

## Bridging the divide between behavioral science & policy

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**Summary.** Traditionally, neoclassical economics, which assumes that people rationally maximize their self-interest, has strongly influenced public and private sector policymaking and implementation. Today, policymakers increasingly appreciate the applicability of the behavioral sciences, which advance a more realistic and complex view of individual, group, and organizational behavior. In this article, we summarize differences between traditional economic and behavioral approaches to policy. We take stock of reasons economists have been so successful in influencing policy and examine cases in which behavioral scientists have had substantial impact. We emphasize the benefits of a problem-driven approach and point to ways to more effectively bridge the gap between behavioral science and policy, with the goal of increasing both supply of and demand for behavioral insights in policymaking and practice.

**B**etter insight into human behavior by a county government official might have changed the course of world history. Late in the evening of November 7, 2000, as projections from the US presidential election rolled in, it became apparent that the outcome would turn on which candidate carried Florida. The state initially was called by several news outlets for Vice President Al Gore, on the basis of exit polls. But in a stunning development, that call was flipped in favor of Texas Governor George W. Bush as the actual ballots were tallied.<sup>1</sup> The count proceeded through the early morning hours, resulting in a narrow margin of a few hundred votes for Bush that triggered an automatic machine

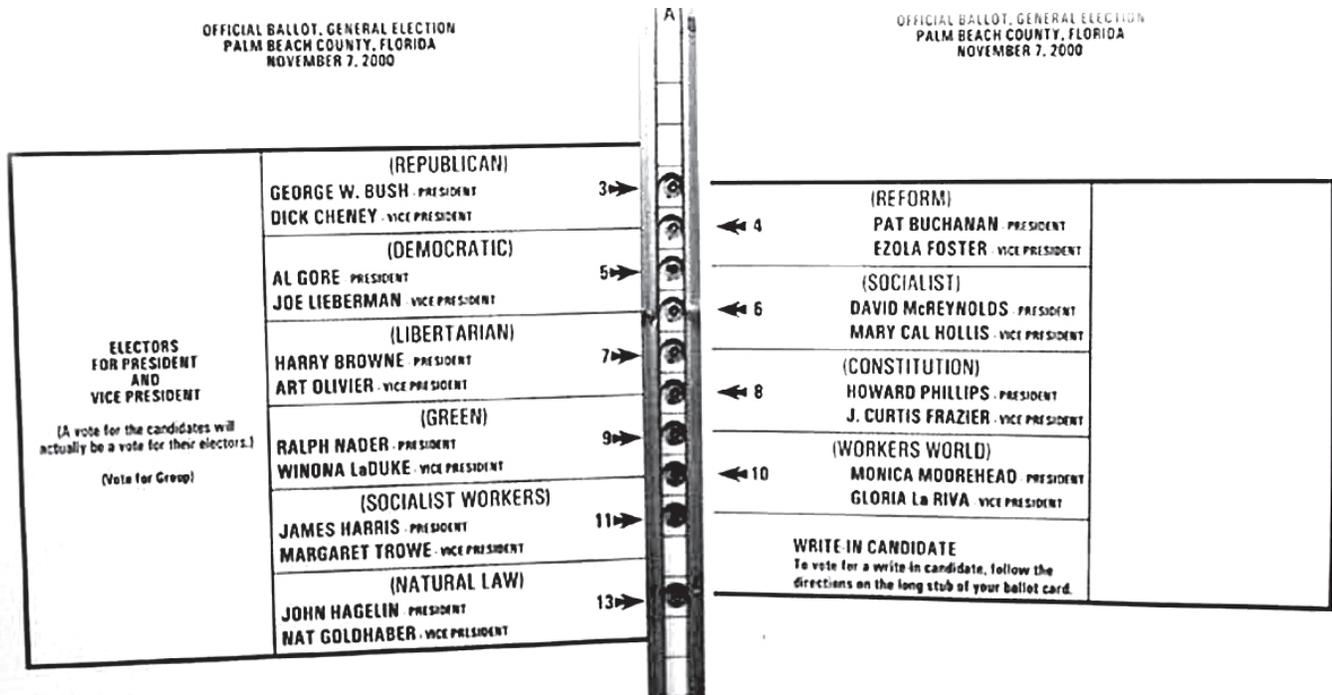
recount. In the days that followed, intense attention focused on votes disallowed due to “hanging chads” on ballots that had not been properly punched. Weeks later, the U.S. Supreme Court halted a battle over the manual recount in a dramatic 5–4 decision. Bush would be certified the victor in Florida, and thus president-elect, by a mere 537 votes.

