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# Once and Future Nudges

Arden Rowell\*

## ABSTRACT

*The nudge – a form of behaviorally-informed regulation that attempts to account for people’s scarce cognitive resources – has been explosively successful at colonizing the regulatory state. This Essay argues that the remarkable success of nudges as a species creates new challenges and opportunities for individual nudges that did not exist ten years ago, when nudges were new. These changes follow from the new fact that nudges must now interact with other nudges. This creates opportunities for nudge versus nudge battles, where nudges compete with other nudges for the scarce resource of public cognition; and for nudge & nudge symbiosis, where nudges work complementarily with other nudges to achieve greater good with fewer resources. Because of the potential for positive and negative interactions with other nudges, modern nudges should be expected to operate differently from ancestral nudges in important ways, and future nudges should be expected to operate more differently still. Policymakers should prepare to manage future positive and negative nudge-nudge interactions.*

## I. INTRODUCTION

The nudge has successfully colonized the regulatory state.<sup>1</sup> The success of nudges has, in turn, changed the regulatory ecosystem in which individual nudges operate.

To see how the world has changed, consider the environment of the primordial nudge. To succeed – to be adopted as a mechanism for government action – early nudges had to outcompete existing regulatory mechanisms. Those existing mechanisms – command and control, pure market mechanisms,

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1. Consider, for example, the formal executive adoption under President Obama of behavioral science methods for establishing and evaluating regulatory policies. Exec. Order No. 13,707, Fed. Reg. 56,365 (Sept. 15, 2015) (establishing policies to recruit behavioral science experts; to strengthen agency relationships with research communities; to develop behaviorally-based strategies for applying behavioral science; and to “identify policies, programs, and operations where applying behavioral science insights may yield substantial improvements in public welfare, program outcomes, and program cost effectiveness”); *see also* Press Release, WHITE HOUSE OFFICE OF PRESS SEC’Y, Fact Sheet: New Progress on Using Behavioral Science Insights to Better Serve the American People (Sept. 15, 2016), <https://obamawhitehouse.archives.gov/the-press-office/2016/09/15/fact-sheet-new-progress-using-behavioral-science-insights-better-serve> (presenting over forty applications of behavioral science to regulatory policy in a single year).

basic disclosure, etc. – had already carved ecological niches for themselves. As entrenched species, these other mechanisms initially had an advantage over the newcomer nudges. Policymakers and stakeholders knew about these older mechanisms, had tested their legal and political welcome, and in many cases, statutes and regulations had already been specifically crafted to be hospitable to them.

As a practical matter, this meant that adoption of early nudges was relatively costly for policymakers. Not only did policymakers have to know of the nudge to begin with, but they also had startup costs in ensuring that nudges could be used in a way that was legally permissible and politically and practically feasible. As the new kid on the block, these early nudges had much to prove to gain acceptance and to carve a place for themselves.

This early environment was not all bad for primordial nudges. True, each nudge had to compete with other entrenched types of government action. But structural advantages that nudges hold versus those other mechanisms – including administrability benefits,<sup>2</sup> welfare benefits,<sup>3</sup> cost-effectiveness<sup>4</sup> and autonomy benefits<sup>5</sup> – often stood the nudge in good stead. When a nudge competed with other (even entrenched) regulatory species – that is, when policymakers were introduced to the option of using nudges as alternatives to other forms of government action – the nudge often prevailed.

One way to understand the explosion of the nudge population, then, is that the competitive advantage nudges offered in many regulatory contexts allowed nudges to outcompete other mechanisms and led to increasing numbers

2. For an argument that nudges simplify regulation, see CASS R. SUNSTEIN, *SIMPLER: THE FUTURE OF GOVERNMENT* (2013).

3. For an updated and careful argument that nudges are often superior to other mechanisms – and particularly to mandates and bans – specifically on welfare grounds, see Cass R. Sunstein, *Nudges vs. Shoves*, 127 HARV. L. REV. F. 210 (2014).

4. See Shlomo Benartzi, John Beshears, Katherine L. Milkman, Cass Sunstein, Richard H. Thaler, Maya Shankar, Will Tucker-Ray, William J. Congdon & Steven Galing, *Should Governments Invest More in Nudging?*, 28 PSYCHOL. SCI. 1041, 1044–51 (2017) (finding that, across many policy domains, nudges are more cost-effective than traditional policy interventions).

5. See Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2003) (arguing, in an initial presentation of nudges, that nudges are desirable policy mechanisms in part because they preserve freedom of choice). For an evaluation of the value of autonomy, see Björn Bartling, Ernst Fehr & Holger Herz, *The Intrinsic Value of Decision Rights* (CESifo Working Paper No. 4252, 2013). Note that not everyone thinks that nudges (always) improve autonomy. See RICCARDO REBONATO, *TAKING LIBERTIES: A CRITICAL EXAMINATION OF LIBERTARIAN PATERNALISM* 84–86 (2012). And others question the value of freedom of choice as a measure of policy success. See SARAH CONLY, *AGAINST AUTONOMY: JUSTIFYING COERCIVE PATERNALISM* 16–46 (2013); Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593, 1609–10, 1628–30 (2014).

of nudges.<sup>6</sup> As a species, the nudge was successful at replicating itself and at finding an ecological niche within the regulatory ecosystem. In this sense, the captive breeding program that Cass Sunstein and Richard Thaler developed to engineer and breed nudges and release them into the wild<sup>7</sup> has been extraordinarily effective.

And yet the very success that has led to Symposia like this one has also changed the regulatory ecosystem in which nudges now operate. Not only must modern and future nudges compete with traditional tools of regulatory intervention like mandates and bans, they must also interact successfully with other nudges. And as the nudge population continues to grow, strategic policymakers now need to consider how the size of the population is likely to affect the experience of individual organisms.

