order or your credit card number can help you quickly order a replacement or refill, locate previously purchased items, and complete new transactions. Individualized and population/trend data paired with increased technological capabilities can help businesses more accurately target, track, and advertise to consumers.[143] Data can also help employers improve workforce efficiency by monitoring

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[141] *See, e.g.*, Christina Rogers, *What Your Car Knows About You*, WSJ (Aug, 18, 2018), https://www.wsj.com/articles/what-your-car-knows-about-you-1534564861.

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[143] Stuart A. Thompson, *These Ads Think They Know You*, NY Times (Apr. 30, 2019), https://www.nytimes.com/interactive/2019/04/30/opinion/privacy-targeted-advertising.html; Kwet, *supra* note 103.

employee behaviors and performance.[144]

Data that is public, semi-public, or shareable can broadcast intentions, behaviors, and strategies to others, and this gives rise to use by such others. Thus, such data can be used for *criminal and civil law enforcement*. Social media posts, FitBit data, and information collected for other government purposes can help tax, immigration, and other authorities catch law violators.[145] For example, a dominant international tax trend in the past decade has been the shift towards transparency, disclosure, and exchange of tax information. Individual and multinational taxpayers must provide increasingly detailed information to tax authorities, and tax authorities then exchange this information with each other.[146] This allows authorities to make more targeted audit and investigation decisions. Data can also be used by government agencies for *broader regulation*, including determining eligibility for welfare benefits or favorable classification.

With respect to the private sector, data can also *help businesses target customers or gain insight into competitors*. So, for example, the same financial information of a multinational enterprise that has been disclosed and exchanged under the recent tax transparency initiatives may give business competitors insight into the practices and strategies of competitors.[147] Data gathered by smartphones and cars allows insurance companies, lenders, and others to observe our behaviors, market products, or deny coverage. In summary, ubiquitous data makes conduct and actions—both past and present and both good and bad—available not only to data subjects but also to others. This has the potential to dramatically affect law's fall-short spaces.

Data is also being used to *manipulate behavior and sow misinformation*. In the political sphere, concerns have been raised about foreign powers using social media platforms to manipulate attitudes and preferences of U.S. voters.[148] In the business sphere, data about consumers can be used to actively influence consumer attitudes and shift preferences. Data about how humans process and misprocess information can be used to target advertisements

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[144] See Roose, supra note 132.

[145] Justin Rohrlich, The IRS Wants to Use Social Media to Catch Tax Cheats, Quartz (Dec. 26, 2018), https://qz.com/1507962/the-irs-wants-to-use-facebook-and-instagram-to-catch-tax-evaders/.

[146] Examples including FATCA reporting by taxpayers regarding their own accounts, beneficial ownership reporting, and multinational businesses reporting their tax, financial, and business data in all countries in which they operate (BEPS country by country reporting requirements).

[147] Bruce Zagaris, Data Analytics Show the Way to Progress in International Tax Enforcement, 95 Tax Notes Int'l 623 (Aug, 12, 2019). Among the current active debates is whether and what pieces of tax data should be made public (as opposed to just available to government agencies).

[148] Trautman, supra note 123.

influence behavior.

Another use of data is to *build and enhance social connections* among users. This use is enjoyed by individuals but gives rise to activity and analysis by the social media platforms themselves. Today's platforms provide an integrated user experience, which includes activity updates, news stories and events of interests, access to photos, videos, and information posted by others, and direct connections to them. All these functions require platforms identify and predict what information would be of interest to users, a determination that turns on collecting and analyzing data and tracking usage patterns to build a picture of the user's beliefs, preferences, and habits.

Data is also increasingly being used to *train machines*, so-called "machine learning." Computers can be fed large quantities of training data—selected via mathematical models—in order to learn to perform tasks.[149] This enables computers to learn automatically without human intervention or instruction, and to perform tasks such as email spam filtering, image recognition, targeted advertising, and medical diagnosis.[150] Here, algorithms play a critical role. For example, a smart car not only collects data about speed, time, and weather conditions; it must also determine when the individual data bits are significant and what reaction should be prescribed. Effectively, the car uses an algorithm to determine "best practices" given the conditions, and to determine the degree to which the driver has departed from them. There are many machine learning variations; for example, it can be supervised or unsupervised.[151] For our purposes, the key point is that data is no longer being used and analyzed only by humans. With machines involved, the capacity to detect and prove criminal conduct as well as the ability to *predict* who will be the next criminal or tortfeasor, are enhanced.

Machine learning has the capacity to change law as well: For example, the computational law movement asks, as one of its organizing questions, whether artificial intelligence and machines can replace judges in decision making, envisioning a future in which human judges are no longer necessary, or the "legal singularity" (in which law becomes increasingly perfectly specified) is reached.[152] More generally, the rapid rise in algorithm use across

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[149] See Alarie, Niblett & Yoon, Regulation by Machine (working paper, Dec. 2, 2016), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2878950; Alarie, Niblett & Yoon, Using Machine Learning to Predict Outcomes in Tax Law (working paper, Oct. 26, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2855977.

[150] Harry Surden, Machine Learning and Law, 89 Wash. L. Rev. 87 (2014).

[151] Devin Soni, Supervised vs. Unsupervised Learning (Mar. 22, 2018), https://towardsdatascience.com/supervised-vs-unsupervised-learning-14f68e32ea8d.

[152] Benjamin Alarie, The Path of the Law: Toward Legal Singularity (working paper, Apr. 21, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2767835; Michael Livermore, Rule by Rules, forthcoming, Computational Legal Studies: The Promise and Challenge of Data-Driven Legal Research (Ryan Whalen, ed.), available at

many fields, in both the public and private sectors, raised questions about the limits and risks of algorithmic decisionmaking.[153] Although still in its early stages, the literature on regulation on algorithms will become ever more crucial as direct human decisionmaking decreases and algorithmic decisionmaking increases.

Finally, it is essential to reiterate that while one set of uses may drive the collection and analysis of data, *secondary uses* may emerge, and the risks of such secondary uses may be just as or more powerful and potentially more widespread.[154] This point is reflected in portrayals of the lifecycle of data — with inclusion of a final "reuse" or "dissemination" step.[155] As recognized by the information economics literature, data's nonrival character—when combined with digitization and the recognition that the value of data varies by user and based on what other data it can be combined with—renders the issues of secondary data uses far more than a passing notion.[156] The potential for secondary use, combined with law's reticence in proscribing such uses, transforms widely available data into truly ubiquitous data.

B. Data's Potential Impacts on Fall-Short Spaces

Part II.A surveyed the various facets of data's ubiquity. Given the wide range of potential uses and sources of value, it is not surprising that the national conversation about data has pointed to its benefits (such as better healthcare and national security)[157] but also its downsides (such as bias, compromised privacy, and loss of intellectual thriving).[158]

We now narrow the focus to make some predictions regarding how data will likely affect the shape and functioning of fall-short spaces. As was the case with Part II.A's more generalized discussion, these impacts also hold upsides and downsides.

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https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3387701.

[153] *See, e.g.*, Kroll, *supra* note 3.

[154] Kristen E. Martin, *Privacy Governance for Institutional Trust* (working paper, June 12, 2019), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3394979 (noting how secondary use decisions are made without reference to original consumer); *see also* sources cited *supra* note 108.

[155] See, e.g., Wing, supra note 97.

[156] In addition, electronically stored data remains susceptible to theft, hacking, and nefarious uses, as the constant news stream reminds us.

[157] See, e.g., James O'Neill, How Facial Recognition Makes You Safer, NY Times (June 9, 2019, https://www.nytimes.com/2019/06/09/opinion/facial-recognition-police-new-york-city.htmll Gerstell, supra note 113.

[158] See, e.g., Richards, supra note 3; Harmon, supra note 11.

1. Shrinking Fall-Short Spaces

Most obviously, data makes human missteps more detectable, traceable, and memorable, and more subject to monitoring. This puts direct pressure on fall-short spaces, particularly those that result from information imperfections.[159]

The point may seem obvious, but it is worth breaking down the mechanisms and incentives through which data has this effect. First, information of all kinds is being digitized, which is critical to its storage and transmission. Digitization means greater capacity to share, transfer, and steal information. Second, basic information economics suggests that data is relevant and usable by multiple different players for different reasons.[160] Thus, it is no surprise that in light of the available technology, various actors are grabbing huge amounts of data, much of which is tangential to their own specific interests, on the theory that such data can be resold and used by others. Third, data can be integrated into new artificial intelligence and algorithmic systems to generate predictions and insights. The ability of intelligent machines and algorithmic systems to quickly process data, generate predictions/insights, and mete out consequences means that consequences for actions, inactions, or even having certain personal characteristics may descend more swiftly.[161] Fourth, law often permits such sharing, or at least is powerless to stop it.[162] The end result is that information about imperfect behaviors are more likely to be detected and processed and more likely to generate consequences.

Some real-world examples may add texture. Social media sites contain vastness quantities of digital information. This allows authorities to use this digitized and transferable information to engage in law enforcement, as recent examples from the tax and immigration worlds attest.[163] Social media aside, there are other examples: A Washington Post story recently described how ICE is using facial recognition technology to search state driver's license photos for undocumented immigrants who have been issued state driver licenses.[164] Digitized and searchable health and financial records can be used

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[159] It may also put indirect pressure on other types of fall-short spaces, for example, by casting sunshine on fall-short spaces that are politically driven, or that come from mercy impulses, by making such non-enforcement decisions more visible. *See supra* Part II.B.3. But note that weird or out-of-date laws are unlikely to become more enforced after data.

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[163] *See* Rohrlich, *supra* note 145 (IRS monitoring of social media sites to detect non-compliance); Paul & Svrluga, *supra* note 140 (immigration enforcement using social media information).

[164] Drew Harwell, FBI, ICE Find State Driver's License Photos are a Gold Mine for

to prove false claims or inconsistent statements to insurers or lenders.[165] Mobile phone location technologies allow law enforcement use locational and movement information to monitor and sanction.[166] Data from personal activity trackers can provide evidence necessary to convict persons of a crime.[167] The use of big data to do policing has been shown to amplify surveillance activities, lower threshholds for inclusion in enforcement databases, and draw increasing numbers of individuals into the surveillance net.[168] Here, again, a combination of digitized and transferable information—which can be used by human enforcers or fed to machine enforcers[169] and whose transfer is allowed by law—generates shrinkage of fall-short spaces, whether in the form of punishment, sanction, exclusion from benefits or protections, increased surveillance, or more stringent terms of engagement (e.g., less favorable benefits or rates).

2. Inconsistent Impacts on Fall-Short Spaces

Data will not become universally available instantly but rather through a gradual process. Some types of information will be generated more quickly than others.[170] This will lead to inconsistent impacts, especially on the kinds of fall-short spaces that stem from information imperfections.