Less attention was paid to a news item that emerged right after the election: A number of voters in Palm Beach County claimed that they might have mistakenly voted for conservative commentator Pat Buchanan when they had intended to vote for Gore. The format of the ballot, they said, had confused them. The Palm Beach County ballot was designed by Theresa LePore, the supervisor of elections, who was a registered Democrat. On the Palm Beach County “butterfly

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Figure 1. Palm Beach County's 2000 butterfly ballot for U.S. president



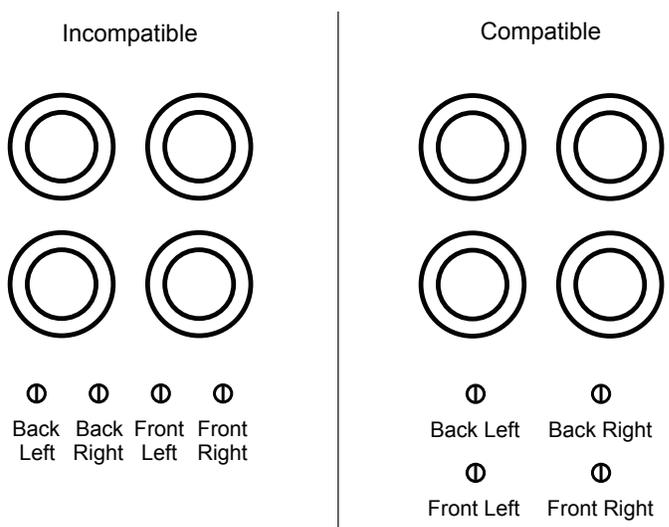
ballot,” candidate names appeared on facing pages, like butterfly wings, and votes were punched along a line between the pages (see Figure 1). LePore favored this format because it allowed for a larger print size that would be more readable to the county’s large proportion of elderly voters.<sup>2</sup>

Ms. LePore unwittingly neglected an important behavioral principle long known to experimental psychologists: To minimize effort and mistakes, the response required (in this case, punching a hole in the center line) must be compatible with people’s perception of the relevant stimulus (in this case, the ballot layout).<sup>3,4</sup> To illustrate this principle, consider a stove in which burners are aligned in a square but the burner controls are aligned in a straight line (see Figure 2, left panel). Most people have difficulty selecting the intended controls, and they make occasional errors. In contrast, if the controls are laid out in a square that mirrors the alignment of burners (see Figure 2, right panel), people tend to make fewer errors. In this case, the stimulus (the burner one wishes to light) better matches the response (the knob requiring turning).

A close inspection of the butterfly ballot reveals an obvious incompatibility. Because Americans read left to right, many people would have perceived Gore as the second candidate on the ballot. But punching the second

hole (No. 4) registered a vote for Buchanan. Meanwhile, because George Bush’s name was listed at the top of the ballot and a vote for him required punching the top hole, no such incompatibility was in play, so no related errors should have occurred. Indeed, a careful analysis of the Florida vote in the 2000 presidential election

Figure 2. Differences in compatibility between stove burners and controls



Adapted from *The Design of Everyday Things* (pp. 76–77), by D. Norman, 1988, New York, NY: Basic Books.

shows that Buchanan received a much higher vote count than would be predicted from the votes for other candidates using well-established statistical models. In fact, the “overvote” for Buchanan in Palm Beach County (presumably, by intended Gore voters) was estimated to be at least 2,000 votes, roughly four times the vote gap between Bush and Gore in the official tally.<sup>5</sup> In short, had Ms. LePore been aware of the psychology of stimulus–response compatibility, she presumably would have selected a less confusing ballot design. In that case, for better or worse, Al Gore would almost certainly have been elected America’s 43rd president.

It is no surprise that a county-level government official made a policy decision without considering a well-established principle from experimental psychology. Policymaking, in both the public and the private sectors, has been dominated by a worldview from neoclassical economics that assumes people and organizations maximize their self-interest. Under this *rational agent* view, it is natural to take for granted that given full information, clear instructions, and an incentive to pay attention, mistakes should be rare; systematic mistakes are unthinkable. Perhaps more surprising is the fact that behavioral science research has not been routinely consulted by policymakers, despite the abundance of policy-relevant insights it provides.

This state of affairs is improving. Interest in applied behavioral science has exploded in recent years, and the supply of applicable behavioral research has been increasing steadily. Unfortunately, most of this research fails to reach policymakers and practitioners in a useable format, and when behavioral insights do reach policymakers, it can be difficult for these professionals to assess the credibility of the research and act on it. In short, a stubborn gap persists between rigorous science and practical application.