This consideration should address at least two aspects of nudges' evolutionary ecology. First, policymakers should develop observational methods for identifying and classifying possible nudge-nudge interactions. These observations can then form the groundwork for evaluating when and how nudges can be expected to interact with one another. Second, policymakers should consider the institutional tools available for managing the nudge population and for structuring potential interactions between and among nudges. The remainder of this Essay provides starting points for each of these analyses.

## II. RECOGNIZING NUDGE-NUDGE INTERACTIONS

Early nudges were generally justified by reference to their superiority (at least in some circumstances) to entrenched regulatory tools, including mandates, pure market mechanisms, and (non-behaviorally-informed) disclosure.<sup>8</sup> Initial arguments for nudges were thus arguments about the regulatory fitness of nudges in comparison to other mechanisms.<sup>9</sup>

When nudges were rare, this initial focus on how nudges would compete with other regulatory species was entirely reasonable. The mechanism of nudging is based on the fundamental insight that people have scarce cognitive

6. For a partial compendium of the many nudges that have been adopted over the past decade, see Mark Egan, *Nudge Database v1.2*, STIRLING BEHAV. SCI. CTR., <https://www.stir.ac.uk/media/schools/management/documents/economics/Nudge%20Database%201.2.pdf> (last visited Aug. 22, 2017) (chronicling over a hundred examples of international nudge use across more than ten areas of policy), and Press Release, WHITE HOUSE OFFICE OF PRESS SEC'Y, *supra* note 1 (presenting over forty applications of behavioral science to regulatory policy in a single year).

7. By this I mean that the development of libertarian paternalism and the industry of nudge-making has been highly influential. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008); Sunstein & Thaler, *supra* note 5.

8. See Sunstein & Thaler, *supra* note 5.

9. *Id.* Later justifications have also focused on comparative benefits. See, e.g., Sunstein, *supra* note 3; Cass R. Sunstein, *Nudging and Choice Architecture: Ethical Considerations*, YALE J. ON REG. (forthcoming).

resources.<sup>10</sup> Why spend policymakers' and scholars' scarce resources addressing nudge-nudge interactions when a nudge might spend its whole life never meeting another of its kind? Yet as nudges continue to propagate, policymakers face a different landscape.

In natural populations of organisms, successful population growth of this type has predictable implications. In particular, when natural species become established, individual organisms often compete with other similar organisms for scarce resources. Worrisomely, this type of inter-species competition can lead to costly and socially inefficient investments that only capture a marginal benefit for individual organisms. The classic example of this – an example that troubled a young Charles Darwin – is the showy, even over-elaborate tail of the male peacock. Darwin puzzled over peacocks for some years, as he (and critics) saw them as a challenge to the mechanism of natural selection, whereby organisms inherit traits that are differentially fit for their environment. (At one point, an exasperated Darwin apparently wrote to a friend that “[t]he sight of a feather in a peacock’s tail, whenever I gaze at it, makes me sick!”<sup>11</sup>) Eventually Darwin realized that apparently maladaptive traits – like peacock tails – could actually confer a reproductive advantage when organisms were required to compete with others of their own kind. The result was his exhaustively specified theory of sexual selection, to which he devoted over half of his late-career book, *The Descent of Man, and Selection in Relation to Sex*.<sup>12</sup>

Modern resource economists have reaffirmed that costly sexual selection of this type tends to evolve where species compete with other members of their own species.<sup>13</sup> In such circumstances, sexual selection works like an arms race,

10. See SENDHIL MULLAINATHAN & ELДАР SHAFIR, SCARCITY: WHY HAVING TOO LITTLE MEANS SO MUCH (2013); George Loewenstein, Cass R. Sunstein & Russell Golman, *Disclosure: Psychology Changes Everything*, 6 ANN. REV. ECON. 391, 398–400 (2014).

11. 8 THE CORRESPONDENCE OF CHARLES DARWIN 40 (Frederick Burkhardt et al. eds., Cambridge Univ. Press 1993) (1860) (letter to Asa Gray dated Apr. 3, 1860).

12. See CHARLES DARWIN, *On the Origin of Species*, in ON THE ORIGIN OF SPECIES BY MEANS OF NATURAL SELECTION 90, 90–398 (Joseph Carroll ed., Broadview Texts 2003) (1859) (proposing sexual selection as a possible mechanism for explaining why apparently maladaptive traits might reproduce); 2 CHARLES DARWIN, *THE DESCENT OF MAN, AND SELECTION IN RELATION TO SEX* (Paul H Barrett & R. B. Freeman eds., N.Y.U. Press 1989) (1871) (specifying the mechanism of sexual selection and providing evidence for sexual selection in nature). For an entertaining overview of the science of sexual selection in peacocks, see Rachel E. Gross, *A Peacock Must Be More Than Glorious*, SLATE (Aug. 17, 2015, 9:40 AM), [http://www.slate.com/blogs/wild\\_things/2015/08/17/peacock\\_evolution\\_through\\_sexual\\_selection\\_feathers\\_sounds\\_eye\\_tracking.html](http://www.slate.com/blogs/wild_things/2015/08/17/peacock_evolution_through_sexual_selection_feathers_sounds_eye_tracking.html).

13. See Michael T. Ghiselin, *What is Sexual Selection? A Rent-seeking Approach*, 18 J. BIOECONOMICS 153, 154–55 (2016) (summarizing the different roles of natural, artificial, and sexual selection in Darwin’s theoretical system of evolution; describing how sexual selection relates to the economic theory of rent-seeking; and arguing that “[c]learly, what is advantageous to certain individuals is not always advantageous to the wholes of which they are parts. This is true of both natural economies and political

as individual organisms invest in energy-draining or risk-creating strategies that do not benefit the species as a whole. Peacocks, for instance, might actually do better as a species if they were better-camouflaged from predators. Yet research with eye-tracking cameras has confirmed that female peahens do indeed spend more time looking at “showy” male peacocks,<sup>14</sup> meaning that individual peacocks still enjoy a comparative advantage in reproducing their genes if they have the plumage that attracts potential mates. Thus, mechanisms that improve the fitness of individual organisms do not necessarily improve the fitness for the species as a whole.