Data will favor sophisticated actors. Fall-short spaces are likely to

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Facial Recognition Searches, Wash. Post (July 7, 2019), https://www.washingtonpost.com/technology/2019/07/07/fbi-ice-find-state-drivers-license-photos-are-gold-mine-facial-recognition-searches/.

[165] Kaustubh Deshpande, *The Power of Analytics for Insurance Fraud Detection*, LexisNexis (Apr. 2018), https://blogs.lexisnexis.com/insurance-insights/2018/04/the-power-of-analytics-for-insurance-fraud-detection/.

[166] Valentino-DeVries, *supra* note 108.

[167] *See, e.g.*, Christine Hauser, *Police Use Fitbit Data to Charge 90-Year-Old Man in Stepdaughter's Killing*, NY Time (Oct. 3, 2018) (police relied on victim's fitbit to document the rise, then slowing and ultimately stopping of victim's heartbeat at the time the accused stepfather was in her home); Christine Hauser, *In Connecticut Murder Case, a Fitbit Is a Silent Witness*, NY Times (April 27, 2017) (fitbit data contradicted husband's claim that intruders broke into their home and tied him up and shot his wife).

[168] Sarah Brayne, *Big Data Surveillance: The Case of Policing*, 82 AM. SOCIOLOGY. REV. 977 (2017) (arguing that new big data surveillance practices leads to predictive policing, widespread surveillance of "an unprecedentedly large number of people" (including those who have not previously had police contact) and merging of data systems that were previously separate (for example data collected for non criminal purposes)).

[169] *See, e.g*, Rashida Richardson et al., *Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice*, NYU L. Rev. Online (forthcoming 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3333423; Albert Meijer & Martijin Wessels, *Predictive Policing: Review of Benefits and Drawbacks*, 42 Int. J. Pub. Admin. 1031 (2019).

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contract in a way that favors sophisticated actors. Those who understand how their data is accessed, and what steps they can take to limit or hide it, may delay the contraction of fall-short spaces as applied to them. From a life cycle of data perspective,[171] here are several point in the cycle where those with more knowledge, power, resources can intervene to stop or minimize the flow of their data. Most obviously, they can intervene at the point of acquisition, but may also be better equipped to stop sharing or repurposing of their data, or may even have capacity to withdraw data from the data pool. Conversely, data trails left by less sophisticated actors may be low hanging fruit, readily available for use by enforcers. Particularly in situations (pervasive) where agencies are resource constrained, data that is low-hanging fruit risks being used immediately to sort, monitor, and sanction more efficiently. Thus, the confluence of data trails left by unsophisticated actors and resource-constrained agencies may exacerbate disparities in the contraction of fall-short spaces.

If fall-short spaces do indeed contract disproportionately for less sophisticated and powerful actors, this would be troubling, particularly to the extent that sophistication correlates with factors such as race, class, or economic status.[172] It would be one thing if it could be shown that unsophisticated actors previously enjoyed the space to fall short disproportionately, and that data is balancing things out. But there is no reason to think this is true; the reverse is probably more likely.

Data will favor institutional actors: Institutional actors (such as large corporations, platforms, and governments) may be better positioned to understand and access data than the humans who are the subjects of that data. In some cases, the concerns raised by this differential will primarily relate to privacy,[173] but there may be non-privacy impacts as well. Individuals may not fully appreciate the implications of how institutional actors collect and use their data. For example, insurance companies that offer clients discounts for installing tracking devices may collect data for a host of purposes beyond the ones clearly articulated to customers.[174] Individuals may not fully appreciate the value of the data they are surrendering, the uses to which it can be put, and the risks they are taking by allowing its collection.[175]

One reason that institutional actors may hold more advantages over

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[171] *See Supra*

[172] Mary Madden, The Devastating Consequences of Being Poor in the Digital Age, NY Times (Apr. 25, 2019), https://www.nytimes.com/2019/04/25/opinion/privacy-poverty.html.

[173] For example, the European Union's introduction of rules requiring notification to individuals that you have or are collecting their data are built significantly on concerns both of privacy and control over one's own data.

[174] Sarah Jeong, Insurers Want to Know How Many Steps You Took Today, NY Times (Apr. 10, 2019), https://www.nytimes.com/2019/04/10/opinion/insurance-ai.html.

[175] Even if such uses are disclosed, disclosure may not be sufficient.

individuals in the data age relates to eroding limitations surrounding use of technology. While government and institutional actors have long had access to data, they have confronted technological limitations, for example, the reality that much of the data was not digitized and was held in separate silos. As those limitations disappear, the advantages held by institutional actors will become compounded. Another structural reason stems from development of increasingly active data marketplaces that operate in an environment with relatively low legal constraints.[176] Institutional actors have more ability than individuals to participate in these marketplaces as buyers and sellers of data.[177]

The Actions of Institutional Actors May Compound Problems for Certain Demographics. To the extent that governments are a particularly powerful aggregator and user of data, and to the extent that governments may interact selectively and unevenly with some demographic groups, there is concern that less powerful or less sophisticated individuals[178] will be further adversely impacted. This prospect is reflected in ICE's use of facial recognition technologies to mine state drivers' license databases for undocumented immigrants detailed above. This is the first known instance of facial recognition technology use on these databases.[179] Photos of US citizens and legal residents were also scanned. But facial recognition technologies are not perfect, and their biases (including greater likelihood of misidentifying people of color) are becoming increasingly appreciated.[180] Thus, the ICE example highlights how governments may use data and technology to act against certain populations (here, undocumented immigrants), with data creating disproportionate risks for certain demographics (here, people of color).

Another example comes from the tax world. In 2010, in the wake of high profile whistleblower complaints about wealthy Americans stashing undeclared assets in offshore bank accounts, the U.S. passed the Foreign Account Tax Compliance Act (FATCA) and tightened up enforcement of the

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[177] To be sure, there are paths for individuals to join in, such as through aggregation of individual opinions (e.g., Consumer Reports or online reviews) but these opportunities are few in comparison.

[178] See discussion supra.

[179] Catie Edmonson, ICE Used Facial Recognition to Mine State Driver's License Databases, NY Times (July 7, 2019), https://www.nytimes.com/2019/07/07/us/politics/ice-drivers-licenses-facial-recognition.html

[180] Steve Lohr, Facial Recongition is Accurate, if You're a White Guy (Feb. 9, 2018), https://www.nytimes.com/2018/02/09/technology/facial-recognition-race-artificial-intelligence.html?module=inline

Natasha Singer, Amazon is Pushing a Facial Technology that a Study Says Could be Biased (Jan. 24, 2019), NY Times, https://www.nytimes.com/2019/01/24/technology/amazon-facial-technology-study.html.

longstanding FBAR (foreign bank account reporting) rules.[181] This was designed to increase the flow of financial and tax-related data to the government and to deter non-reporting and non-payment of taxes, by imposing reporting by both financial institutions as well as by individuals subject to extremely high penalties. The legislation was presumably geared towards deterring non-reporting by wealthy tax-evading Americans, but there is increasing recognition that it has created disproportionate impacts on immigrant communities, American expatriates living abroad, and those of lower net worth who have less access to legal representation.[182] While wealthy Americans have more access to economic substitutes (for example, holding assets in forms not subject to reporting, such as real estate, or domestically) and to sophisticated tax and legal advice, American expatriates and inbound immigrants, particularly those with lower net worth or less familiarity with the U.S. tax system, are vulnerable to foot faults and exposure to draconian FBAR and FATCA penalties. Here, the intersection of (1) purposeful government action, (2) increased collection and processing of data, (3) the differential ability of different demographics to extract themselves from the data-gathering web, and (4) the compounding effects of problems with our legal system (excessive tax complexity and lack of access to expertise or counsel) combine to create disparately contracting fall-short spaces for immigrants and American expatriates, both as compared to taxpayers with only domestic US assets, and more sophisticated taxpayers with offshore affairs.

Data will favor aggressive states and actors: It is not only domestic governments and institutional actors who can collect and use data. As the 2016 presidential election revealed, actors beyond a nation's borders can successfully (even illegally) gather and manipulate data. This poses privacy risks and risks to fair elections, democratic processes, and political stability. There is also a risk to fall-short spaces in other jurisdictions. If foreign actors (potentially subject to fewer constraints in their enforcement activities) can comprehensively collect data on U.S. individuals and organizations, then domestic individuals and businesses may find themselves targeted in enforcement actions abroad. Essentially, the rise of data and the contraction of fall-short spaces may allow aggressive state and institutional actors to weaponize their legal systems against subjects from other countries.

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[181] See 31 U.S.C. § 5314 (2012); 31 C.F.R. § 1010.350 ("Reports of foreign financial accounts"); Foreign Account Tax Compliance Act, Pub. L. No. 111-147, 124 Stat. 71, 97 (2010) (codified as amended at I.R.C. §§ 1471–1474 (2012)).

[182] *See, e.g.*, 1 Nat'l Taxpayer Advocate, 2014 Report to Congress 79-93 (2014) (criticizing IRS Offshore Voluntary Disclosure Program penalties as being applied regressively); Nat'l Taxpayer Advocate, 2018 Legislative Recommendations to Congress 400-402 (citing example of FBAR penalties raising equity concerns).

There is also the risk that foreign actors could strategically use data they have collected to force prosecutions or enforcement actions in the United States. For example, a foreign actor could acquire data (legally or illegally), mine it to develop a "case" against US individuals or businesses, and then advocate for enforcement (for example, by using social media or via political mechanisms). Even if the case has merit, the potential use of data to selectively pressure U.S. authorities into action should raise concerns. Notably, there is no guarantee that the data evidence being presented is accurate. As past information leaks have demonstrated,[183] it could include significant false information.[184] This can be fact-checked but only after significant disruption, loss of reputation, and expenditure of resources.

Structurally speaking, the power of aggressive foreign actors stems from the difficulty of containing data geographically within the borders of one country or region. States have attempted to do so—for example, the European Union has engaged in continual efforts to control data that is accessible both in and outside the EU—but it is unclear how successful these efforts will be.[185]

3. Exposing Enforcement Inequities, and the Limits of Sunshine

As outlined in Part I.B, some fall-short spaces stem from deliberate government non-enforcement decisions, which may be motivated by politics, while others occur due to resource constraints, which may hold both deliberate and non-deliberate elements. Data can cast sunshine on such nonenforcement decisions. For example, the 2010 enactment of FATCA reviewed above[186] as well as similar tax information sharing and transparency initiatives in other countries, were in part motivated by whistleblower complaints and data leaks[187] These leaks allowed investigative journalists to expose cases in which insiders and sophisticated or politically connected taxpayers were not being held accountable for their tax misdeeds by

[183] Oei & Ring, *supra* note 120.

[184] These risks are not limited to foreign governments and other foreign quasi-national actors. But such actors would likely have the resources to take such steps more quickly, effectively, and pervasively than individuals. However, the easier it becomes for a single sophisticated individual to engage in manipulations of data sources and public messaging, the more complicated it may become to defend against these actions.

