essay

Applying behavioral sciences in the service of four major economic problems

Jason Furman

abstract

Behavioral scientists have developed a powerful tool kit for understanding individual decisionmaking and have embedded it in a framework that acknowledges the need for robust experimentation to determine optimal public policy. But to date, the integration of behavioral science into public policy has proceeded from developing a set of tools to then searching for problems these tools can help solve. Behavioral science can play an even more important role in the policymaking process in coming years if practitioners instead begin with some of the large-scale questions that economic policymakers face and then develop insights that, often as a complement to more traditional policy tools, can help solve them.

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Core Findings

What is the issue?
Jason Furman, former chair of the Obama administration's Council of Economic Advisers, argues that behavioral science should move beyond creating tools in the abstract, and actively "address both market and normative failures" in society.

How can you act?
Furman suggests first identifying large-scale issues, and then using behavioral science research and insights to help solve them. He identifies four challenging issues facing society: ending recessions; combating climate change; reversing downward trends in male labor force participation; and reducing income inequality.

Who should take the lead?
Behavioral science researchers, and policymakers looking to maximize policy effectiveness

Behavioral scientists examine human behavior in multiple contexts, including (but not limited to) social interactions, decisionmaking on both individual and group levels, and economic and health choices. As the discipline has evolved, equipped with greater understanding of how individuals behave and what leads to their behavioral choices, policymakers have attempted to leverage this understanding to improve both individual and social welfare. Yet, as David Halpern and Michael Sanders of the United Kingdom's Behavioural Insights Team point out in an accompanying article in this issue of *Behavioral Science & Policy*, virtually all public policies aim to influence human behavior. Thus, although greater attention has been given in recent years to the use of behavioral science in developing policy, in many ways, injecting the current understanding of human behavior into policy is old hat.

Over the past several decades, behavioral scientists have developed a framework for understanding human behavior as it relates to the economy, with an emphasis on the various mental shortcuts that individuals take in actual economic decisionmaking.[1] Policymakers have examined these behavioral insights to better explain why the overall economy might not function as expected under standard economic theory. For example, the finding that setting defaults was a powerful way to overcome the often myopic or shortsighted decisions that individuals make with regard to saving for retirement helped motivate legislation like the Pension Protection Act of 2006, signed into law by President George W. Bush, which made it easier for companies to adopt automatic enrollment as a feature of their retirement plans.[2]

Furthermore, insights from behavioral science literature can help inform assessments of the costs and benefits of policies that are not themselves explicitly behavioral. In setting fuel economy standards—a policy mandate rather than an attempt to assign a default or shape behavior—policymakers should take into account the extent to which consumers, when purchasing a vehicle, are affected by the framing of information or the weighing of present costs that are certain against future benefits that are uncertain.[3]

Starting With Behavioral Tools & Looking for Problems

To date, most of the integration of behavioral science into public policy has proceeded from developing a set of tools to then searching for problems these tools can help solve. Tools such as setting defaults, enforcing active choices, framing issues around gains and losses, making information more salient, and providing social context are powerful ones, and over the past decade alone, behavioral scientists have made great strides in developing even more effective policy-applicable instruments.[4]

Moreover, these tools are embedded in a theoretical framework that not only expresses a set of ideas related to how individuals behave—caring about the way issues are framed, having limited attention spans, being myopic, and so on—but also acknowledges that much of behavior is not obviously predictable *ex ante* and thus that there is a need for robust experimentation to form an improved base of well-developed evidence to decide what works when creating policy.

In 2015, via executive order, President Obama formed the Social and Behavioral Sciences Team (SBST) to build upon existing behavioral science tools and policy insights. The SBST works with agencies across the federal government to integrate knowledge gained from behavioral science research into policymaking at the federal level. In its first year, SBST focused on a number of "proof-of-concept" projects to demonstrate the effectiveness of incorporating behavioral insights into federal agencies' existing programs.[5] Over the course of two terms, the Obama administration has applied behavioral policy insights while developing policies that have affected millions of Americans. For example, now in place are advanced regulations that attempt to make information more salient to help consumers make better choices, whether by changing the USDA's food pyramid to the new "MyPlate" or by making fuel economy labels on vehicles express mileage in terms of gallons per mile instead of miles per gallon.[6]

In Policymaking, Prioritization Is Key

Nobel laureate Daniel Kahneman, a psychologist and expert in behavioral science, has described existing applications of behavioral science to economic policymaking as "achieving medium-sized gains by nano-sized investments."[7] Especially well-chosen behavioral policy interventions can have nano-sized costs and produce extremely high benefit-to-cost ratios.