Only safely-entrenched species can afford to spend resources on highly distinctive species-specific sex selection. By contrast, when an organism must compete with other species for scarce resources, organisms can ill afford costly investments—like showy plumage, elaborate nests, or enormous racks of antlers—that will help it (if at all) only in attracting mates of the same species. Other species that develop environment-specific adaptations, or which can spend their energy on food rather than display, will have too much of a comparative advantage. Under conditions of inter-species competition, then, natural selection—selection driven by the environment in which species live—is likely to drive organisms’ success.

What do intra-species competitions in natural species have to do with evaluating nudges? At least two things. First, the comparison can highlight the importance of increasing resource demand. If—because of the success of nudges—we now live in a system of increasing population of both nudges and nudgers, we should be alert to the possibility that nudge(r)s will face increasing competition from other nudge(r)s and that individual responses may not be socially optimal. In fact—as with peacock plumage—as nudges face increasing competition *intra*-species instead of cross-species, there is an increasing danger of nudge “arms races.” The more successful nudges become as compared to competitor species, the more we might want to be alert to the corollary to sexual selection in nudges: selection that is driven by intra-nudge competition rather than by optimal (or even efficient) resource investment.

Second, the comparison to biological competitions can help to illuminate what happens in competitive environments where resources are scarce. Recall that a foundational insight of behaviorally informed regulation is that people’s cognitive resources (attention, processing, etc.) are bounded, and therefore scarce.<sup>15</sup> Agencies—the source of most government nudges—are statutorily required to establish policies in furtherance of particular goals. Statutes are mostly drafted in isolation from one another, without relative prioritization. If we conceive of the public’s attention as the scarce resource for which agencies

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economies.”); cf. Gordon Tullock, *Welfare Costs of Tariffs, Monopolies, and Theft*, 5 W. ECON. J. 224 (1967) (presenting the economic concept of “rent-seeking”).

14. See Greg Miller, *Eye-Tracking Cameras Reveal Secrets of Peacock’s Tail Feathers*, WIRED (July 26, 2013), <http://www.wired.co.uk/article/peacock-eye-tracking> (citing Jessica Yorzinski et al., *Through Their Eyes: Selective Attention in Peahens During Courtship*, 216 J. EXPERIMENTAL BIOLOGY 3035 (2013)).

15. See *supra* note 1.

are often competing, many statutory directives implicate potential competition – and the competition for that resource may therefore be illuminated by evaluating biological competitions for scarce resources.

### III. AN EXAMPLE OF NUDGE-NUDGE INTERACTIONS: THE MONRONEY STICKER

Thus far the analysis has been theoretical. To illuminate real-world problems, it might be helpful to evaluate an example of where agency nudges interact with other agency nudges. In what kind of landscape might we expect nudge-nudge interaction?

Much might (and perhaps should) be written in answer to this question. As a starting point, however, it may be reasonable to think that nudge-nudge interactions are most likely to occur where there are multiple potential policy goals that underlie a single consumer choice, and where there are multiple agencies who administer differing statutory requirements to try to shape public behavior regarding that choice. Such contexts provide fertile ground for nudges and thus (perhaps) present a greater chance of fostering nudge-nudge interactions.

One example of such a policy space is the purchase of a car. Car purchasing has been subject to a variety of statutory disclosure requirements since the passage of the Automobile Information Disclosure Act of 1958, which required so-called “Monroney stickers” – the familiar labels affixed to the windows of new automobiles.<sup>16</sup>

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16. 15 U.S.C. §§ 1231–1233 (2012). The labels are called the “Monroney sticker” after Almer Stillwell “Mike” Monroney, the Oklahoma Senator who sponsored the disclosure act. Robert Peele, *The Senator Behind the Window Sticker*, N.Y. TIMES (Jan. 2, 2009), <http://www.nytimes.com/2009/01/04/automobiles/04MONRONEY.html>.