[185] https://www.courthousenews.com/wp-content/uploads/2019/10/facebook-ecj.pdf (ECJ ruling that countries can force Facebook to take down posts not only in their own country but abroad).

[186] *See supra* note 181 and accompanying text.

[187] Oei & Ring, *supra* note 120 at 537; *see also* Shu-Yi Oei, *The Offshore Tax Enforcement Dragnet*, 67 Emory L.J. 655 (2018).

regulatory bodies.[188] The publicity effectively forced the U.S. and other countries to take action.

This increasing visibility of situations in which laws are not being complied with and enforced may have the effect of increasing pressure to justify enforcement choices.[189] However, as discussed below, there is reason to think that increased sunshine may not be enough to combat problematic choices, such as inconsistent contraction across populations.[190] While sunshine is powerful, the ability to use data is likely to advance at a pace that exceeds the ability to oversee and monitor enforcement practices. Sunshine may subject data users and law enforcement to scrutiny, but there will inevitably be transition phases where data users will have a first-mover advantage prior to their use being monitored or investigated. In these transition phases, the ability to oversee enforcement practices through increased data may not yet have emerged. Moreover, actual action that leads to disparate impacts has more concrete effects than sunshine on inconsistent practices: Sunshine must give rise to outrage that then triggers action, whereas data-driven enforcement can be done more directly. Thus, increased sunshine on data's users is unlikely to be as salient as the data and information itself.

4. New Versions of Targeted Enforcement

Increasing access to data may generate new methods of targeted enforcement and greater opportunities to do it. For example, a new version of targeted enforcement that could emerge is targeting done by machine. To the extent that machine-learning algorithms that monitor, shape, or predict behavior are written using data inputs, human biases may shape those algorithms in ways that are biased towards or against certain populations.[191] Thus, as data is fed to machines, inconsistent impacts may persist and disseminate. The end result of these biases and disparities will be targeting. New ways of targeting that are created due to data may be particularly problematic in situations (common) where agencies are resource constrained. The combination of under-resourced agencies and low-cost ways to use data

[188] Oei & Ring, *supra* note 120, at 559-61 (detailing consequences for various politicians). For example, the International Consortium of Investigative Journalists has helped exposed various incidents of offshore tax evasion and avoidance by virtue of caches of leaked data. *See* Int'l Consortium of Investigative Journalists, https://www.icij.org/.

[189] As noted, however, not all revelations of non-enforcement or uneven enforcement will result in more enforcement; outdated laws that are seldom enforced will probably not be more enforced. However, there may be privacy reasons why data may be troubling nonetheless.

[190] *See infra* Part II.B.5.

[191] *See supra*.

to target enforcement may lead to unjust outcomes.

Importantly, even if enforcement is not undertaken, the possession of data and the ability to share and use it will change power dynamics and relationships between various actors in society. For example, even if the government does not use data in its possession, the fact that it possesses data at all may serve as a bargaining chip over the behaviors of others. This implicates dynamics among the governed, altering trust relationships, power dynamics, and social and economic interactions.

5. Changing and Directing Individual Conduct

Increasingly available data also gives humans themselves more information about the appropriateness and consequences of their actions. From cars that monitor driver reaction times[192] to keychain breathalyzers to health and fitness trackers to financial monitoring apps, there are diverse ways to direct and evaluate human conduct in real time and suggest corrective action. This has prompted some scholars to suggest that the era of personalized law, where humans can be regulated via microdirectives, is upon us.[193]

The development of these capabilities holds important consequences. First, it is likely that the impacts of such technologies will vary based on factors like age or technological sophistication; some will not be adept at interpreting data, or acting on it, so it is highly unlikely that all humans will suddenly start to behave perfectly. Second, the availability of more information may actually cause some to hide their bad behaviors better.

Furthermore, if a person persists in behaving badly despite data and apps telling them not to, the act of continuing to fall short in the face of data may imbue the act with a flavor of deliberate bad intent. This may be used to justify harsher ex post consequences. For example, if I persist in eating badly and failing to exercise even after health trackers warn me of my expanding waistline and increasing cholesterol levels, this may be used by insurers to deny coverage or raise rates, or by politicians to justify denial of public benefits. One possible outcome is that we may see fewer people fall short (or more are better at hiding it), but for those that do fall short, the consequences might be judged more harshly under the theory that they should have known better. Here too, we may see disparities, uneven impacts, and disproportionate consequences.

6. Calling Law's Design into Question

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[192] Rogers, *supra* note 141.

[193] *See* sources cited *supra* note 14.

Finally, ubiquitous data has the potential to call the design and legitimacy of existing laws into question. Imagine a city that requires resident dog owners to register their dogs for a $50 fee, and whose law provides that an owner of an unregistered dog will be fined $5,000 for each failure to register. Thus, the monetary fine is quite severe in relation to the registration fee. Assuming it is difficult to get information about each dog within the city limits, the point of the hefty fine might be to deter non-registration: The hope is that the rational dog owner will weigh the probability of detection (low) against the magnitude of the fine (high) and decide to register the dog.[194]

Now assume that technology develops that can easily detect the location of every dog in the city, and can beam that information to the agency in charge of dog registration. The agency now can spit out tickets fining owners of unregistered dogs $5,000 on a mass scale. If this were to happen, there would likely be objections on grounds that the law is overly harsh. The increased availability of information about unregistered dogs may transform an underenforced law that may have made sense in a world of imperfect information into one that is too draconian now that full enforcement is possible.[195]

To take another example, data may also call into question the use of ex post remedies such as bankruptcy as a way to manage financial distress. Bankruptcy law only enters the picture after a debtor—who has perhaps experienced consumption shocks or made poor financial decisions—finds herself having to ask for bankruptcy discharge after the fact. In a world of imperfect information, ex post remedies like bankruptcy or bailout may seem like the best and only way to deal with financial misfortune: There is no good way to detect bad decisions on the front end, so the legal solution is to discharge the debts on the back end. As data becomes ubiquitous, lenders and the government now have the technological capacity to collect, observe and evaluate individual financial choices in real time. In such a world, it may be more optimal to employ *ex ante* measures to ward off financial distress before it occurs. For example, in a more transparent and observable world, it may be more feasible to put in place restrictions on borrowing, target income supplements, or provide financial counseling to those at risk of financial distress, in order to fend off bankruptcy altogether.

The above are only a couple of examples of how data may change the optimal design of law.[196] The more generalized observation is that increased

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[194] *See* generally Becker, *supra* note 10.

[195] *Cf*. Price, Politics of Nonenforcement, at 1146.

[196] *Cf*. Brian Galle & Murat Mungan, Predictable Punishments, working paper (Jul. 19, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3422500 (suggesting that in designing punishment, regulators should rely on methods that stay accurate even when information is limited).

data may identify needed adjustments to rule design, including different remedies, penalties, and regulatory approaches. As such redesign happens, the underlying relationship between humans, governments, and the law will inevitably be transformed.

III. MANAGING FALL-SHORT SPACES IN THE DATA AGE

Part II explored the likely impacts of data and information on fall-short spaces, raising concerns about the potentially uneven contraction of fall-short spaces and the uneven outcomes that may accompany targeted enforcement. In particular, we noted the possibility that unsophisticated actors who are less able to safeguard their privacy will become low hanging fruit for enforcement and sanction, that institutional and more aggressive users of data may come out ahead, and that sunshine will likely not be sufficient to fully alleviate the disparate impacts of shrinking fall-short spaces. We also discussed how ubiquitous data has the potential to change the way humans behave and may raise questions about the design of existing legal rules.

Part III now examines whether and in what circumstances fall-short spaces are defensible. Part III.A argues that while elimination of fall-short spaces are a positive development in some legal areas, there are good arguments for preserving them in other circumstances.[197] However, given the non-rivalry of data and the difficulty of siloing it for discrete uses, formulating policy that distinguishes good from bad fall-short spaces may prove difficult to impossible. If this is so, then it is possible we may face a choice between policies that over-preserve fall-short space and policies that over-eliminate them. We argue that on balance, there are important factors that justify over-preserving fall-short spaces, if a choice has to be made.

Part III.B then explores the range of policy tools that may be employed to manage fall-short spaces in the data age, focusing in particular on how to ensure unevenly contracting fall-short spaces do not have unfair impacts.

A. A Partial Defense of Law's Fall-Short Spaces

Are fall-short spaces justifiable? Answering this question proves complicated. As Part I.B discussed, fall-short spaces arise for several different reasons, some related to informational and other resource constraints and others related to politics, exercise of mercy, or concerns about the nature of the underlying law. The question of whether fall-short spaces

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

are justifiable will depend on the kind of space in question. But even the most seemingly justifiable fall-short space has downsides. While legal and political process imperfections, imperfections in law's design, and human imperfections may suggest a need for some flexibility in imposing legal consequences, flexibility, nonenforcement, or discretion may compromise rule of law values and allow biases, uneven enforcement, and discriminatory mercy to creep in.[198] A defense of even seemingly meritorious fall-short spaces would need to explain why the benefits of flexibility outweigh the costs.

Perhaps more fundamentally, we also need to justify why any discretion or flexibility should be introduced by way of informal fall-short spaces, rather than through formal features such as attenuated penalty ranges, provisions allowing discretion, or equitable standards. As discussed in Part I.A, law is often designed to incorporate these types of formal features.[199] The question, then, is why informal mechanisms should exist alongside, or be deployed instead of, these formally designed equitable spaces.

1. Imperfect Legal and Political Processes

We start with a relatively easy case: situations in which the underlying legal and political backdrop against which law is enacted is problematic, such as corrupt legal regimes, regimes that impose laws without good process, or regimes that are characterized by extreme bias, human rights violations, and targeting of political or personal enemies or unpopular minorities. Here, there might be merits to preserving fall-short spaces, so as to prevent unjust enforcement of extremely problematic laws. Moreover, this might also be a scenario in which we do not trust the formal law itself to have well-designed equitable features. In these cases, the most valuable location of flexibility is likely found in informal fall-short spaces, where the government's inability to have full information serves as a barrier to targeting and enforcement. Conversely, contraction of fall-short spaces—as governments acquire more data, more ability to monitor and close information gaps, and more ability to enforce and target opponents, enemies or minorities—could be viewed as problematic. The threat of fall-short spaces to already weak rule of law values may well be outweighed by the benefit of limiting aggressive and biased enforcement of pervasively problematic laws.

The difficulty, of course, is bounding these extreme cases. What about regimes that fall short of corruption and outright abuse but that also have weaker commitments to democratic representation and fair elections? For example, in countries with only one dominant political party, or where

[198] *See supra* Part I.B.
[199] *See supra* Part I.A.

regimes are more authoritarian, or where law is used not only for protection of the governed or the allocation of economic and social rights but also for purposes of social engineering or control, are fall-short spaces justifiable? We do not attempt to draw a clear line here but merely reiterate the general point that in jurisdictions characterized by weak rule of law norms and limited democratic commitments, fall-short spaces created by lack of information provide a potentially valuable protective buffer. Their shrinkage as data becomes ubiquitous may present challenges for political targets or unpopular groups.