An important limitation of this existing approach is that policymakers have a finite amount of time and attention, so every policy action taken has a cost in terms of other actions that they are unable to undertake as a result. In other words, implementing one policy initiative over another is sometimes a zero-sum situation in practice even if it is possible in theory to implement both. Thus, even a high benefit-to-cost ratio may not be sufficient justification for pursuing a policy if it crowds out the time and attention that might have gone into other policies with higher absolute net benefits.

Nudging People on Internalities Versus Addressing Externalities

A more fundamental issue is that much of the existing behavioral science tool kit aims to nudge people to make choices that benefit them as individuals yet can also move society as a whole toward the social optimum. For example, if folks load their plates in accordance with the MyPlate proportions of fruit and vegetables, not only will their weight and health likely benefit, but overall health care costs will also decline. That is, most of the current behavioral science tools are aimed at individual choice options, or *internalities*, which are likely to bring direct benefits to the person making the choice.

However, many economic problems do not meet these criteria. In fact, the classic motivation for economic policy—and the one that still applies to many of the largest problems society faces—is not that individuals make suboptimal decisions when judged from their own perspective but that people make choices that, although perhaps individually optimal, have positive or negative effects on others. One example of what economists call an *externality* is that although it may be perfectly rational from an individual's perspective to dump waste into a river, because he or she does not fully bear the costs associated with this pollution, the downstream effects can harm others.

"Behavioral science can and should strive to play a larger role in helping to address both market and normative failures."

In addition to classic market failures, economic policy is also motivated by normative failures—for example, when individual decisions, whether optimal or not, lead to undesirable levels of inequality or rates of poverty. And some circumstances may have elements of both. For example, when healthy individuals forgo purchasing health insurance because premiums reflect the average cost of both the healthy and the sick, too few people have protection against high out-of-pocket costs (a classic market failure). This, in turn, causes much of the cost burden of illness to fall upon the sick (a normative failure).

Behavioral science can and should strive to play a larger role in helping to address both market and normative failures. But, as outlined above, doing so is more challenging than simply helping individuals make better decisions.[8,9]

Starting With Four Major Economic Policy Challenges & Looking for Tools

With these thoughts in mind, I want to discuss four important problems that we in the broader economic policy world are currently trying to address. Rather than starting with an available tool kit and then finding problems that it can solve, I want to use these problems to motivate exploration of possible answers to the following

questions: What does behavioral science have to contribute? If these are our goals, what tools do we have or should be developed to help achieve them?

All of the questions I set out in this article are genuinely open—I, at least, do not have the answers. In some cases, findings exist in the behavioral science literature that can guide our thinking on how to best tackle these problems. But in other cases, where no such findings exist, I hope that my presentation of these challenges will spur behavioral scientists to first start with the major economic challenges presented and then seek out new tools to help solve them.

Challenge 1: Ending Recessions

Recessions depend, in part, on objective economic circumstances—for example, abrupt spending reductions or interest rate increases that reduce aggregate demand. Additionally, economists have developed models of bank runs and bubbles by perfectly rational actors—basically if you think everyone else will be running to take their money from the bank then you should as well, a situation that *ex post* is rational for everyone involved.[10] But recessions also can have a large subjective or psychological component. For example, a complete understanding of the most recent economic downturn cannot be divorced from understanding the psychology of the housing price bubble or the run on safe forms of financing by investors that aggravated the crisis after the collapse of Lehman Brothers.

"Too often people substitute their own empirically and theoretically uninformed judgments about what would increase confidence."

Therefore, once the country is in a recession, behavioral scientists, with their psychological and behavioral insights, have a role to play in crafting the policies to get out of it. Boosting confidence in the economy, for example, would lead consumers to spend more and businesses to invest more, helping to lift aggregate demand. While increasing confidence is, of course, not a panacea—one need only look at Japan's tepid economic performance despite its recent policy changes intended to move confidence in the right direction—Lawrence Summers has remarked that confidence is the cheapest form of economic stimulus.[11]

The evidence on how to move confidence is very limited, and for good reason: It is nearly impossible to run a large number of randomized trials to answer this question. As a result, too often people substitute their own empirically and theoretically uninformed judgments about what would increase confidence.

As we in the Obama administration developed what would become the American Recovery and Reinvestment Act of 2009, we knew that putting money in the pockets of consumers was an important part of lifting the country out of the Great Recession—an analysis that stemmed from standard Keynesian macroeconomic theory. But we also knew that we needed consumers to spend that money rather than save it—and we knew much less about how to achieve that goal, because standard Keynesian macroeconomics has little to say about the issues of framing and salience, which can have a large effect on actual behavior.