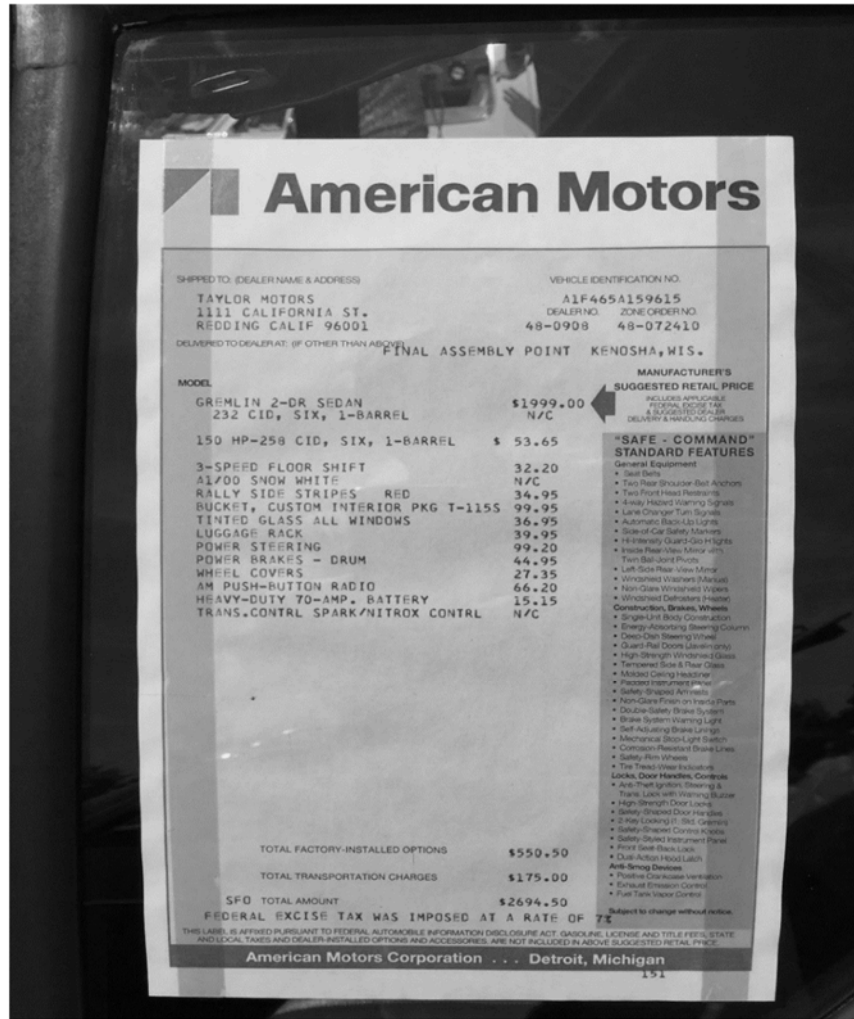


Figure 1: Original Monroney sticker for the 1971 American Motors Corporation Gremlin 2-door Sedan, disclosing the manufacturer's suggested retail price ("MSRP") of \$1999.00 and identifying the optional and included features.<sup>17</sup> Notably missing is any treatment of the car's safety or fuel efficiency.

Early Monroney sticker disclosures might strike modern car buyers as minimal; they provided little more than the make, model, and serial number;

17. Christopher Ziemnowicz, *1971 AMC Gremlin AMO 2015 Show – All Original 60f6.jpg*, WIKIMEDIA COMMONS (July 25 2015), [https://commons.wikimedia.org/wiki/File:1971\\_AMC\\_Gremlin\\_AMO\\_2015\\_show\\_-\\_all\\_original\\_60f6.jpg](https://commons.wikimedia.org/wiki/File:1971_AMC_Gremlin_AMO_2015_show_-_all_original_60f6.jpg) (license available at <https://creativecommons.org/licenses/by/4.0/>).



the manufacturer's suggested retail price ("MSRP"); and the standard and optional features.<sup>18</sup> Yet even this was critical information in a car-buying market that had been rife with questionable sales practices.<sup>19</sup> In such a market, the mere introduction of a standardized list of features and a disclosure of the recommended price was enough to substantially change the context in which car-purchasers made their decisions. With that in mind, the initial policy goal of the Monroney sticker – to inform consumers of the key features in the car they were purchasing – was substantially satisfied by the inclusion of a disclosure of the features that were then understood to be most relevant to car purchases (such as the size of the engine and the type of transmission).

Over the past decade, the introduction of behaviorally and psychologically informed regulatory tools has revolutionized the way that disclosure is structured.<sup>20</sup> During the same period, common understanding of the important features that purchasers need to know about the cars they are purchasing has evolved as well, and the information required on the Monroney sticker has mushroomed. Nowadays, in addition to the information previously required, all new cars must also show two additional important forms of disclosure: safety disclosures about how the car performs in crash tests (administered by National Highway Traffic Safety Administration ("NHTSA"))<sup>21</sup> and fuel efficiency disclosures about how the car uses fuel (administered by the Environmental Protection Agency ("EPA") and the Department of Transportation ("DoT")).<sup>22</sup> As a result, the modern Monroney sticker incorporates several different types of disclosure, with each type focused on a different, potentially important feature of the car.

Specific safety ratings have been required since 2007.<sup>23</sup> In its rule on Vehicle Labeling of Safety Rating Information, NHTSA included a series of

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18. The earliest labels also included the vehicle's final assembly point, dealer destination, and the method and cost of transportation to the dealership. Peele, *supra* note 16.

19. Monroney's own justifications for proposing the bill centered on its impact on businesspeople rather than on consumer protection: "The dealer who is honest about the so-called 'list price' cannot compete with the one who 'packs' several hundred dollars extra into it so he can pretend to give you more on your trade-in," Monroney explained when he introduced the bill in March 1958." Peele, *supra* note 16.

20. See Loewenstein, Sunstein & Golman, *supra* note 10, at 392.

21. 49 C.F.R. § 575.301 (2013); Vehicle Labeling of Safety Rating Information, 71 Fed. Reg. 53,572, 53,585 (Sept. 12, 2006) (to be codified at 49 C.F.R. § 575.301) (requiring car manufacturers to include NHTSA's New Car Assessment Program crash ratings on the Monroney sticker and explaining that including the information on the label "is intended to provide consumers with relevant information at the point of sale").

22. See *Revisions and Additions to Motor Vehicle Fuel Economy Label; Final Rule*, REGULATIONS.GOV, <https://www.regulations.gov/document?D=EPA-HQ-OAR-2009-0865-7647> (last visited Aug. 22, 2017).

23. § 575.301.

requirements regarding the information on and format of the safety label, including the label's border,<sup>24</sup> size and legibility,<sup>25</sup> heading area,<sup>26</sup> the order of the crash results listed,<sup>27</sup> and the specific image of a star to be used to indicate rankings.<sup>28</sup> In many cases the directions, particularly about font and legibility, are quite precise.<sup>29</sup> Importantly, the NHTSA regulations also include a minimum size requirement for the safety label: 4.5 inches wide and 3.5 inches high,<sup>30</sup> meaning that the safety label commands a minimum area of 15.75 square inches.