2. Fall-short Spaces in "Adequate" Legal Systems

What about societies that are democracies, albeit imperfect ones? Imagine a society that has decent enough laws and reasonable enough penalties most of the time, but where there are some flaws in the underlying political system and in the laws that are enacted. For example, one might think about the United States: a democracy that faces some challenges to democratic values, that has some level of gerrymandering and exclusion of citizens from voter rolls, and that generally passes laws that are plausibly reasonable but sometimes passes laws that are quite problematic (e.g. slave ownership laws, laws prohibiting persons of Chinese origin from immigrating, laws prohibiting inter-racial marriage, laws criminalizing homosexual conduct)[200] and even more often passes laws that are at least debatable and contested (e.g., laws criminalizing marijuana possession and adultery),[201] or whose penalty applications raise equity concerns (e.g., FATCA, drug sentencing).[202] Moreover, imagine that in such a democracy, there is general commitment to the rule of law but nevertheless we do observe indisputable instances of intentional or unintentional biases in enforcement, along with misaligned legislature, judiciary, and agency incentives. In this sort of world, can informal fall-short spaces be justifiable?

In these basically adequate legal systems, our assessment of fall-short spaces— and the role that data plays, both as driver and as solution—depends on the severity of the underlying offense, the adequacy of formal equitable

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[200] *See, e.g.*, Chinese Exclusion Act of 1882, Pub. L. No. 47-126, 22 Stat. 58; Fugitive Slave Act of 1850, 9 Stat. 462 (repealed June 28, 1864, 13 Stat. 200).

[201] *See* sources cited *supra* notes 16–19.

[202] *See, e.g.*, 1 Nat'l Taxpayer Advocate, 2014 Report to Congress, *supra* note 184; Nat'l Taxpayer Advocate, 2018 Legislative Recommendations to Congress, *supra* note 184; Fair Sentencing Act of 2010 Pub. L. No. 111-220, 124 Stat. 2372 (to be codified as amended in scattered sections of 21 U.S.C.) (eliminating mandatory 5-year sentence for crack cocaine, in order to reduce disparity with penalties for powder cocaine); Kyle, Graham, *Sorry Seems to be the Hardest Word: The Fair Sentencing Act of 2010, Crack, and Methamphetamine,* 45 U. Rich. L. Rev. 765 (2010).

mechanisms in the law, and the reason the space exists in the first place.

a. Severity of the Offense

Starting with the most obvious point: Some violations— such as murder, rape, or genocide—cause such serious harms to individuals and society that there may be widespread agreement that transgressions should be comprehensively detected and strongly punished. Absent egregious enforcement injustices, many would argue that imperfect enforcement is a bad outcome with respect to these offenses, and few would argue that fall short-spaces serve a compelling function with respect to these types of crimes (though some might, in fact, take this position on privacy grounds).[203] The desire to punish serious crimes problematizes the case for universal fall-short spaces, though as noted, the pursuit of privacy values may temper society's pursuit of 100% enforcement.[204] The concern is that the desire to punish serious crimes may drive ever more comprehensive data collection, and the nonrivalrous nature of data will lead it to be used for a far greater range of purposes than just those crimes.[205]

b. Interaction with Formal Equitable Features

Second, to the extent that laws passed by the legislature are in the ballpark of reasonable and contain formal mechanisms that provide flexibility and account for the reality and complexity of human failures (for example, pardons, parole, graduated penalty ranges or different degrees of the offense), it is harder to justify having informal fall-short spaces on top of such formal mechanisms. In contrast to formally integrated equitable and discretionary features, informal fall-short spaces fail to provide predictable, universal benefits to all, and their availability may be random and may lack accountability and oversight. Moreover, if formal equitable features exist, then it is harder to see why informal spaces are necessary. We further explore the link between formal and informal fall-short spaces in our discussions below.

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[203] [But see literature and cases on whether police conduct should result in overturned convictions where actor is clearly guilty]

[204] *See* sources cited *supra* note 3.

[205] *See generally*, sources *supra* notes 108; Martin, *supra* note 154 (discussing how data used for one purpose gets appropriated and used for another). *See also* Amy Dockser Marcus, *Customers Handed Over Their DNA. The Company Let the FBI Take a Look*, WSJ (Aug. 22, 2019), https://www.wsj.com/articles/customers-handed-over-their-dna-the-company-let-the-fbi-take-a-look-11566491162.

c. Reasons for the Fall-Short Space

As discussed in Part I.B, fall-short spaces arise for five basic reasons: resource constraints, information constraints, problematic laws, mercy, and political/executive enforcement policies. The first two reasons, resource and information constraints, are directly related to data.[206] As data becomes more available, easy to acquire and easy to incorporate into enforcement work, fall-short spaces that are a product of resource and information constraints will shrink. Such shrinkage reflects increased efficiency of the legal system through the reduction of enforcement costs, including information costs. Yet, even in cases where a fall-short space existed solely due to information constraints (and not because of, say, a deliberate decision to not enforce a problematic law), we might nonetheless regard a contraction due to increasing information to be problematic for two reasons. We flag them briefly here and take them up more extensively in the discussion below.[207] First, privacy. Some might argue that the merits of a highly efficient legal system in which the government has 100% transparent information about everyone carries privacy costs (or may simply be disturbing).[208] Put another way, while some might argue that it is an efficient and unmitigated welfare improvement for governments to have enough information to ensure 100% compliance with all laws in a polity, [209] there are important deontological and privacy related reasons why we might nonetheless find this problematic. Second, as discussed above, if information and hence enforcement do rise to 100%, this shift may call certain features of law's design (such as very high penalties crafted for deterrence) into question, raising fairness concerns.[210] Given the dynamic relationship between information and law's ideal design, we can by no means assume that 100% detection and enforcement is a unilateral improvement. Law itself may have to be revisited.

Turning to fall-short spaces that are a function of problematic laws,[211] both the value of these spaces and their connection to data is more

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[206] Even in the case of resource constraints on enforcement, we would anticipate that more readily available data that is easy to use, combine and integrate into enforcement will lower enforcement costs.

[207] *See infra* Part III.A.3.

[208] Richards, supra.

[209] *See, e.g.*, Allingham, M. and A. Sandmo, Income tax evasion: a theoretical analysis" J. Pub. Econ., 323 (1972); Janet McCubbin, *Optimal Tax Enforcement: A Review of the Literature and Practical Implications*, Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association, Vol. 96 (2003), pp. 16-26.

[210] *See, e.g.*, A. Mitchell Polinsky & Steven Shavell, *The Theory of Public Enforcement of Law*, in Handbook of Law and Economics, Volume 1, 403, 407-420 (2006) (Polinsky and Shavell, ed.). This was the case, for example, in the dog registration hypothetical in Part II.B.

[211] Under the heading of imperfect laws, *see* Part I.B.3.

complicated. With respect to clearly unjust or at least highly controversial laws,[212] it is unlikely that we can expect such laws to have well-attenuated, formally drafted safety valves that provide for appropriate equitable discretion. Here, fall-short spaces can serve the important function of mitigating the unjust impacts of such laws, recognizing that such mitigation is very much a second-best solution whose availability is likely uneven and lacking nuance. The existence of these spaces likely reflects deliberate nonenforcement by some actors aided by the limited availability of data. Thus, whether the space would shrink depends on how these two forces interact.

As access to data increases, the fall-short space would survive only if enforcers are able to affirmatively ignore emerging data and continue to not enforce. If such affirmative nonenforcement becomes more readily known to the public, the media, and other branches of government, we might see political and public opinion pressures arise that make non-enforcement more difficult. Similarly, decisions not to enforce out-of-step laws result from a confluence of enforcers deliberately not enforcing laws and perhaps being able to do so with the aid of ignorance resulting from limited data. A world of more data makes nonenforcement more transparent and thus potentially more of a positive choice that must be justified to the public. The pressure to justify may have upsides, but it may also carry costs.

Where mercy drives the creation of fall-short spaces, this can be a valuable way to accommodate human imperfections, but it can also be problematic because, as discussed, decisions based on mercy can allow unjustified biases to creep in. Arguably, though, the existence of a fall-short space due to an exercise of mercy is not really a data-driven decision. On the other hand, data does offer the opportunity to identify the risks created by discretion implemented through mercy. The potential for unprincipled and biased grants of mercy may be more readily identified through data and sunshine. However, it is also possible that data-created sunshine causes mercy-driven fall-short spaces to shrink in undesirable ways.

Finally, executive politics may generate fall-short spaces through high-level decisions to deliberatively not enforce particular rules. Though the subject of intense normative debate, these fall-short spaces (like those resulting from mercy) are not primarily data driven. However, like fall-short spaces due to mercy and nonenforcement of problematic laws, fall-short spaces established by executive decisions may be reshaped by data and the sunshine it brings.

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[212] *See, e.g.*, sources cited *supra* note 200.

d. Where Does This Leave Us?

As this examination reveals, in an adequate albeit imperfect legal system, some fall-short spaces may be justified but others may not. Fall-short spaces created by lack of information may be justifiable on privacy grounds or on grounds that existing law is not optimized to accommodate 100% enforcement.[213] Fall-short spaces in the case of non-enforcement of problematic laws may provide a valuable buffer. Moreover, despite their clear risks, some fall-short spaces driven by mercy or executive politics may have merit. Our discussion also showed that data is directly implicated in the existence of some fall-short spaces, but only more tangentially in others through sunshine effects and what shifts sunshine may cause.

But where does this leave us in terms of policy? The fact of the matter is that given data's ubiquity, nonrivalry, and difficult to cabin nature, it may not be feasible to target and preserve only those fall-short spaces that seem justifiable. Preserving fall-short spaces only with respect to, say, imperfect laws might be supportable in theory but difficult to execute in practice. The majority view in the information economics and data management literature suggests that once data is available to confront serious violations, it is likely that it will become available for other purposes as well, such that other enforcement and non-enforcement decisions will also be subject to broad scrutiny through sunshine.Thus, attempting to preserve only justifiable fall-short spaces by controlling data related to enforcement of these specific legal rules may be doomed to fail.

Realistically speaking, we may well be forced to choose between trying to protect fall-short spaces generally through our data policies, or not. Thus, we now examine whether there may be grounds for erring on the side of preserving fall-short spaces despite the downsides.

3. The Case for Preferring Fall-Short Spaces

If we have to choose between protecting fall_short spaces in the aggregate versus eliminating them in the aggregate, what factors would drive that choice? We present here three arguments that push in the direction of preserving fall-short spaces, despite the clear benefits of eliminating them in some contexts. These arguments do, however, invite offsetting counterarguments; they thus represent a classic "uneasy case."

a. Fall-Short Spaces as Aggregate Constraint on Government Power

[213] We discuss potential solutions to this in Part III.B.