When it came time to think about *how* we were going to put money into consumers' wallets as part of the Recovery Act, we considered two options. The first option was to mail Americans a onetime check, like the Bush administration did in 2008. We could have gone even further and attached a message saying something like, "Here is your stimulus check; we would be thrilled if you went out and spent it, because if you all went out and spent it, you would be helping your neighbors, too."

The second option was to provide the same level of stimulus but to implement it via reduced payroll tax withholding from Americans' paychecks. Those receiving the stimulus would see a slightly larger paycheck every other week, but they would not receive a message encouraging them to spend the additional funds.

In deciding between these two possibilities, we carefully considered an individual's psychology

to determine the better option. On the one hand, we worried that if an individual received a large check in the mail, he or she would head straight to the bank and deposit it in a savings account. Although that approach might create more political capital for President Obama, the primary goal of sending the check might not be achieved. On the other hand, if the person received a smaller amount of extra money every other week—knowing that this was not a one-off boost but would continue for some time into the future, or even if he or she simply had a growing checking account without even realizing the underlying cause—that individual might be more likely to spend the extra pay. Motivated in part by these beliefs, we decided on the tax-withholding option rather than the onetime-check option.

Even today, the literature is not clear about which of those two routes would have been more effective, especially over the multiyear time frame that ended up being relevant for the recession and its aftermath.

Although there is no specific reason to predict a recession in the near term, now is as good a time as any to plan for future contingencies. Behavioral insights alone will not be sufficient to get out of a recession; no amount of confidence that is detached from other policies boosting economic growth would accomplish that goal. But knowing how best to combine non-behavioral interventions (providing the stimulus to consumers) with behavioral insights (how to deliver the stimulus in such a way that consumers spend it) would be helpful in combating the next recession.

Challenge 2: Mitigating & Adapting to Climate Change

Behavioral science clearly has a role to play in addressing climate change, an enormous economic and social challenge. Strong and compelling evidence shows that carbon emissions—and thus climate change—are exacerbated by individuals' decisions, such as the choice of a particular vehicle or refrigerator.[12] In making these decisions, individuals are often affected by many of the behavioral biases I discussed earlier—for example, overly discounting future benefits against up-front costs. A number of existing behavioral interventions can help address such biases. Providing clear information about the fuel efficiency of refrigerators and vehicles, showing consumers how their power use compares with that of other households in their neighborhoods,[13] or simply increasing the salience of information about individuals' energy usage via meters and monitoring are just a few.

Each of these behavioral interventions would both reduce emissions (thereby improving social welfare) and save consumers and businesses money (through smaller electricity or fuel bills). But even if policymakers put into place the full set of such "no-regrets" behavioral policies—and there may be many such interventions yet to be implemented—their effect on climate change may be appreciable yet insufficient to solve the problem. This is because many individuals, even when making perfectly rational decisions, will fail to take into account that the carbon emitted as a result of their activities has costs for society as a whole—in other words, that carbon emissions constitute an externality.

To buttress behavioral interventions that aim to reduce emissions, legislation is needed that puts a price on carbon to make sure that those social costs—estimated to be about $40 a ton—are internalized in the decisionmaking processes of individuals and businesses. There are a number of ways to ensure these costs are taken into account. As Cass Sunstein and Richard Thaler have noted, rather than thinking of this as an either-or choice between behavioral nudges and a more traditional mandate, it is important to consider how regulatory and other policy vehicles can be combined with the best behavioral insights to maximize the impact of environmental policies.[14]

Challenge 3: Reversing the Long-Run Decline in Prime-Age Male Labor Force Participation

In 1954, just 2% of men between the ages of 25 and 54 years—prime-age men—were out of the workforce. Today, that figure stands at more than 11%. This is not the result of the most recent recession: for about six decades, the percentage of prime-age men not working has risen (see Figure 1).

2009

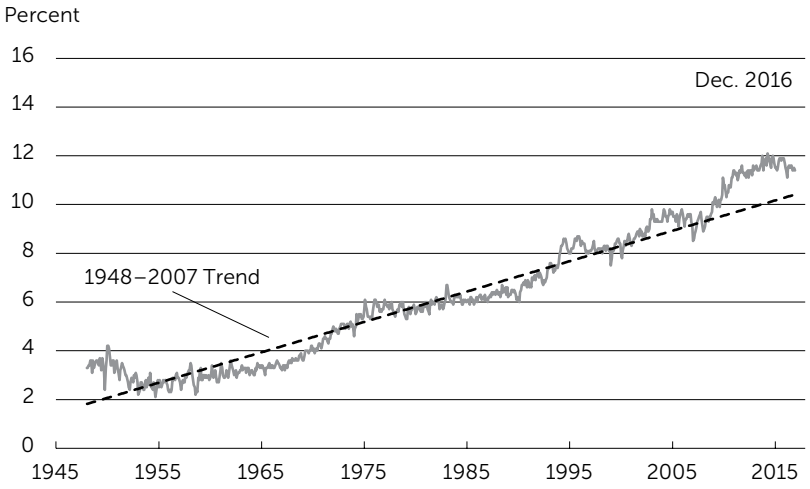
the year the anti-recessionary **American Recovery and Reinvestment Act** was passed to stimulate consumer spending