In 2007, Congress also required NHTSA, in consultation with the EPA and the Department of Energy (“DoE”), to establish regulations to implement new labeling requirements regarding fuel economy and emissions and to develop a rating system to help consumers easily compare fuel economy.<sup>31</sup> In 2011, the requirement of disclosure was substantially revised by a joint regulation issued by the EPA and NHTSA in a large behaviorally informed undertaking that Cass Sunstein has lauded as a particularly successful nudge.<sup>32</sup> The relevant rule, issued jointly by the two agencies, delineates the specifics of how the “Fuel economy and environment label” is to look on the Monroney sticker.<sup>33</sup>

Like the safety label, the fuel economy and environment label regulations include a number of requirements. For this label, these requirements were explicitly designed according to behavioral principles to increase the readability and salience of the label.<sup>34</sup> These included not only font size and highlight

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24. § 575.301(e)(1).

25. § 575.301(e)(2).

26. § 575.301(e)(3) (“The words ‘Government Safety Ratings’ must be in bold-face, capital letters that are light in color and centered. The background must be dark.”).

27. § 575.301(e)(4)–(6).

28. § 575.301(e)(7); § 575.301, fig.3.

29. *See, e.g.*, § 575.301(e)(1) (“Safety Rating Label Border. The safety rating label must be surrounded by a solid dark line that is a minimum of 3 points in width.”).

30. § 575.301, fig.1 (Sample Label for a Vehicle with At Least One NCAP Rating).

31. *See* Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 105 (codified at 49 U.S.C. § 32908 (2012)); Revisions and Additions to Motor Vehicle Fuel Economy Label; Final Rule, 76 Fed. Reg. 39,478 (July 6, 2011) (to be codified at 40 C.F.R., pts. 85, 86, and 600, 49 C.F.R. pt. 575).

32. *See* SUNSTEIN, *supra* note 2, at 81–89 (using car labeling as an example of successful behavioral intervention).

33. *See* 49 C.F.R. § 575.401 (2013); *see also* 40 C.F.R. pts. 85, 86, 600.

34. Revisions and Additions to Motor Vehicle Fuel Economy Label, 76 Fed. Reg. at 39,578; *see also* SUNSTEIN, *supra* note 2, at 81–89.

color (blue)<sup>35</sup> and other style requirements,<sup>36</sup> but also a sophisticated set of infographics that were intended to convey substantial quantities of information without much reading needed.<sup>37</sup> Importantly, the requirements also identify the minimum label size: in this case, 4.5 inches high and 7 inches long, for a total area of 31.5 square inches.<sup>38</sup> Note that this is twice the required area dedicated to the safety label (which is 15.75 square inches).<sup>39</sup>

The resulting labels vary in substance somewhat, depending upon the specifics of the cars being sold, and retailers retain some discretion in how they organize the labels, subject to the regulatory requirements. That said, the layout of modern Monroney stickers is relatively standardized. As a sample, consider this modern sticker:



Figure 2: Modern Monroney Sticker for a 2012 Chevrolet Volt, including the modern fuel efficiency and safety disclosures.<sup>40</sup>

35. See Revisions and Additions to Motor Vehicle Fuel Economy Label, 76 Fed. Reg. at 39,498 (“The final label will use one color, blue, for all vehicles to highlight important aspects of the label. The agencies chose not to use red as the primary color on the label due to the perceived “warning” message that it can convey. Conversely, we decided not to use green on all of the labels because we did not want to imply that all vehicles are green (i.e. clean) vehicles. The agencies were also advised that the color blue does not fade to a different color (green for example, can fade into yellow).”).

36. See *id.* at 39,498 (regulating use of color on Monroney stickers).

37. See *id.* at 39,570 (requiring display of Gas Guzzler Tax statement).

38. See *id.* at 39,578 (establishing size and legibility requirements for Monroney stickers).

39. See 49 C.F.R. § 575.301(e)(2) (2013).

40. Mario R. Durán Ortiz, *2012 Chevrolet Volt Window Sticker 01 2023 0483.jpg*, WIKIMEDIA COMMONS (Jan. 27, 2012), [https://commons.wikimedia.org/wiki/File:2012\\_Chevrolet\\_Volt\\_window\\_sticker\\_01\\_2012\\_0483.jpg](https://commons.wikimedia.org/wiki/File:2012_Chevrolet_Volt_window_sticker_01_2012_0483.jpg) (license available at <https://creativecommons.org/licenses/by-sa/3.0/deed.en>).

A review of the modern label helps illuminate several concepts. First, the Monroney sticker as a whole contains a finite amount of physical space. Just as consumers face a finite amount of cognitive space in their consideration of their car purchases, so the use of the physical space on the label is hydraulic: if a portion of the space is taken up for one purpose, it necessarily reduces the relative resources allocated to other purposes. A literal (but, I think, still informative) example of this is the physical space of the fuel economy and environment sticker in comparison to the safety label. These labels in aggregate are large enough to take up a good portion of the whole sticker; those portions of the label cannot then be allocated by the car retailer to other uses (e.g., to information about reliability), even if those uses were in fact helpful to a purchaser. Consumers' scarce cognitive resources are thus channeled towards the larger, more-salient fuel economy portions of the label – and therefore channeled away from the smaller, less-salient safety portions of the label.

Of course, the fact that users face scarce cognitive resources is not news, and in some cases, nudges may even be able to help with this problem so that fewer total resources (in ink and in neurons) are required to effectively convey the relevant information.<sup>41</sup> But another problem – and one that, thus far, has been neglected – is that there are two labels here, both of which are attempting to nudge consumers towards important (and statutorily architected) ends: towards buying cars that are safer *and* towards buying cars that are more fuel efficient. These labels – these nudges – necessarily interact with each other. And in the modern regulatory ecosystem – where nudges must increasingly live alongside other nudges – it is worth considering how such nudge-nudge interactions might impact both human behavior and the ability of nudges to be effective policy instruments.