Fall-short spaces may serve as an aggregate constraint on government power. In a generally functional democracy, it may be the case that individual laws are fair. However, some have argued that in the aggregate, there is a tendency to enact too many laws.[214] In the criminal law context, for example, a common claim is that there are so many laws that enforcing them all would be impossible.[215] In fact, some have noted that legislators have incentives to enact overbroad criminal laws and then leave it to judges and prosecutors to determine where to forbear or not prosecute.[216] Similar forces are at work with respect to compliance and regulatory systems.

The existence of too many laws creates problems for both governments and the governed. Even in a legal system developed as part of a stable and participatory democracy with individual laws that may each be individually plausible, the sheer volume of rules could make it more difficult for anyone to consistently comply with all of them, particularly rules that are not morally intuitive but regulatory in nature. For example, even if the individual penalty for failure to file a required business tax form on time does not seem unduly onerous, if there are hundreds of similar filing requirements, tax definitions and exceptions, such that few taxpayers could plausible comply with all of them, we might find that these modest penalties—alone unproblematic—become inappropriate if every single failure were assessed.

In cases of overlegislation, it might be argued that we have embraced a system in which a wide range of conduct is susceptible to sanction, but in reality, humans are sanctioned only on some percentage (call it x%) of violations. Compliance and enforcement may be random with respect to each individual act, but in the aggregate, the average human can reliably expect to bear sanctions for only x% of violations.[217] In such a system, if humans were now to be sanctioned on significantly more than x% of all violative conduct, the result would be impossibly high penalties and/or impossible compliance demands. In short, the system, realistically, is predicated on x% enforcement and is designed around this assumption. Thus, fall-short spaces in effect permit the system as designed to function. If fall-short spaces were to disappear, the system might have to be redesigned so as not to impose unduly

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[214] *See* sources cited *supra* note 60.

[215] Stuntz, *supra* note 74; Delahunty & Yoo, *supra* note 74.

[216] *Id*.

[217] We are not making an empirical claim that enforcement of all rules is distributed evenly across members of society. Studies of enforcement practices across a range of legal regimes reveal the ways in which enforcement is not uniform, and is not uniform in ways that are problematic (e.g., targeting disadvantaged groups, whether explicitly intentional or not). *See, e.g.*, Taxpayer Advocate Report *supra* note __; *see also*. Rather, our point is that we all are likely "caught" for only a fraction of our violations in a year (even if that fraction is itself not uniform for highly problematic reasons).

harsh impacts.[218]

b. Fall-Short Spaces as Aggregate Constraint on Government Incursions into Personal Spaces.

Additionally, the prospect of close to perfect enforcement through ubiquitous data also implies perfect knowledge by the government of all of your failings (or at least those with legally enforceable consequences). In an argument that links up to privacy critiques, there are risks if governments are in possession of such complete information (or substantially complete information) about members of society. Perhaps most importantly, there is the risk of an unintended and not easily articulated shift in the relationship between government and the individual and in the individual's own sense of self, separate from the government and the institutions which frame society.

Ex ante, we may find that many would trade the advantages of full enforcement of the law for continued space between government and individuals, that is, might support fall-short spaces despite the costs.[219] That commitment to a world in which the government does not know everything, however, will be tested if and when cases arise in which the public learns of shocking or heinous crimes (violent, political or otherwise) or if and when an individual becomes themselves a victim of a serious but resolved crime. In those situations we might see demands that the government use maximum resources and collect maximum data to identify the perpetrators and bring them to justice.

c. Fall-Short Spaces as a Second Space for Substantive Debate While Mitigating Impact.

We close Part III.A by coming back to the case of imperfect or problematic laws, a category that was touched on in Part I.B but is worth fleshing out. Scholars have long recognized that the process of enacting law contains numerous imperfections, pathologies, and misaligned incentives.

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[218] In another context, one of us has argued that forgiveness or non-enforcement of tax debts can serve a valuable social insurance function. See Shu-Yi Oei, Who Wins When Uncle Sam Loses? Social Insurance and the Forgiveness of Tax Debts, 46 UC Davis L. Rev. 421 (2012); Shu-Yi Oei, Getting More by Asking Less: Justifying and Reforming Tax Law's Offer in Compromise Procedure, 160 U. Pa. L. Rev. 1071 (2012).

[219] Of course not all would prioritize distance between the individual and the state over the widespread availability of data. For examples, advocates of the "information wants to be free" view of technology and data would like trade any measure of distance for the free movement of data. *See, e.g.,* R. Polk Wagner, *Information Wants to Be Free: Intellectual Property and the Mythologies of Control,* 103 Colum. L. Rev. (2003).

For example, statutes are often drafted hastily and reviewed by legislative aides rather than elected representatives.[220] In contexts such as criminal law, legislators have incentives to enact harsh and overinclusive laws in order to generate messaging benefits, leaving discretionary sentencing to prosecutors and judges.[221] Tax statutes may be poorly drafted in ways that demand revisions (technical corrections) after the fact, which are difficult to get through the legislature.[222] Legislators may feel compelled to push legislation through in the absence of sufficient information, even if it is not 100% clear ex ante whether a law is going to be a good law, or that a penalty or consequence is going to be appropriately attenuated. These imperfections and pathologies exist even short of laws that are outright horrifically unjust.

In light of these pathologies, informal fall-short spaces may offer an imperfect second space for debating and reevaluating laws. Because laws once enacted may be difficult to repeal, informal spaces in which imperfect laws are not aggressively enforced may effectively provide a second-round forum for testing out and mitigating the effects of such laws. For example, imagine that a newly enacted traffic law sets the speed limit at 30 mph and the penalty for speeding at $500, but the widely accepted local norm is that traffic moves safely at 50 mph, such that by going at 30 mph one might get rear ended. In that context, full enforcement of the new 30 mph limit (at the $500 penalty level) will result in hefty fines for everyone in town, which may be a significant financial shock.[223] Allowing local drivers the space to fall short could create a de facto opportunity to mitigate the unintended and draconian effects of the overly low speed limit, and in fact, this is arguably what we see in the real world. But such non-enforcement is at least partially

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[220] *See, e.g.*, Abbe Gluck & Lisa Bressman, *Statutory Interpretation from the Inside – An Empirical Study of Congressional Drafting, Delegation, and the Canons: Part I*, 65 Stan L. Rev. 301 (2013); Lisa Bressman & Abbe Gluck, *Statutory Interpretation from the Inside – An Empirical Study of Congressional Drafting, Delegation, and the Canons: Part II*, 66 Stan L. Rev. 725 (2014); Shu-Yi Oei & Leigh Osofsky, *Legislation and Comment: The Making of the § 199A Regulations*, Emory L. J. (forthcoming 2019).

[221] *See, e.g.*, Stuntz, *supra* note 74.

[222] For example, the speed with which the 2017 tax legislation overhaul was made public and enacted is widely viewed as contributing to provisions that created effects unintended even by the advocates of the legislative changes. That speed was at least partially a byproduct of political process realities. *See, e.g.*, Oei & Osofsky, *supra* note 220.

[223] Of course in the driving context, full enforcement might lead many drivers to reduce their speed to 30 mph at which point the flow of traffic may effectively force compliance with the speed limit among most drivers. The point here is two fold: (1) there may be a transition period to full enforcement in which many are caught out of compliance and face large penalties; and (2) in more private areas of regulation (e.g., tax) individuals will not be guided into compliance by the conduct of others as they would in a setting like driving. Whether someone else complies with specific tax rules is unknown to you and does not directly impact your own tax compliance, whereas their driving directly affects your driving decisions.

a function of data. Many roads may lack the monitoring capabilities to ticket all speeding violations all of the time. Although many vehicles have GPS systems that can map speed and location (and, by extrapolation, detect speeding violations) such information is not readily available to the police. Thus, the absence of data is an important factor creating the de facto higher (and more appropriate) speed limit. If data were to suddenly become more complete, it is conceivable that we might see fuller enforcement at the lower speed threshold.

An obvious counterargument is that allowing informal non-enforcement will create even stronger incentives for legislators to pass bad and sloppy laws, and may cause such laws, once enacted, to remain on the books longer on the theory that they are never enforced anyway. However, it is unclear that these dynamics will actually play out in the real world. Time constraints and legislative process realities already place significant pressure on legislatures to push imperfect laws through, often without reading or understanding what has been passed in any detail.[224] Moreover, it is unlikely even for laws that are very imperfect, legislative fixes will happen immediately.[225] For one thing, the law might not be one of broad application. For example, rules regarding access to the Earned Income Tax Credit or the U.S. Department of Agriculture's Supplemental Nutritional Assistance (SNAP) program by their very nature target a segment of the population that historically is not politically powerful.

Second, as discussed above,[226] we are not likely to face a world in which enforcement of laws shifts from its current levels to 100% overnight. For a host of reasons, the shrinking of fall-short spaces will likely be uneven, and likely to be tilted in favor of the more technically sophisticated or socially, politically, or economically influential. What this means is that even if a poorly designed law takes effect, and even if there is a marked spike in enforcement due to increased access to data, the result may not be immediate pressure for redrafting or repeal. If those members of society most capable of making their voices heard are not affected by the bad law, it is unlikely that effective political coalitions for repeal will form.

Finally, because of changing compositions of legislatures and the vote trading that inevitably occurs, corrections of mistakes may simply be difficult to get through. As noted, for example, tax law technical corrections of flawed legislation are notoriously hard to pass.[227] Legislators of party A may be unwilling to help party B correct legislation that party A had resisted in the

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[224] *See* sources cited *supra* note 220.
[225] *See* Osofsky, *Agency Legislative Fixes.*
[226] *See supra* Part II.B.
[227] *See, e.g.*, Oei & Osofsky, *supra* note 220.

first place, or may try to extract concessions, leading to gridlock.[228]

Whether this argument proves powerful enough to justify continued universal support of fall-short spaces in the face of growing data will depend in part on what proportion of legal rules in the system warrant a second review—and whether there are countervailing negative impacts on rule of law norms and on enforcement of serious crimes. At a minimum, though, this argument suggests that fall-short spaces may be particularly valuable (1) in situations where it is unfeasible for legislatures to refrain from passing legislation upfront, (2) in situations in which laws, once enacted, are difficult to repeal, and (3) in situations in which continuing to enforce the law until it is in fact repealed may be significantly costly or unfair to some group.

d. Fall-Short Spaces as Transition Management

Finally, fall-short spaces may serve a valuable transition-management function. As noted, many laws are designed with a deterrence feature—high penalties to discourage violations, with the expectation that enforcement will likely be imperfect as a result of resource and information constraints.[229] If new access to information leads to vastly increased enforcement of laws, we could see a situation in which high penalties are imposed on a large number of people.[230] In this context, we might conclude that the law is now inconsistent with its original intention: A high penalty meant to deter is no longer necessary or even appropriate because detection probabilities have risen, but the law remains on the book even as information becomes perfected.