In this article, we explore the divide between behavioral science and policymaking. We begin by taking stock of differences between traditional and behavioral approaches to policymaking. We then examine what behavioral scientists can learn from (nonbehavioral) economists’ relative success at influencing policy. We share case studies that illustrate different approaches that behavioral scientists have taken in recent years to successfully influence policies. Finally, we discuss ways to bridge the divide, thereby promoting more routine and judicious application of behavioral science by policymakers.

## Traditional Versus Behavioral Approaches to Policymaking

According to the rational agent model, individuals, groups, and organizations are driven by an evenhanded evaluation of available information and the pursuit of self-interest. From this perspective, policymakers have three main tools for achieving their objectives: information, incentives, and regulation.

*Information* includes education programs, detailed documentation, and information campaigns (for example, warnings about the dangers of illicit drug use). The assumption behind these interventions is that accurate information will lead people to act appropriately.

*Incentives* include financial rewards and punishments, tax credits, bonuses, grants, and subsidies (for example, a tax credit for installing solar panels). The assumption here is that proper incentives motivate individuals and organizations to behave in ways that are aligned with society’s interests.

*Regulation* entails a mandate (for example, requiring a license to operate a plane or perform surgery) or a prohibition of a particular behavior (such as forbidding speeding on highways or limiting pollution from a factory). In some sense, regulations provide a special kind of (dis)incentive in the form of a legal sanction.

Although tools from neoclassical economics will always be critical to policymaking, they often neglect important insights about the actual behaviors of individuals, groups, and organizations. In recent decades, behavioral and social scientists have produced ample evidence that people and organizations routinely violate assumptions of the rational agent model, in systematic and predictable ways. First, individuals have a severely limited capacity to attend to, recall, and process information and therefore to choose optimally.<sup>6</sup> For instance, a careful study of older Americans choosing among prescription drug benefit plans under Medicare Part D (participants typically had more than 40 stand-alone drug plan options available to them) found that people selected plans that, on average, fell short of optimizing their welfare, by a substantial margin.<sup>7,8</sup> Second, behavior is strongly affected by how options are framed or labeled. For example, economic stimulus payments are more effective (that is, people spend more money) when those payments are described as a gain (for example, a “taxpayer bonus”) than when described as a return to the status quo (for example, a “tax rebate”).<sup>9</sup> Third, people

are biased to stick with default options or the status quo, for example, when choosing health and retirement plans,<sup>10</sup> insurance policies,<sup>11</sup> flexible spending accounts,<sup>12</sup> and even medical advance directives.<sup>13</sup> People likewise tend to favor incumbent candidates,<sup>14</sup> current program initiatives,<sup>15</sup> and policies that happen to be labeled the status quo.<sup>16</sup> Fourth, people are heavily biased toward immediate rather than future consumption. This contributes, for example, to the tendency to undersave for retirement. It is interesting to note, though, that when people view photographs of themselves that have been artificially aged, they identify more with their future selves and put more money away for retirement.<sup>17</sup>

One response to such observations of irrationality is to apply traditional economic tools that attempt to enforce more rational decisionmaking. In this respect, behavioral research can serve an important role in identifying situations in which intuitive judgment and decisionmaking may fall short (for instance, scenarios in which the public tends to misperceive risks)<sup>18,19</sup> for which economic decision tools like cost–benefit analysis are especially helpful.<sup>20</sup> More important, behavioral scientists have begun to develop powerful new tools that complement traditional approaches to policymaking. These tools are derived from observations about how people actually behave rather than how rational agents ought to behave. Such efforts have surged since the publication of Thaler and Sunstein’s book *Nudge*,<sup>21</sup> which advocates leveraging behavioral insights to design policies that promote desired behaviors while preserving freedom of choice. A number of edited volumes of behavioral policy insights from leading scholars have followed.<sup>22–25</sup>

*Behavioral information tools* leverage scientific insights concerning how individuals, groups, and organizations naturally process and act on information. Feedback presented in a concrete, understandable format can help people and organizations learn to improve their outcomes (as with new smart power meters in homes or performance feedback reviews in hospitals<sup>26</sup> or military units<sup>27</sup>) and make better decisions (for instance, when loan terms are expressed using the annual percentage rate as required by the Truth in Lending Act<sup>28</sup> or when calorie information is presented as a percentage of one’s recommended snack budget<sup>29</sup>). Similarly, simple reminders can overcome people’s natural forgetfulness and reduce the frequency of errors in surgery, firefighting, and flying aircraft.<sup>30–32</sup> Decisions are also influenced by the order in which options are

encountered (for example, first candidates listed on ballots are more likely to be selected)<sup>33</sup> and how options are grouped (for instance, physicians are more likely to choose medications that are listed separately rather than clustered together on order lists).<sup>34</sup> Thus, policymakers can nudge citizens toward favored options by listing them on web pages and forms first and separately rather than later and grouped with other options.