To see an example of how ignoring nudge-nudge interactions can impoverish analysis, consider the ways that multiple-nudge contexts like the Monroney sticker offer opportunity for negative competitions: for nudge versus nudge battles that might serve neither nudge well and which even run the risk of wasting social resources. At a basic level, because nudges operate on the assumption that humans have limited cognitive resources, they are always competing with one another to capture the cognitive resources needed to further their ends. In the case of the Monroney sticker, this theoretical competition is concretized by the physical real estate of the sticker. Real estate – and attention – devoted to one label (and its attendant statutory goal) is not devoted to the other. By this measure it is easy to see the winner of this nudge versus nudge battle: the fuel efficiency label “wins out” over the safety label by two to one (or more precisely, by 31.5 square inches to 15.75 square inches). But we might also imagine more sophisticated measures, where we evaluate the impact of each label by quantifying attention, for example through the use of

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41. See Loewenstein, Sunstein & Golman, *supra* note 10, at 405–12, for behaviorally-informed strategies to disclosure.

eye-tracking technology.<sup>42</sup> As with female peahens, such technology might well reveal that it is the “showier” nudge that captures attention – and as with the drabber peacocks, drabber nudges may well suffer in comparison.

Even more worryingly, where nudges must compete with one another to capture scarce resources, we might be concerned that the same dynamic could develop as where biological organisms compete with one another for the scarce resource of potential mates: that nudge versus nudge competitions could sometimes generate a phenomenon that looks much like rent-seeking, or like socially-inefficient sexual selection. As with the biological context, this could easily lead to overinvestment by individuals – or in individual nudges – at the expense of the welfare of the collective.

The legal and practical implications of this phenomenon could be thorny. To see how this might play out in the concrete context of the Monroney sticker, consider the closest that the agencies in question came to recognizing a potential interaction between the two labels. In the fuel efficiency label rule, the EPA and NHTSA say the following:

to address concerns raised by some commenters that fuel economy ratings overshadow safety ratings component [sic] of the Monroney label, NHTSA is planning to conduct comprehensive consumer research to develop revised safety ratings based on revisions to the fuel economy component of the label under this rule. NHTSA will publish details of the consumer testing in a future Federal Register notice.<sup>43</sup>

Suppose that NHTSA now reconsiders its safety label, in light of its possible overshadowing by the fuel efficiency label, and NHTSA determines – perhaps through quantitative methods such as eye tracking, perhaps through more qualitative methods such as surveys – that its safety label is in fact overshadowed by the fuel efficiency label. NHTSA is statutorily directed to “reduce traffic accidents and deaths and injuries resulting from traffic accidents;”<sup>44</sup> how might it do so? One way might be by increasing the effectiveness of the safety nudge by capturing a greater portion of the scarce attention of car buyers at the point of purchase. One easy option, then, would be for NHTSA to simply increase the size of its required label – say to twice the size of the fuel economy and environment label. This would be crude but possibly effective.

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42. Technology for quantifying relative attention exists already and is used in applications that range from biology (such as in evaluating peacock mating habits) to advertising. *See, e.g.*, ANDREW T. DUCHOWSKI, EYE TRACKING METHODOLOGY: THEORY AND PRACTICE (2003). But so far as I am aware, it is not being used by agencies to evaluate the relative effectiveness of their disclosures – and much less to evaluate the relative effectiveness of their nudges versus other nudges.

43. Revisions and Additions to Motor Vehicle Fuel Economy Label, 76 Fed. Reg. at 39,489.

44. 49 U.S.C. § 30101 (2012).

Another option would be to invest less in the physical space of the label and more in the label's psychological showiness – like evolving brighter plumage rather than a larger tail. For example, NHTSA could design a label that includes neon ink, eye-catching patterns, or a hologram depicting a crashing or mangled automobile. Or it might do all of these, or invest in some other strategy entirely: the point is that, to further its statutory purpose of reducing traffic accidents and injuries, NHTSA might reasonably understand itself to be obligated to effectively increase the salience of its safety disclosure. And in a world of multiple nudges – a world where consumers will view any safety label alongside the shiny and behaviorally informed fuel economy and environment label – NHTSA experiences different pressures than in the world it faced when it initially designed the safety label.

Further worth noting is that the strength of NHTSA's incentive has little if anything to do with the relative importance of this statutory goal versus another – in this case, fuel efficiency versus crash safety. As with the vast majority of statutes, neither statutory regime provides any information as to how it is that multiple statutory goals should be prioritized. As a result, where there are nudge versus nudge interactions, there is a worrisome possibility that nudge versus nudge battles may result and that this could lead in some cases to overinvestment in nudges, as compared to the socially optimal level. In some circumstances, the outcome could be a wasteful arms race, where agencies flip back and forth, competing for more and more salient and effective nudges.

This is not to say that all nudge-nudge interactions are necessarily negative. In reality, interaction between two nudges is likely to be much more complex. Again considering the Monroney sticker, it seems plausible that the two labels might interact in friendly, as well as in competitive, ways.

How might two nudges interact positively? In at least two ways. First, while one nudge might capture a greater share of the total attention allocated towards a decision (e.g., of which car to buy), some nudges may increase the overall size of the attention pie. For example, if the large, effective fuel economy label draws more attention to the entire Monroney sticker, it might lead, in aggregate, to more attention to safety as well, compared to a world where there was no catchily-colored fuel economy label on the sticker. The result might be a positive interaction for the purposes of the fuel-economy label, which otherwise – small and staid as it is – might struggle to capture much attention at all.

Another possible positive interaction type would come where at least one nudge increased overall efficiency so much that it left surplus attention for other nudges to consume. Suppose, for example, that consumers generally struggle to understand fuel economy information, and that because that topic area is difficult, they waste much of their energy and attention trying to calculate total fuel cost and the practical impact of various mileage types. If that were the case, an improvement to the fuel economy label that is successful at summarizing vast quantities of fuel use information would leave more time and cognitive space for consumers to reflect on safety. This, too, might be a posi-

tive interaction: it could mean that the safety label might actually be more effective in combination with the fuel efficiency label – in a multiple-nudge world – than it would be in a world where the safety label tried to make it on its own.