In the tax law, the reinvigoration of the FBAR (Foreign Bank Account Report) rules and the introduction of new companion rules in FATCA (Foreign Account Tax Compliance Act)[231] were designed to increase the flow of financial and tax-related data to the government. Their hefty penalties sought to discourage tax evasion through stashing undeclared assets in offshore bank accounts at a time when government access to information was still limited. But things have changed. Through a combination of FATCA-

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[228] *Id*.

[229] *See* Becker, *supra* note 10; *cf.* Nuno Garoupa, *The Theory of Optimal Law Enforcement*, 11 J. Econ. Surveys 267 (2002) (discussing contribution and limitations of optimal deterrence model).

[230] This may happen first because of a transition period as individuals learn about the new enforcement levels, and second, because even with that knowledge their conduct is for a range of reasons, not rational. *See infra* Part III.B.3.a (discussing need to re-evaluate rules and the "meaning" of noncompliance in a world of ubiquitous data).

[231] *See* 31 U.S.C. § 5314 (2012); 31 C.F.R. § 1010.350 ("Reports of foreign financial accounts."); Foreign Account Tax Compliance Act, Pub. L. No. 111-147, 124 Stat. 71, 97 (2010) (codified as amended at I.R.C. §§ 1471–1474 (2012)).

mandated information exchange and reporting and other developments, governments now have significantly more information about taxpayers' foreign accounts. The heightened 2010 penalty structures are now arguably outdated from a deterrence perspective and may be disproportionately harming populations less able to avoid them.[232] In this case, the first-best preferred solution might be to revisit the penalty, but political realities may make such a legislative response impossible.

More generally, while a first best response to laws whose design is no longer appropriate in light of data would be redrafting or repeal, imperfect enforcement may be an imperfect transitional solution given the very real difficulties of repeal or correction.

4. Summary: Assessing the Case for Fall-short Spaces

This Part has sought to articulate some justifications for informal, fall-short spaces in the legal system, arguing that in most cases, the justifiability of fall-short spaces will be a function of the seriousness of the offense or behavior, the existence of formal features permitting equity and discretion, and the reason the fall-short space arose in the first place. It argued that while there are cases in which fall-short spaces are valuable and justified, data's ubiquity, its nonrival nature, and the inability of law to meaningfully constrain its transmission and movement may mean that it will be hard to implement targeted policies that safeguard only the "good" kind of fall-short spaces. We may have to choose between preserving pervasive fall-short spaces by limiting information and allowing all fall-short spaces to shrink.

Given this non-ideal choices, we presented three arguments—the interest in constraining aggregate government power, the interest in constraining aggregate government knowledge, and the importance of fall-short spaces as a second-space for debate over imperfect laws—for erring on the side of preserving fall-short spaces. These arguments all invite counterarguments, and thus represent an uneasy case.

B. Making Policy for the Ubiquitous Data Age

In terms of making policy, then, the relevant questions are (1) whether we can design solutions that preserve fall-short spaces where they are most critical, by enabling flows of information in matters for which comprehensive enforcement of the law is desirable but cabining such flows where undesirable, (2) where the first goal is not possible, whether we can constrain data collection and usage to err on the side of protecting fall-short spaces, (3)

[232] *See* sources cited *supra* note 149.

if neither of these are possible, whether we can design law and policy to minimize adverse impacts such as bias and unfairness, particularly to less sophisticated populations.

In this Part III.B, we explore solutions to these problems. We first explore solutions that rely on data silos and the architecture of information to mitigate the risks and preserve the benefits of data, as appropriate. Such an approach would control and silo data at each of its key stages — acquisition, storage, access, and use. Importantly, however, the ability to create information silos may be subject to real world constraints, including how to manage dynamics with private actors, international organizations, and foreign governments.[233]

We then discuss the possibility of imposing greater aggregate constraints on data, ultimately concluding that trends in the U.S. point in the opposite direction. Finally, assuming that data is hard to silo and to limit, we explore solutions to mitigate unfairness, such as attention to design of statutes of limitations and penalties and other reform of underlying law.

Two important preliminary notes are in order. First, the discussion below does not attempt to identify an ideal mix or level of interventions for the ubiquitous data age. Rather, our goal is simply to map a preliminary taxonomy of possible solutions to the problems and tensions that this Article has identified. Second, some of our proposals map on to reform proposals that have been proposed to manage privacy risks accompanying data. Our concerns and proposed solutions overlap with, but are not identical to those raised by privacy scholars. Our point is that in addition to constitutional and deontological concerns about privacy and its loss, the data age raises serious questions about how law is designed and then enforced against the imperfect governed. These questions run parallel to debates over privacy, but are not well recognized nor addressed by the privacy literature.

1. Data Architecture and Data Silos

As Part III.A argues, fall-short spaces differ according to their origins and their relationship to data. In the case of corrupt legal regimes, the increased availability of data would likely be undesirable. But among more democratic jurisdictions, the data story is more mixed. In some contexts, such as murder investigations, more data—and the shrinkage of fall-short spaces—would likely be welcome. In others, such as where the law in question is unjust, being applied in an unjust way (for example, to target oppressed minority groups), or where in the aggregate there is "too much law," we may prefer to preserve the fall-short space. Managing this tension would require a legal regime capable of controlling and adjusting information flows depending on

[233] *See* discussion *supra* Part II.A (discussing how data collected for one purpose inevitably becomes used for others).

context. One might argue that a well-tailored data regime would increase information for serious crimes, cabin information to dictators or those enforcing unjust laws, and increase information for sunshine on political or mercy-based enforcement decisions.

Key policy tools might include those based on a concept of silos in the architecture of data collecting and holding, including restrictions on data sharing and sales by private sector collectors and restrictions on the ability of law enforcement to request data.[234] Along these lines, Professors Jack Balkin and Johnny Zittrain have suggested an "information fiduciaries" framework for thinking about how companies like Google and Facebook should be made responsible for how they collect, use, sell, and share data.[235]

Reliance on data silos predates the age of ubiquitous data. For example, the tax system has historically exercised tight controls on access to data. Tax return data is well known for being subject to stringent access rules; a court order is required to compel the IRS to share tax return information with other U.S. law enforcement agencies for investigation and prosecution of non-tax criminal laws.[236] Similar types of restrictions could be put in place that restrict governments' ability to obtain data from private actors or that restrict how such data, if obtained, may be used. Thus, for example, more comprehensive limits on government ability to request data (e.g., security footage, phone data, car data) could be calibrated to the nature of the underlying offense. In the case of a murder investigation, the ability to request data could be fairly broad, whereas the ability to do so for a less serious violation (e.g., the purloined pumpkin) could be quite limited. To the extent that we calibrated access based on the formal level of the crime (whether by sentencing thresholds, or felony v. misdemeanor status) this process would not be unduly burdensome, but it would require critical line drawing. Much more challenging would be the line drawing necessary to determine which laws are unjust (even if a felony) and thus do not warrant increased access to data. Fall-short spaces created through actions based on mercy or the exercise

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[234] Jack Balkin, *Information Fiduciaries and the First Amendment*, 49 U.C. Davis L. Rev. 1183 (2016) (distinguishing between collection, use, disclosure, and sale of information).

[235] Id. (arguing that "many online service providers and cloud companies who collect, analyze, use, sell, and distribute personal information should be seen as information fiduciaries towards their customers and end-users"); Jack Balkin & Johnny Zittrain, A Grand Bargain to Make Tech Companies Trustworthy, The Atlantic (Oct. 3, 2016), https://www.theatlantic.com/technology/archive/2016/10/information-fiduciary/502346/ (proposing information fiduciaries framework); Johnny Zittrain, How to Exercise the Power You Didn't Ask For, Harv. Bus. Rev. Blog (Sept. 19, 2018), https://hbr.org/2018/09/how-to-exercise-the-power-you-didnt-ask-for; see also Tim Wu, An American Alternative to Europe's Privacy Law NY Times (May 30, 2018), https://www.nytimes.com/2018/05/30/opinion/europe-america-privacy-gdpr.html.

[236] IRC 6103(i)(1).

of executive branch power, by virtue of operating outside formal processes (such as sentencing ranges or equitable relief), may be harder to detect, thus the decision on how much sunshine to introduce and in what circumstances is more complex. Finally, we already have experience addressing how to limit exchange of data to jurisdictions where there is corruption or rule-of law issues, absent a demonstration they have met thresholds for protections of data and individuals.[237]

Efforts to silo data, however, are problematic. Not only is it difficult to draw some of these crucial lines, but there are other clear challenges as well. First, such a tightly controlled data spigot would itself hint at information dictatorship.[238] Second, it imagines an ability to control data not supported by information economics' observations of data as nonrival. Third, data silos may face regular breaching or serious backlash if information exists but is not made available to resolve certain violations. Fourth, government sectors subject to siloing may be incentivized to build their own data sets if they find themselves cut off from existing sources of data.

Finally, data silos may run counter to broader trends. In the international tax context, for example, treaty-based requests for taxpayer data have long wrestled with potential limits on requesting states. Article 26 of the OECD Model Tax Treaty[239] grants the requesting state access to certain information that exists in the supplying state but generally requires that the information be used only for tax enforcement and collection activities. However, that restriction is ultimately relaxed if the laws of both treaty partners allows it and if authorized by the data-supplying state. Article 26 reflects the general trend in international tax towards increased transparency and disclosure, through taxpayer self reporting, third-party reporting, and data exchanges between governments.[240]

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[237] For example, the OECD's Global Forum on Transparency and Exchange of Information For Tax Purposes conducts Peer Reviews of member jurisdictions and other relevant countries regarding their compliance with international standards. OECD, Global Forum on Transparency and Disclosure of Information for Tax Purposes: 2016 Methodology for Peer Reviews and Non-Member Reviews, available at http://www.oecd.org/tax/transparency/about-the-global-forum/publications/revised-methodology.pdf. We make no claim that these reviews are perfect or fully capture the kinds of practices that might raise reasonable concerns about a government seeking data; rather, this example demonstrates both an understanding of the kinds of concern at issue here and a possible model for how to control access to data.

[238] Certainly advocates of "information wants to be free" position would contest the implementation of a data silo approach. *See, e.g.*, Wagner, *supra* note 218.

[239] OECD Model Treaty Article 26.

[240] *See, e.g.*, BEPS Project and Country-by-Country Reporting; Automatic Exchange of Information.

2. Limiting Data Collection

If a tailored approach to data and fall-short spaces using silos proves untenable, then a less nuanced approach that errs on the side of universally preserving fall-short spaces may be preferred. The strategy turns on limiting data collection and use by governments.[241] Governments already collect extensive data through law enforcement, regulatory, and oversight functions. Examples range from fingerprint and DNA databases, to licenses and registration information, tax, and social security data. Absent further limits, governments, like the private sector, may seek to improve and enhance their operations through increased data collection made possible by technology. Whether as a substitute for inaccessible private sector data or as a complement, governments have strong incentives to improve and expand data collection. This expansion can come both through gradual data creep (e.g., increasing digitization of government functions and interactions, improved capacity to process data) and through the pressures of high-profile enforcement needs. For example, a high-stakes, high-profile law enforcement moment (such as a mass shooting, kidnapping, or comparable regulatory event like a major tax leak) puts pressure on the government to access every possible source of data that may help it react.[242] At these times, the public may be least resistant to this expansion.