*Behavioral incentives* leverage behavioral insights about motivation. For instance, a cornerstone of behavioral economics is *loss aversion*, the notion that people are more sensitive to losses than to equivalent gains. Organizational incentive systems can therefore make use of the observation that the threat of losing a bonus is more motivating than the possibility of gaining an equivalent bonus. In a recent field experiment, one group of teachers received a bonus that would have to be returned (a potential loss) if their students’ test scores did not increase while another group of teachers received the same bonus (a potential gain) only after scores increased. In fact, test scores substantially increased when the bonus was presented as a potential loss but not when it was presented as a potential gain.<sup>35</sup>

A behavioral perspective on incentives also recognizes that the impact of monetary payments and fines depends on how people subjectively interpret those interventions. For instance, a field experiment in a group of Israeli day care facilities found that introducing a small financial penalty for picking up children late actually *increased* the frequency of late pickups, presumably because many parents interpreted the fine as a price that they would gladly pay.<sup>36</sup> Thus, payments and fines may not be sufficient to induce desired behavior without careful consideration of how they are labeled, described, and interpreted.

Behavioral insights not only have implications for how to tailor traditional economic incentives such as payments and fines but also suggest powerful nonmonetary incentives. It is known, for example, that people are motivated by their needs to belong and fit in, compare favorably, and be seen by others in a positive light. Thus, social feedback and public accountability can be especially potent motivators. For example, health care providers reduce their excessive antibiotic prescribing when they are told how their performance compares with that of “best performers” in their region<sup>37</sup> or when a sign declaring their commitment to responsible antibiotic prescribing hangs in their clinic’s waiting room.<sup>38</sup> In contrast, attempts to influence health care provider

behaviors (including antibiotic prescribing) using expensive, traditional pay-for-performance interventions are not generally successful.<sup>39</sup>

*Nudges* are a form of soft paternalism that stops short of formal regulation. They involve designing a choice environment to facilitate desired behavior without prohibiting other options or significantly altering economic incentives.<sup>21</sup> The most studied tool in this category is the use of defaults. For instance, European countries with opt-out policies for organ donation (in which consent to be a donor is the default) have dramatically higher rates of consent (generally approaching 100%) than do countries with opt-in policies (whose rates of consent average around 15%).<sup>40</sup>

Well-designed nudges make it easy for people to make better decisions. Opening channels for desired behavior (for instance, providing a potential donor to a charity with a stamped and pre-addressed return envelope) can be extremely effective, well beyond what would be predicted by an economic cost-benefit analysis of the action.<sup>41</sup> For instance, in one study, children from low-income families were considerably more likely to attend college if their parents had been offered help in completing a streamlined college financial aid form while they were receiving free help with their tax form preparation.<sup>42</sup> Conversely, trivial obstacles to action can prove very effective in deterring undesirable behavior. For instance, secretaries consumed fewer chocolates when candy dishes were placed a few meters away from their desks than when candy dishes were placed on their desks.<sup>43</sup>

Beyond such tools, *rigorous empirical observation* of behavioral phenomena can identify public policy priorities and tools for most effectively addressing those priorities. Recent behavioral research has made advances in understanding a range of policy-relevant topics, from the measurement and causes of subjective well-being<sup>44,45</sup> to accuracy of eyewitness identification<sup>46</sup> to improving school attendance<sup>47</sup> and voter turnout<sup>48</sup> to the psychology of poverty<sup>49,50</sup> to the valuation of environmental goods.<sup>51,52</sup> Rigorous empirical evaluation can also help policymakers assess the effectiveness of current policies<sup>53</sup> and management practices.<sup>24,54</sup>

## Learning from the Success of Economists in Influencing Policy

Behavioral scientists can learn several lessons from the unrivaled success of economists in influencing policy.

We highlight three: Communicate simply, field test and quantify results, and occupy positions of influence.

### Simplicity

Economists communicate a simple and intuitively compelling worldview that can be easily summed up: Actors pursue their rational self-interest. This simple model also provides clear and concrete prescriptions: Provide information and it will be used; align incentives properly and particular behaviors will be promoted or discouraged; mandate or prohibit behaviors and desired effects will tend to follow.