In sum, there are multiple ways – both positive and negative – in which nudges may interact with one another. The interaction of the modern fuel label and the older safety label thus provides an example of nudge-nudge interaction in the wild – and of the potential tensions that can arise in a regulatory landscape where there are multiple nudges in play. When nudges interact with other nudges in an unregulated fashion, there is no guarantee that the final product will represent a socially optimal investment of resources, and there may be reason to worry that there can be overinvestment. And importantly, the operation of each single nudge may be significantly affected by the existence and operation of other nudges.

#### IV. UNREGULATED INTERACTIONS AND INSTITUTIONAL RESPONSE

Thus far, nudge-nudge interactions remain essentially unregulated; even the Obama-era executive order promoting behaviorally informed regulation failed to identify nudge-nudge interactions as a potentially relevant factor to consider in the issuance of a nudge.<sup>45</sup> This is troublesome, as there is no internal reason that individual agencies should be expected to be good at determining the optimal balance of related policy goals. Significantly more work is needed here. In particular, it is important to identify the environmental conditions that lead to nudge-nudge interactions. Doing so may help inform where we should expect to see nudge-nudge interactions arise.

Furthermore, when policymakers note the possibility of a nudge-nudge interaction, it would be helpful if they could also evaluate whether a nudge-nudge interaction is likely to lead to complementarity or competition. Yet thus far, there is vanishingly little research – and vanishingly few tools – to help in determining when interactions are likely to be positive and when they are likely to be negative. Especially as the use of nudges continues to grow, it is increasingly important that policymakers be presented with methods for predicting the types of impact that nudge-nudge interactions may have on final decision-making.

Which institutions are best-situated to respond to the scarcity of cognitive resources and to the interrelations between agencies' behavioral interventions? The remainder of this section suggests that agencies – which administer decentralized statutory mandates – are ill-suited to manage the issue on their own. Unfortunately, negative nudge-nudge interactions may be particularly pernicious because at least one set of institutional referees that might normally be expected to act as a check on agencies – courts – are also unlikely to be helpful in this context. Congress could help in some circumstances by creating explicit legislative prioritizations, but such prioritizations would be politically costly

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45. See Exec. Order No. 13,707, Fed. Reg. 56,365 (Sept. 15, 2015).

and could not in any case address all potential conflicts. Centralized executive review thus emerges as the most promising candidate for immediate institutional response to the puzzle of nudge-nudge interactions.

A. *Institutional Limitations on Agencies, Courts, and Congress in Managing Nudge-Nudge Interactions*

On an optimistic, public-oriented theory of behavioral regulation, agencies ought to help the public by architecting choices to increase the quality of individual decision-making. This obviously requires some account of what it means to make good quality decisions; otherwise there would be no way to know which choices lead to better decisions and which to worse. Where there is a single, informed, intelligent, public-oriented decision-maker, it is possible to identify a single account of what it means to make good decisions and to implement by encouraging choice architecture that furthers that account. Under such circumstances, the fact that people have scarce cognitive resources is simply a factor that plays in to effective choice architecture, and uses of those resources can be allocated according to the chosen model of good decision-making.

Unfortunately, most agencies administer statutes that Congress has drafted in isolation, with no clue as to how agency statutory priorities should relate to or be ranked against competing priorities from other statutes and other agencies. Where those conflicts are purely intra-agency and not explicitly addressed by Congress, agencies are typically given significant discretion to set their own priorities. But where those conflicts exist between multiple agencies, the situation is uneasy.

In theory, Congress might solve the problem of regulatory competition for scarce behavioral resources by deciding resource allocation: by determining and articulating how various statutory priorities should be ranked against one another. This would be a burdensome task, and an extremely politically costly one, as it would require rank-ordering of priorities. Nevertheless, Congress might still consider making some explicit judgments about how to comparatively rank the significance of the most important issues and/or the issues most likely to come into conflict with alternative administrative mandates.

One promising category for Congress to consider making prioritizations explicit is the set of statutory delegations that already ask multiple agencies to cooperate in managing a single regulatory task. In such contexts, the agencies may be particularly likely to face direct competition for behavioral resources, which Congress might mitigate by making its prioritizations explicit. This could be particularly helpful in circumstances where agencies already share statutory responsibilities. Labeling requirements in particular often implicate requirements from multiple agencies, as discussed above for the Monroney sticker. But while these multiple-agency contexts provide strong opportunities for Congress to clarify priorities, the political economy of sorting out such prioritizations is likely to remain extremely costly. Congress is therefore unlikely to work as an effective primary manager of potential nudge-nudge interactions.



Unfortunately, courts also face institutional limitations that make them unlikely actors in managing nudge-nudge interactions. This is for two reasons: first, because of their reluctance to prioritize among statutory regimes; and second, because of their hesitancy to determine internal agency organization.

The first reason courts are likely to be ineffective in managing cross-agency conflicts is that, institutionally, they are not well-suited to balance the relative importance of competing statutory claims. To resolve these disputes, courts will need not only to understand the relatively technical nature of agency interventions chosen and their likely effect but also to prioritize between different statutory regimes. Courts may be reasonably leery of engaging in this sort of weighing.

The second reason courts are likely to struggle to address nudge-nudge interactions relates to courts' traditional reluctance to interfere in matters of internal agency organization, including staffing decisions.<sup>46</sup> Courts only review "final agency action,"<sup>47</sup> and decisions about internal organization are typically viewed as interlocutory and best left to the executive and to the agency itself.<sup>48</sup> Furthermore, by statute, agency organizational decisions are exempt from public notice and comment procedures.<sup>49</sup> This means both that an agency's decisions to "ramp up" internal investments in behavioral resources are not likely to be publicly analyzed and that such decisions will generally lack any record robust enough to support judicial review (under, e.g., arbitrary and capricious review),<sup>50</sup> even where agency action might be characterized as final. Particularly insofar as much of the behavioral arms race plays out in internal agency decisions to staff behavioral researchers – and insofar as, at some point, that investment will become socially inefficient – courts, like Congress, are unlikely to play an important role in checking agency overinvestment, or in managing related nudge-nudge interactions.