Yet, it does remains possible to continue to regulate government collection and use of data. Regulation can limit what can be collected and stored, either by establishing upfront limitations, imposing oversight or terminating collection after the fact, or demanding erasure. One possible strategy is to use default rules that prioritize privacy and make data collection an opt-in. Defaults that preserve privacy unless waived are also likely to be more effective than disclosure-based solutions, such as lengthy and hard to grasp and decline website cookie notifications.[243]

Regulation of government *use* of data may prove even more important for maintaining some fall-short spaces. Data historically collected by the government for one purpose may, through the ease of technology and in combination with other data sources, suddenly find a new life far from its original purpose. We need not look beyond the current news to find examples of this phenomenon, including use of drivers' license databases for

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[241] Notably, the types of data and privacy interventions we are talking about go beyond "right to erasure" concerns that are subject to initiatives in the European Union such as the "right to be forgotten", EU Directive 95/46/EC Article 12, and the EU General Data Protection Regulation (GDPRR).

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[243] *See, e.g.*, See, e.g., Franz Werro, The Right to Inform vs. The Right to be Forgotten, in Liability in the Third Millennium (Ciacchi et al., eds, 2009), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1401357.

immigration purposes.[244] Efforts to control the use to which data is put could be as blunt as restrictions on the sharing or use of data for purposes beyond the initial collection or beyond the scope of the agency collecting the data.

Limits on government collection and use of data are not new. But the current design of these limits is likely inadequate to the task of managing data flows in a world in which large quantities of data, some of which may appear relatively insignificant, can be readily combined to produce valuable information. The acceptable use of data that has been collected and analyzed—often without people understanding that it has happened—must be a subject of serious and sustained debate. A possible strategy here is to vest authority to take protective action in actors more powerful than the individual whose data has been misused. For example, as further discussed below, where governments misuse private data, enforcement rights could be vested in an independent auditor. If successful, such allocation of enforcement rights to more powerful actors could curb data abuses.

Serious challenges accompany efforts to develop more comprehensive regulation and oversight of government collection and use of data. As an initial matter, the trend in the European Union[245] towards more protection for individuals' data has not taken hold in the United States. In addition to domestic concerns, such as pressure to solve immediate crises, challenges will arise from the data-collection efforts of foreign governments or other entities. Regardless of domestic laws on government collection and use of data, we can realistically anticipate (and have already witnessed) that foreign governments, agencies and bodies will seek to amass as much data as possible on other countries' citizens, residents, corporations, and governments on matters of finance, business, politics, personal life, military security and more. Such foreign interventions do not automatically dictate the level of data-related powers a country should permit its own government, but they do require us to investigate what any imbalance in such data powers could mean in the future, and could constrain any domestically-driven impulses to limit data collection.

3. Strategies to Help Mitigate Data's Impacts

Strategies to silo data uses or limit data collection may have limited effectiveness, so we might consider revisiting certain aspects of policy and rule design to mitigate data's potentially adverse consequences, such as bias, uneven impacts, or overly harsh impacts. Regardless of one's views on the desirability of informal fall-short spaces, one should still worry that a rapid

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[244] supra

[245] *See, e.g.*, EU Directive 95/46/EC Article 12, and the EU General Data Protection Regulation (GDPRR).

growth in available data will make it easier for authorities to enforce rules in inappropriate ways (either by targeting unsophisticated populations who are low-hanging fruit, or targeting political enemies), or that such data growth may cause bias impacts even absent intent to do so. Again, it is not that such issues have never occurred prior to the data age but rather that an explosion in data makes targeting easier. Relatedly, one should also worry that dramatic increases in enforcement in light of information may cause harms to certain populations in excess of their ability to self-insure against those harms.[246]

a. Recalibrating Underlying Law

One set of interventions is to ensure that law is and remains soundly designed in light of changing data use and availability. This step might ensure that even if fall-short spaces do shrink significantly, and if they shrink more significantly for some groups than others, there will be fewer unjust or undesirable outcomes. Two obvious issues are penalty structures and statute of limitations.

Design of Penalties. One simple adjustment is to revise penalties based on changing risk of detection. If probability of detection is higher in light of data, perhaps penalties ought to be lower, both from an economically optimal point of view and a fairness one. Take the dog registration example discussed above.[247] If, in light of data, it becomes easy for authorities to reliably and accurately detect all dogs in Boston and their owners, then arguably the draconian $5000 fine should be lowered.

Extrapolating up a level, in places in the law where draconian high fines and penalties are used to achieve deterrence in light of imperfect detection, we should at least revisit where high penalties remain appropriate if information makes detection easier. For example, in the tax context, governments have historically struggled to adequately enforce taxpayer reporting of foreign income and assets. As detailed above, the 2010 FATCA regime included significant penalties to compensate for the government's lack of information and the resulting enforcement challenges.[248] Similar issues arise in other areas of the law, including local regulations and ordinances.[249] As information becomes increasingly easy for enforcers to

[246] It can be argued that purposeful non-enforcement of laws can serve an important social insurance function. *See* sources cited *supra* note 218 and accompanying discussion.

[247] See supra Part II.B.6.

[248] See supra Part III.A.3.d,

[249] *See, e.g.*, *Paying More for Being Poor, Lawyer's Committee for Civil Rights of the San Francisco Bay Area* (May 2017), https://www.lccr.com/wp-content/uploads/LCCR-Report-Paying-More-for-Being-Poor-May-2017.pdf (assessing disproportionate impacts of excessively high traffic fines and costs on the poor).

access, the rationale for the high penalties may be less justified. Of course, policymakers should be attuned to and should avoid the flipside risks, where overly low penalty levels convert penalties into a "price" that actors simply choose to pay rather than comply.[250] This is a matter of setting appropriate penalty levels and does not counsel against studying the issue.

Statutes of Limitation. As the scope and breadth of available data expands, more attention also ought to be paid to statutes of limitations for enforcement and imposition of sanctions. Some statutes of limitation reflect the reality that enforcement agencies may need significant time to uncover the evidence needed to enforce or prosecute.[251] One risk is that if data becomes ubiquitous and lasts forever, then government authorities may sit on data, take their time to process it, and then years down the road impose sanctions in what might be characterized as a big "gotcha." As we move towards a world of ubiquitous data, a more appropriate standard for statutes of limitations may be to embrace a concept such as the "right to timely use of my data," especially in situations where it is not obvious to the data subject that they messed up. In some cases, current law may already capture this sentiment, where for example, certain serious crimes involving high degrees of harm (such as murder) do not have a statute of limitations.[252] Depending the progress of the data revolution, existing statutes of limitation for minor regulatory violations may warrant reconsideration as well. Attention to design of statutes of limitation in the data age gives enforcers an incentive to act on increasingly available data stashes in a reasonably diligent way.

Returning again to tax, we can see how this data shift may play out. At present, there are numerous pockets of data subject to idiosyncratic but increasingly regular enforcement and use (think data stashes originating from tax leaks and enforcement against taxpayers whose assets and accounts have been revealed through FATCA and other information exchange). As investigation based on data troves becomes increasingly steady and reliable,

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[250] *See, e.g.*, Uri Genzyme & Aldo Rustichini, *The Second Day-Care Center Study* (Sept. 2005) available at http://arielrubinstein.tau.ac.il/papers/WC05/GR1.pdf; Uri Genzyme & Aldo Rustichini, *A Fine is A Price*, (2000), available at https://rady.ucsd.edu/faculty/directory/gneezy/pub/docs/fine.pdf.; Michael Stagnaro, Antonio Arechar & David G. Rand, *From Good Institutions to Generous Citizens: Top-Down Incentives to Cooperate Promote Subsequent Prosociality But Not Norm Enforcement*, Cognition 167 (Feb. 2017); Kristen Underhill, *When Extrinsic Incentives Displace Intrinsic Motivation: Designing Legal Carrots and Sticks to Confront the Challenge of Motivational Crowding-Out*, 33 Yale J. On Reg. 213 (2016).

[251] For example, in tax law, some foreign asset reporting audits carry unlimited statutes.

[252] *See, e.g.*, 18 U.S.C. Section 3281 (under federal law there is no statute of limitations for capital offenses). *See* Charles Doyle, *Statute of Limitation in Federal Criminal Cases: An Overview*, CRS Report RL31253(Nov. 14, 2017).

re-evaluation of both penalties and statutes of limitations periods may be warranted.

Decisions to tweak statutes of limitation are, however, a dynamic choice. If statutes of limitation are shorter, then this may create even more pressure to collect and use data, or develop greater capacity to mine data and process data into useable information, which may raise even greater privacy concerns. Resources and technology will both be key to this process, so the ability to amass data will be subject to legal and budgetary constraints. The key question in designing policy will be whether a well-designed middle ground can be reached.

Changing Meanings of Noncompliance. Ubiquitous data may suggest rethinking how compliance should operate under the law, which may ultimately require a re-envisioning of the relationship between individuals and government. As we discussed, one of the effects of increasingly ubiquitous data is that humans have more information available to themselves about their actions and can self monitor more effectively. However, while data may improve human conduct and propel better decision making, perfect conduct remains unlikely, in light of bounded human capacities.[253] In a society with many laws, we can expect that humans will still fall-short with regularity. For example, humans will continue to speed, may forget to pay speeding tickets, or may continue to make errors in their tax returns (such as forgetting to included income from a Form 1099).

But if humans are failing at perfection even with the knowledge that information is increasingly available to authorities and hence enforcement is increasingly likely, this perhaps signals that offenders are not so much deliberately "trying to get away with it" but rather are failing due to inattention, inability to cope, bounded rationality of processing capability, or some other human imperfection. If so, then perhaps compliance failures that happen after this information explosion should carry less stigma. Thus, in addition to recalibrating penalty levels and statutes of limitation, perhaps certain types of imperfect behavior in a world of ubiquitous data and information should carry different meaning, for example, be regarded as a legitimate foot fault rather than more serious offense.

Government's Potential Role of Compliance Coordinator. Along the same lines, some might argue that it makes sense in a world of increasingly ubiquitous data for government to move into a role of *ex ante* compliance coordinator rather than *ex post* enforcer or punisher. Under a compliance coordinator frame, the government would use increasingly available data and

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information to affirmatively assist people in complying with the law rather than viewing information primarily as part of the *ex post* enforcement toolkit. A compliance coordinator approach suggests redesigning systems to make compliance easy, paired with reasonable fines for foot faults. So, returning to the dog registration example,[254] we could have automatic registration of dogs to their detected residence location, paired with an easily accessible avenues for residents to appeal mistakes. This approach would arguably make more sense than a draconian *ex post* fine for failure to register. Alternatively, the duty to register could remain with the dog owner, but the locality could have an accurate and fast system of corroboration, and given that probability of detection is 100%, failures to register could be treated as a foot fault.