In contrast, behavioral scientists usually emphasize that a multiplicity of factors tend to influence behavior, often interacting in ways that defy simple explanation. To have greater impact, behavioral scientists need to communicate their insights in ways that are easy to absorb and apply. This will naturally inspire greater credence and confidence from practitioners.<sup>55</sup>

### Field Tested and Quantified

Economists value field data and quantify their results. Economists are less interested in identifying underlying causes of behavior than they are in predicting observable behavior, so they are less interested in self-reports of intentions and beliefs than they are in consequential behavior. It is important to note that economists also quantify the financial impact of their recommendations, and they tend to examine larger, systemic contexts (for instance, whether a shift in a default increases overall savings rather than merely shifting savings from one account to another).<sup>56</sup> Such analysis provides critical justification to policymakers. In the words of Nobel Laureate Daniel Kahneman (a psychologist by training), economists “speak the universal language of policy, which is money.”<sup>57</sup>

In contrast, behavioral scientists tend to be more interested in identifying causes, subjective understanding and motives, and complex group and organizational interactions—topics best studied in controlled environments and using laboratory experiments. Although controlled environments may allow greater insight into mental processes underlying behavior, results do not always generalize to applied contexts. Thus, we assert that behavioral scientists should make use of in situ field experiments, analysis of archival data, and natural

experiments, among other methods, and take pains to establish the validity of their conclusions in the relevant applied context. In addition, we suggest that behavioral scientists learn to quantify the larger (systemic and scalable) impact of their proposed interventions.

## Positions of Influence

Economists have traditionally placed themselves in positions of influence. Since 1920, the nonprofit and nonpartisan National Bureau of Economic Research has been dedicated to supporting and disseminating “unbiased economic research . . . without policy recommendations . . . among public policymakers, business professionals, and the academic community.”<sup>58</sup> The Council of Economic Advisors was founded in 1946, and budget offices of U.S. presidential administrations and Congress have relied on economists since 1921 and 1974, respectively. Think tanks populate their ranks with policy analysts who are most commonly trained in economics. Economists are routinely consulted on fiscal and monetary policies, as well as on education, health care, criminal justice, corporate innovation, and a host of other issues. Naturally, economics is particularly useful when answering questions of national interest, such as what to do in a recession, how to implement cost–benefit analysis, and how to design a market-based intervention.

In contrast, behavioral scientists have only recently begun assuming positions of influence on policy through new applied behavioral research organizations (such as ideas42), standing government advisory organizations (such as the British Behavioral Insights Team and the U.S. Social and Behavioral Sciences Team), and corporate behavioral science units (such as Google’s People Analytics and Microsoft Research). Behavioral scientists are sometimes invited to serve as ad hoc advisors to various government agencies (such as the Food and Drug Administration and the Consumer Financial Protection Bureau). As behavioral scientists begin to occupy more positions in such organizations, this will increase their profile and enhance opportunities to demonstrate the utility of their work to policymakers and other practitioners. Many behavioral insights have been successfully implemented in the United Kingdom<sup>59</sup> and in the United States.<sup>60</sup> For example, in the United States, the mandate to disclose financial information to consumers in a form they can easily understand (Credit Card Accountability and Disclosure Act of 2009), the

requirement that large employers automatically enroll employees in a health care plan (Affordable Care Act of 2010), and revisions to simplify choices available under Medicare Part D were all designed with behavioral science principles in mind.

## Approaches Behavioral Scientists Have Taken to Impact Policy

Although the influence of behavioral science in policy is growing, thus far there have been few opportunities for the majority of behavioral scientists who work at universities and in nongovernment research organizations to directly influence policy with their original research. Success stories have been mostly limited to a small number of cases in which behavioral scientists have (a) exerted enormous personal effort and initiative to push their idea into practice, (b) aggressively promoted a research idea until it caught on, (c) partnered with industry to implement their idea, or (d) embedded themselves in an organization with connections to policymakers.

### Personal Initiative (Save More Tomorrow)

Occasionally, entrepreneurial behavioral scientists have managed to find ways to put their scientific insights into practice through their own effort and initiative. For instance, University of California, Los Angeles, professor Shlomo Benartzi and University of Chicago professor Richard Thaler were concerned about Americans’ low saving rate despite the ready availability of tax-deferred 401(k) saving plans in which employers often match employee contributions. In 1996, they conceived of the Save More Tomorrow (SMarT) program, with features that leverage three behavioral principles. First, participants commit in advance to escalate their 401(k) contributions in the future, which takes advantage of people’s natural tendency to heavily discount future consumption relative to present consumption. Second, contributions increase with the first paycheck after each pay raise, which leverages the fact that people find it easier to forgo a gain (give up part of a pay raise) than to incur a loss (reduce disposable income). Third, employee contributions automatically escalate (unless the participant opts out) until the savings rate reaches a predetermined ceiling, which applies the observation that people are strongly biased to choose and stick with default options.