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46. Gillian E. Metzger, *Embracing Administrative Common Law*, 80 GEO. WASH. L. REV. 1293, 1367 (2012) (characterizing courts as "reluctant" to police agency structure and organization).

47. 5 U.S.C. § 704 (2012).

48. Gillian E. Metzger, *The Constitutional Duty to Supervise*, 124 YALE L.J. 1836, 1859–70 (2015) (describing how courts have hesitated to incorporate internal agency operation into most traditional doctrines concerning judicial oversight of agency action, including standing and nondelegation).

49. 5 U.S.C. § 553(b)(3)(A) (2012) (exempting rules of "agency organization, procedure, or practice" from Administrative Procedure Act notice and comment procedures). Note that even where agency rulemaking is subject to notice and comment, notice and comment procedures are unlikely to provide much if any tonic to the push towards a behavioral arms race, since rules are generally presented, as they are considered, in isolation rather than as part of a general scheme of attention/cognitive resource allocation.

50. See Jennifer Nou, *Intra-agency Coordination*, 129 HARV. L. REV. 421, 436–37 (2015).

B. *Opportunities for Executive Oversight of Nudge-Nudge Interactions*

Limitations on internal agency management and on congressional and judicial oversight suggest that centralized executive oversight may play a particularly important role in managing nudge-nudge interactions. Even then, however, strengthened executive oversight cannot address all possible interactions, and the current lack of treatment of appropriate nudge-nudge interaction policy would hobble even a highly behaviorally savvy executive office.

One possibility would be for the President to attempt to respond to the expectation of nudge-nudge interactions by providing explicit centralized direction about how to allocate competing claims on the public's scarce cognitive resources. Because these allocations are likely to be fact- and context-specific, such direction would most likely be ineffective if it were too generic. More promising would be the strategy of leveraging existing executive institutions that centralize and coordinate agency oversight.

The most promising of these – and the institution that may be most likely to have a salutary effect on limiting the impact of the behavioral arms race – is that of the centralized executive reviewer, a function that in the United States is served by the Office of Information and Regulatory Affairs (“OIRA”). A centralized reviewer within the executive branch may be helpful in limiting the impact of the arms race for at least two reasons.

First, in the absence of specific (e.g., Congressional) direction on how to balance priorities as between multiple statutory goals, a centralized reviewer can opt for one allocation of cognitive resources over another. This is a powerful decision in the sense that it allows the reviewer to prioritize one set of policies over another, but even where the central reviewer fails to make optimal – or even preferred – policy prioritizations, the mere fact that final allocations of cognitive resources are at least partially determined by a third party may act as a salutary chill on agencies' incentives to otherwise invest (too) heavily in behavioral resources.

A second critical function served by the central reviewer is that of coordination. Cass Sunstein, who was the head of OIRA under President Obama, has emphasized the centrality of coordination to the role of OIRA;<sup>51</sup> a concern about nudge-nudge interactions suggests that there are important interrelationships between the emergence of behavioral regulation and of a model of “OIRA as coordinator.” The more behaviorally informed regulation becomes, the more agencies will be forced to recognize and respond to the fact that their ability to capture cognitive resources may interact with the ability of other agencies to do the same. For some agencies and some decisions this may not matter, as where there may be few to no competing public choice architects or where Congress has been uncharacteristically clear about prioritization of re-

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51. See Cass R. Sunstein, *The Office of Information and Regulatory Affairs: Myths and Realities*, 126 HARV. L. REV. 1838, 1839 (2013).

sources. But for the rest of the universe of cases, it will be increasingly important that there be a centralized body that can coordinate efforts and – hopefully – reduce any inefficient overinvestment in behavioral infrastructure. Such a goal would be a sound addendum to President Trump’s stated interest in “reducing the regulatory burdens placed on the American people,” a policy articulated, among other places, in his recent Executive Order on “Enforcing the Regulatory Reform Agenda.”<sup>52</sup>

That said, even if OIRA could resolve all executive agency conflicts with its own scarce staffing resources, so long as the centralized reviewer is located within the executive branch, its authority over independent agencies will be sharply curtailed. So, while OIRA might be able to mediate conflicts among executive agencies, it cannot manage competing behavioral market share with executive agencies. As a result, even with a strong OIRA that is dedicated to cross-agency coordination, if nudge populations continue to increase, eventual interactions between executive and independent nudges will have no obvious referee to make sure that behavioral investments remain socially optimal.

## V. CONCLUSION

Early nudges faced a different regulatory landscape than do modern nudges. Once, nudges primarily faced competition from other forms of regulatory action, such as mandates and traditional economic mechanisms. In the last decade, nudges often out-competed these other mechanisms, with the result that nudges have become a familiar part of the regulatory state. Precisely because nudges have been so successful, however, they are now prone to interactions with other nudges. Future nudges should account not only for how the scarce cognitive resources of the public might be nudged in helpful ways, but also for how nudges can be expected to interact with one another. Agencies, Congress, and courts all face institutional limitations in managing multiple nudges. As a result, centralized executive review may provide the most natural home for managing nudge-nudge interactions.

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52. Press Release, WHITE HOUSE OFFICE OF PRESS SEC’Y, Presidential Executive Order on Enforcing the Regulatory Reform Agenda (Sept. 15, 2016), <https://www.whitehouse.gov/the-press-office/2017/02/24/presidential-executive-order-enforcing-regulatory-reform-agenda>.