This idea is not wholly new—we can see threads of this instinct running through various parts of the legal system. For example, this reasoning underpins proposals like Casey and Niblett's call for personalized "microdirectives" that can replace traditional rules and standards in law.[255] Another example comes from tax law, where the so-called "ready return"—a tax return prepared by the government for the taxpayer, which the taxpayer then reviews and submits—is floated as an example of how the government could use information *ex ante* to help with compliance, rather than amassing data as a weapon to punish noncompliance *ex post*.[256] The ready return approach already operates outside the United States to varying degrees, including in jurisdictions such as the United Kingdom and Sweden.[257] The prospect of a government-prepared tax return is not without critics, but it provides a tangible example of how government's role might change in the age of ubiquitous data.

Similar moves could be undertaken with respect to existing laws. Returning again FATCA reporting of foreign financial assets, a compliance coordinator approach might suggest that once information about offshore financial assets is available to authorities and is reliable, either (A) the government should assume primary responsibility for preparing the return, or

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[254] See supra Part II.B.6.

[255] *See* sources cited *supra* note 14.

[256] *See Perspectives on Two Proposals for Tax Filing Simplification*, Am. Bar. Assoc. (Aug. 26, 2016), https://www.americanbar.org/groups/taxation/publications/abataxtimes_home/16aug/16aug-pcp-bankman-maule-perspectives-on-two-proposals-for-filing-tax-simplification/ (Professors Joseph Bankman and James Maule debate data retrieval and pro forma tax return proposals); see also Austan Goolsbee, The Simple Return: Reducing America's Tax Burden Through Return-Free Filing Brookings, (July 1, 2006), https://www.brookings.edu/research/the-simple-return-reducing-americas-tax-burden-through-return-free-filing/.

[257] See *Perspectives*, *supra* note 256; Ezra Klein, *What Denmark, Sweden, and Spain Could Teach America About Taxes*, Vox (Apr. 15, 2015), https://www.vox.com/2015/4/15/8420257/taxes-IRS-automatic-turbotax.

(B) responsibility could remain with the taxpayer but the government should help taxpayers correct errors, help taxpayers not make errors in the first place (for example, by ensuring that taxpayers are given a copy of the information reported by offshore banks), and treat errors made after widespread availability of information as good faith foot faults rather than invidious evasion.[258] This stands in contrast to the current situation, in which the U.S. gets taxpayer information from offshore banks but taxpayers face draconian penalties for omissions.

Like some of our other suggestions, a compliance coordinator approach poses risks. They may weaken constraints on noncompliance and allow those who can afford to violate the law and simply pay the fine to do so.[259] Another danger is that shifts to *ex ante* compliance coordination and monitoring rather than *ex post* sanction might raise even more privacy concerns. Some might find it disturbing for the government to spy on our dogs and tax returns and give us microdirectives. A second order concern is that once law starts to be designed this way, it may serve an excuse for governments to collect ever more data in order to uphold the law. For example, once the government starts preparing your tax return, perhaps it will use this new responsibility as the rationale for becoming a data monster—seeking more and more data in the interests of accuracy. Similar objections have been raised to the ready return in the domestic context.[260] Thus, these types of solutions to make law and enforcement fairer and less onerous are in tension with the risks of further privacy violations and fall-short space contractions.

Protection of Vulnerable Populations. Finally, we flag the possibility that some populations may be sufficiently at risk that the law might include special data protections for them. Children, young adults, digital migrants, and the elderly may each experience particular vulnerabilities in protecting their data. For example, children may have their images widely and publicly posted by parents with surveillance consequences that are just now becoming salient.[261] Digital migrants and the elderly may be less educated about the need to safeguard data and the risks of widely disseminating it, and may be more susceptible to data theft. These populations are likely to disproportionately bear the brunt of the increasing use of ubiquitous data to

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[258] The last change would basically equalize the treatment of footfaults involving offshore assets with footfaults associated with forgetting to include income that has been reported on a Form 1099 or W-2.

[259] *See* sources cited *supra* note 250.

[260] *See* Perspectives, *supra* note 256.

[261] *See*, *e.g.*, Kashmir Hill & Aaron Krolik, *How Photos of Your Kids are Powering Surveillance Technology*, NY Times (Oct. 11, 2019), https://www.nytimes.com/interactive/2019/10/11/technology/flickr-facial-recognition.html.

enforce laws, and it is not implausible to think that law might be tailored to accommodate such vulnerabilities. With respect to youth, the criminal law system already incorporates some of these ideas in its management of juvenile criminal records. But going forward the issues will be much broader and some of the solutions less obvious. In some cases, the relevant data may be in the hands of the private sector, and the uses may be across a range of legal, professional and social contexts. At that point, a regime more comprehensive than that which seals juvenile records at the government level may become warranted.

b. Sunshine

Another way to cabin unintended bad effects of data and information is to harness it in ways that promote accountability by governments, subsequent purchasers, and others. As noted earlier, we are skeptical that sunshine alone will be enough to prevent disparate outcomes, but there is reason to think it may ameliorate enforcement disparities at least somewhat. Sunshine may take the form of disclosure to data subjects regarding the fact that their data has been used, or how it is being used. Or, it may take the form of disclosure to the general public about such data use, which can generate complete and aggressive press coverage to help curb problematic enforcement before it happens (or to foment outrage and pressure for reform after it does). The legal system has already seen ways in which sunshine has been used to promote accountability. One example that has gathered momentum in recent years is the use of police body cameras.[262] Although not a precise parallel,[263] such cameras provide extensive data on police-public interactions and can be available to those who seek to assess potential bias. Relatedly, for example, requirements that police maintain statistics on police traffic stops allows observers to monitor for bias.

Translating this to the ongoing data revolution: just as the underlying data of individuals and entities will be even more available as a tool for enforcement, so too should it be more available for monitoring the enforcers. Even if valid reasons limit complete public sunshine in some circumstances (for example, a desire for confidentiality surrounding IRS audit strategies and DIF scores),[264] less public alternatives remain, such as oversight by

[262] *See generally* Alexandra Mateescu, Alex Rosenblat & Daynah Boyd, Police Body-Worn Cameras (Feb. 26, 2015), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2569481.

[263] For example, some police officers have supported the use of body cameras to document that their actions are in fact entirely compliant with the law and standards of good policing.

[264] *See supra* note 130 and accompanying text.

independent auditors or procedural options for contesting decisions that are both accessible and meaningful.. In the tax world, for example, an independent audit function has been at work for more than two decades in the form of the Office of the National Taxpayer Advocate.[265] The creation of this Office was motivated in part by recognition of the difficulty of checking IRS enforcement actions and potential abuses of discretion while also maintaining IRS enforcement capabilities and discretion. Specifically, if IRS audit activities and strategies are too transparent, then evasion becomes easier, but if they are not at all monitored, then abuse becomes too easy. By creating an independent ombudsperson and accountability auditor, the Taxpayer Advocate option arguably offers a plausible compromise between complete government autonomy and complete monitoring by and transparency to the public.

In setting up independent auditors or procedural avenues for recourse, policymakers should exercise care that the same types of inequities that have been exacerbated by data do not get perpetuated. As Andrew Hayashi has shown in the context of property taxes, the likelihood of appealing a property tax assessment varies by demographics, with racial minorities less likely to appeal assessments.[266] With respect to uneven uses of data, certain types of appeals for recourse might prove easier than others. For example, it may be easier to appeal a harsh penalty on the grounds that ten other similarly situated persons have been given a lighter penalty, but it may be harder to appeal on the grounds that someone else has been unfairly let off the hook altogether. The second species of legal challenge may require reporting of individual incidents, and may be best understood as whistleblowing under another guise which in turn may indicate the need for stronger legal rules facilitating such whistleblowing.

c. Summary

While educating individuals about the risks of data sharing is important,[267] individual-side interventions are unlikely to be sufficient by themselves to confront the problems presented by increasingly ubiquitous data and disparately contracting fall-short spaces. Thus, this Article has emphasized the need for data silos, other data protections, and changes to law

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[265] *See generally* Taxpayer Advocate Service, https://taxpayeradvocate.irs.gov/.

[266] Andrew Hayashi, *The Legal Salience of Taxation*, 81 U. Chi. L. Rev. 1443 (2014).

[267] For example, data education can help increase sophistication about the ways in which seemingly innocuous data can be strategically used to develop a larger profile. *See, e.g.*, Steven Petrow, *You're Sharing Your Cell Phone Number Too Frequently*, USA Today (Jun. 20, 2017), https://www.usatoday.com/story/tech/columnist/stevenpetrow/2017/06/20/cell-phone-number-scams-identity-theft/102787432/.

itself as strategies that are most likely to be effective. At the end of the day, we do not articulate an ideal level or combination of interventions but merely flag them as potential policy tools that, if used in combination, may help alleviate some of the concerns associated with contracting fall-short spaces in the data age.

CONCLUSION

The age of ubiquitous data is upon us. This Article has argued that data will likely constrict the extent to which humans are able to fall short of law's requirements without consequence, and will potentially generate disparate consequences for different populations.

Whether these outcomes are regarded as positive will depend on the law and offense in question, the underlying society and political process, as well as our normative positions on matters such as privacy. This Article has argued that in at least some contexts, fall-short spaces are justifiable and their loss may be problematic. It has outlined some policy solutions for managing data's effects on fall-short spaces grounded in siloing data, limiting data, and careful calibration of law.

Ultimately, some of the recommendations we outline may bump up against First Amendment and "right to be informed" concerns.[268] Moreover, they may clash with concerns about crime prevention, law enforcement, rule of law and accountability. One might contend that these initiatives are doomed to fail in the United States, which arguably prizes the right to freedom of expression and the press over privacy and which currently has no federal data protection law of the type introduced in the European Union.[269] One might also predict that they are doomed to fail in light of competitive pressures from foreign powers.[270] Our goal here is not to identify a normatively optimal level of data and privacy protection, or of fall-short space preservation, but rather to identify and describe the real world consequences of ubiquitous data on compliance in the legal system and the range of policy responses available to intelligently manage this shifting dynamic. Data is coming, its impact is pervasive, and the policy choices we begin making today will define the relationship among law, society and government of the future.

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[268] Balkin, *supra* note 234; Werro, *supra* note 243.

[269] Werro, *supra* note 243; Walker, *supra* note 101; David Meyer, *In the Wake of GDPR, Will the U.S. Embrace Data Privacy?*, Fortune (Nov. 29. 2018), https://fortune.com/2018/11/29/federal-data-privacy-law/.

[270] That is, if a potentially hostile foreign power is gathering and using the data of a country's citizens, is it feasible for the country itself to refrain from doing so?