Convincing a company to implement the program required a great deal of persistence over a couple of years. However, the effort paid off: In the first application of Save More Tomorrow, average saving rates among participants who signed up increased from 3.5% to 13.6% in less than four years. Having proven the effectiveness of the program, Benartzi and Thaler looked for a well-known company to enhance its credibility, and they eventually signed up Philips Electronics, again with a successful outcome.

Results of these field experiments were published in a 1994 issue of the *Journal of Political Economy*<sup>61</sup> and subsequently picked up by the popular press. Benartzi and Thaler were soon invited to consult with members of Congress on the Pension Protection Act of 2006, which endorsed automatic enrollment and automatic savings escalation in 401(k) plans. Adoption increased sharply from there, and, by 2011, more than half of large American companies with 401(k) plans included automatic escalation. The nation's saving rate has increased by many billions of dollars per year because of this innovation.<sup>62</sup>

#### Building Buzz (the MPG Illusion)

Other researchers have sometimes managed to influence policy by actively courting attention for their research ideas. Duke University professors Richard Larrick and Jack Soll, for instance, noticed that the commonly reported metric for automobile mileage misleads consumers by focusing on efficiency (miles per gallon [MPG]) rather than consumption (gallons per hundred miles [GPHM]). In a series of simple experiments, Larrick and Soll demonstrated that people generally make better fuel-conserving choices when they are given GPHM information rather than MPG information.<sup>63</sup> The researchers published this work in the prestigious journal *Science* and worked with the journal and their university to cultivate media coverage.

As luck would have it, days before publication, US gasoline prices hit \$4 per gallon for the first time, making the topic especially newsworthy. Although Larrick and Soll found the ensuing attention gratifying, it appeared that many people did not properly understand the MPG illusion. To clarify their point, Larrick and Soll launched a website that featured a video, a blog, and an online GPHM calculator. *The New York Times Magazine* listed the GPHM solution in its "Year in Ideas" issue. Before long, this work gained the attention of the director of

the Office of Information and Regulatory Affairs and others, who brought the idea of using GPHM to the U.S. Environmental Protection Agency and U.S. Department of Transportation. These agencies ultimately took actions that modified window labels for new cars beginning in 2013 to include consumption metrics (GPHM, annual fuel cost, and savings over five years compared with the average new vehicle).<sup>60</sup>

#### Partnering with Industry (Opower)

Of course, successful behavioral solutions are not only implemented through the public sector: Sometimes policy challenges are taken up by private sector businesses. For instance, Arizona State University professor Robert Cialdini, California State University professor Wesley Schultz, and their students ran a study in which they leveraged the power of social norms to influence energy consumption behavior. They provided residents with feedback concerning their own and their neighbors' average energy usage (what is referred to as a *descriptive social norm*), along with suggestions for conserving energy, via personalized informational door hangers. Results were dramatic: "Energy hogs," who had consumed more energy than average during the baseline period, used much less energy the following month. However, there was also a boomerang effect in which "energy misers," who had consumed less energy than average during the baseline period, actually consumed more energy the following month. Fortunately, the researchers also included a condition in which feedback provided not only average usage information but also a reminder about desirable behavior (an *injunctive social norm*). This took the form of a handwritten smiley face if the family had consumed less energy than average and a frowning face if they had consumed more energy than average. This simple, cheap intervention led to reduced energy consumption by energy hogs as before and also kept energy misers from appreciably increasing their rates of consumption.<sup>64</sup> Results of the study were reported in a 2007 article in the journal *Psychological Science*.

Publication is where the story might have ended, as with most scientific research. However, as luck would have it, entrepreneurs Dan Yates and Alex Laskey had been brainstorming a new venture dedicated to helping consumers reduce their energy usage. In a conversation with Hewlett Foundation staff, Yates and Laskey were pointed to the work of Cialdini, Schultz, and their

collaborators. Yates and Laskey saw an opportunity to partner with utility companies to use social norm feedback to help reduce energy consumption among their customers, and they invited Cialdini to join their team as chief scientist. Eventually, the Sacramento Municipal Utility District agreed to sponsor a pilot test in which some of its customers would be mailed social norm feedback and suggestions for conserving energy. The test succeeded in lowering average consumption by 2%–3% over the next few months. Further tests showed similar results, and the company rapidly expanded its operations.<sup>65</sup> Independent researchers verified that energy conservation in the field and at scale was substantial and persistent over time.<sup>66</sup> As of this writing, Opower serves more than 50 million customers of nearly 100 utilities worldwide, analyzing 40% of all residential energy consumption data in the United States,<sup>67</sup> and has a market capitalization in excess of \$500 million.

### Connected Organizations

The success of behavioral interventions has recently gained the attention of governments, and several behavioral scientists have had opportunities to collaborate with “nudge units” across the globe. The first such unit was the Behavioral Insights Team founded by U.K. Prime Minister David Cameron in 2010, which subsequently spun off into an independent company. Similar units have formed in the United States, Canada, and Europe, many at the provincial and municipal levels. International organizations are joining in as well: As of this writing, the World Bank is forming its own nudge unit, and projects in Australia and Singapore are underway. Meanwhile, research organizations such as ideas42, BE Works, Innovations for Poverty Action, the Center for Evidence-Based Management, and the Greater Good Science Center have begun to facilitate applied behavioral research. A diverse range of for-profit companies have also established behavioral units and appointed behavioral scientists to leadership positions—including Allianz, Capital One, Google, Kimberly-Clark, and Lowe’s, among others—to run randomized controlled trials that test behavioral insights.

### Bridging the Divide between Behavioral Science and Policy

The stories above are inspiring illustrations of how behavioral scientists who are resourceful, entrepreneurial,

determined, and idealistic can successfully push their ideas into policy and practice. However, the vast majority of rank-and-file scientists lack the resources, time, access, and incentives to directly influence policy decisions. Meanwhile, policymakers and practitioners are increasingly receptive to behavioral solutions but may not know how to discriminate good from bad behavioral science. A better way of bridging this divide between behavioral scientists and policymakers is urgently needed. The solution, we argue, requires behavioral scientists to rethink the way they approach policy applications of their work, and it requires a new vehicle for communicating their insights.

### Rethinking the Approach

Behavioral scientists interested in having real-world impact typically begin by reflecting on consistent empirical findings across studies in their research area and then trying to generate relevant applications based on a superficial understanding of relevant policy areas. We assert that to have greater impact on policymakers and other practitioners, behavioral scientists must work harder to first learn what it is that practitioners need to know. This requires effort by behavioral scientists to study the relevant policy context—the institutional and resource constraints, key stakeholders, results of past policy initiatives, and so forth—before applying behavioral insights. In short, behavioral scientists will need to adopt a more problem-driven approach rather than merely searching for applications of their favorite theories.

This point was driven home to us by a story from David Schkade, a professor at the University of California, San Diego. In 2004, Schkade was named to a National Academy of Sciences panel that was tasked with helping to increase organ donation rates. Schkade thought immediately of aforementioned research showing the powerful effect of defaults on organ donation consent.<sup>40</sup> Thus, he saw an obvious solution to organ shortages: Switch from a regime in which donors must opt in (for example, by affirmatively indicating their preference to donate on their driver license) to one that requires people to either opt out (presume consent unless one explicitly objects) or at least make a more neutral forced choice (in which citizens must actively choose whether or not to be a donor to receive a driver’s license).

As the panel deliberated, Schkade was surprised to learn that some states had already tried changing the

choice regime, without success. For instance, in 2000, Virginia passed a law requiring that people applying for driver's licenses or identification cards indicate whether they were willing to be organ donors, using a system in which all individuals were asked to respond (the form also included an undecided category; this and a nonresponse were recorded as unwillingness to donate). The attempt backfired because of the unexpectedly high percentage of people who did not respond yes.<sup>68,69</sup>

As the expert panel discussed the issue further, Schkade learned that a much larger problem in organ donation was *yield management*. In 2004, approximately 13,000–14,000 Americans died each year in a manner that made them medically eligible to become donors. Fifty-nine different organ procurement organizations (OPOs) across the United States had conversion rates (percentage of medically eligible individuals who became donors in their service area) ranging from 34% to 78%.<sup>68</sup> The panel quickly realized that getting lower performing OPOs to adopt the best practices of the higher performing OPOs—getting them to, say, an average 75% conversion rate—would substantially address transplant needs for all major organs other than kidneys. Several factors were identified as contributing to variations in conversion rates: differences in how doctors and nurses approach families of potential donors about donation (family wishes are usually honored); timely communication and coordination between the hospitals where the potential donors are treated, the OPOs, and the transplant centers; the degree of testing of the donors before organs are accepted for transplant; and the speed with which transplant surgeons and their patients decide to accept an offered organ. Such factors, it turned out, provided better opportunities for increasing the number of transplanted organs each year. Because almost all of the identified factors involve behavioral issues, they provided new opportunities for behavioral interventions. Indeed, since the publication of the resulting National Academy of Sciences report, the average OPO conversion rate increased from 57% in 2004 to 73% in 2012.<sup>70</sup>

The main lesson here is that one cannot assume that even rigorously tested behavioral scientific results will work as well outside of the laboratory or in new contexts. Hidden factors in the new applied context may blunt or reverse the effects of even the most robust behavioral patterns that have been found in other contexts (in the Virginia case, perhaps the uniquely

emotional and moral nature of organ donation decisions made the forced choice regime seem coercive). Thus, behavioral science applications urgently require proofs of concept through new field tests where possible. Moreover, institutional constraints and contextual factors may render a particular behavioral insight less practical or less important than previously supposed, but they may also suggest new opportunities for application of behavioral insights.

A second important reason for field tests is to calibrate scientific insights to the domain of application. For instance, Sheena Iyengar and Mark Lepper famously documented *choice overload*, in which too many options can be debilitating. In their study, they found that customers of an upscale grocery store were much more likely to taste a sample of jam when a display table had 24 varieties available for sampling than when it had six varieties, but the customers were nevertheless much less likely to actually make a purchase from the 24-jam set.<sup>71</sup> Although findings such as this suggest that providing consumers with too many options can be counterproductive, increasing the number of options generally will provide consumers with a more attractive best option. The ideal number of options undoubtedly varies from context to context,<sup>72</sup> and prior research does not yet make predictions precise enough to be useful to policymakers. Field tests can therefore help behavioral scientists establish more specific recommendations that will likely have greater traction with policymakers.

### Communicating Insights

Although a vast reservoir of useful behavioral science waits to be repurposed for specific applications, the kind of research required to accomplish this goal is typically not valued by high-profile academic journals. Most behavioral scientists working in universities and research institutes are under pressure to publish in top disciplinary journals that tend to require significant theoretical or methodological advances, often requiring authors to provide ample evidence of underlying causes of behavior. Many of these publications do not reward field research of naturally occurring behavior,<sup>73</sup> encourage no more than a perfunctory focus on practical implications of research, and usually serve a single behavioral discipline. There is therefore an urgent need for new high-profile outlets that publish thoughtful and rigorous applications of a wide range of behavioral sciences—and especially

field tests of behavioral principles—to increase the supply of behavioral insights that are ready to be acted on.

On the demand side, although policymakers increasingly are open to rigorous and actionable behavioral insights, they do not see much research in a form that they can use. Traditional scientific journals that publish policy-relevant work tend to be written for experts, with all the technical details, jargon, and lengthy descriptions that experts expect but busy policymakers and practitioners cannot decipher easily. In addition, this work often comes across as naive to people creating and administering policy. Thus, new publications are needed that not only guarantee the disciplinary and methodological rigor of research but also deliver reality checks for scientists by incorporating policy professionals into the review process. Moreover, articles should be written in a clear and compelling way that is accessible to nonexpert readers. Only then will a large number of practitioners be interested in applying this work.

## Summing Up

In this article, we have observed that although insights from behavioral science are beginning to influence policy and practice, there remains a stubborn divide in which most behavioral scientists working in universities and research institutions fail to have much impact on policymakers. Taking stock of the success of economists and enterprising behavioral scientists, we argue for a problem-driven approach to behavioral policy research that we summarize in Figure 3.

We hasten to add that a problem-driven approach to behavioral policy research can also inspire development of new behavioral theories. It is worth noting that the original theoretical research on stimulus–response compatibility, mentioned above in connection with

### Figure 3. A problem-driven approach to behavioral policy

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1. Identify timely problem.
2. Study context and history.
3. Apply scientifically grounded insights.
4. Test in relevant context.
5. Quantify impact and scalability.
6. Communicate simply and clearly.
7. Engage with policymakers on implementation.

the butterfly ballot, actually originated from applied problems faced by human-factors engineers in designing military-related systems in World War II.<sup>74</sup> The bridge between behavioral science and policy runs in both directions.

The success of public and private policies critically depends on the behavior of individuals, groups, and organizations. It should be natural that governments, businesses, and nonprofits apply the best available behavioral science when crafting policies. Almost a half century ago, social scientist Donald Campbell advanced his vision for an “experimenting society,” in which public and private policy would be improved through experimentation and collaboration with social scientists.<sup>75</sup> It was impossible then to know how long it would take to build such a bridge between behavioral science and policy or if the bridge would succeed in carrying much traffic. Today, we are encouraged by both the increasing supply of rigorous and applicable behavioral science research and the increasing interest among policymakers and practitioners in actionable insights from this work. Both the infrastructure to test new behavioral policy insights in natural environments and the will to implement them are growing rapidly. To realize the vast potential of behavioral science to enhance policy, researchers and policymakers must meet in the middle, with behavioral researchers consulting practitioners in development of problem-driven research and with practitioners consulting researchers in the careful implementation of behavioral insights.

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#### author note

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