the estimated social cost of carbon emissions is $40/ton

11%

of men between the ages of 25 and 54 years out of the workforce

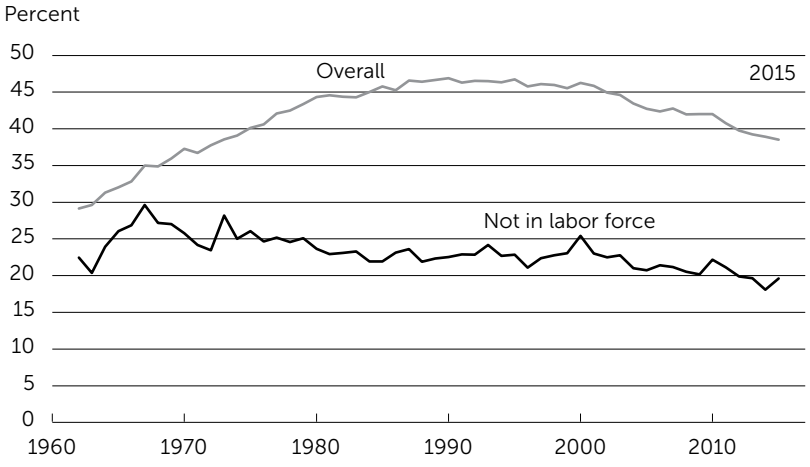
Figure 1. Share of prime-age men not in the labor force



Source: Bureau of Labor Statistics, Current Population Survey; Council of Economic Advisers' calculations.

Economists have been unable to uncover a simple explanation for this disturbing trend. Somewhat surprisingly, given the entry of women into the US workforce in the second half of the 20th century, the decline in prime-age male labor force participation is not the result of men now being more likely to be married to a working spouse. In fact, a smaller fraction of nonworking men are married to a working woman today than was the case in the 1950s (see Figure 2). It is also not explained by increasing generosity of government benefits—if anything, welfare benefits have become less generous for those not working—or by increases in disability insurance enrollment.[15]

Figure 2. Share of prime-age men with spouse in the labor force



Source: Bureau of Labor Statistics, Current Population Survey (Annual Social and Economic Supplement); Council of Economic Advisers' calculations.

Standard neoclassical economics is ill-equipped to understand this troubling phenomenon. In a neoclassical model, work is a disutility: an agent would prefer to not work and to consume leisure but must work to receive income to pay for other consumption goods. But researchers have found, even after controlling for income, that those involuntarily out of work have lower self-esteem and are more likely to experience a range of psychological problems, including depression, than are those with jobs. Research has also found that those who lose their jobs can become demoralized, making it more difficult for them to find a job even when economic conditions improve.[16–18]

Moreover, in standard economic models of the labor market, supply matches demand, and anyone who wants to work is able to find work. Even in Keynesian models, where in the short run there can be insufficient demand and thus involuntary unemployment, there are no individuals who are unwillingly out of work in the long run. But the market for human labor turns out to be very different than the market for, say, wheat.

The long-run increase in prime-age male work nonparticipation is one challenge for which economists have neither a satisfactory explanation nor comprehensive solutions. We have some clues—a reduction in demand for low-skill workers seems to be playing a role, as is the increase in mass incarceration and its impact on those returning to society. But no fully adequate model of the labor market includes ways in which a mismatch of expectations for job quality and wages affects employment or ways in which an extended period of unemployment can affect a person's likelihood of ever becoming reemployed.[19]

Because many of the unanswered questions about how to increase workforce participation have behavioral underpinnings, behavioral research can shed much-needed light on why

nonemployment has risen and what can be done to combat the problem. Recently, SBST has partnered with unemployment insurance systems in Utah and Oregon to pilot a number of interventions—such as reducing some of the stigma associated with joblessness and helping recipients fulfill their goals of finding a job by calling them "job seekers" rather than "claimants" and changing the timing of benefits to encourage job-seeking behavior—that show promise in this area.[20] Behavioral science can also assist policymakers in understanding and proactively responding to future changes to the workforce stemming from automation and artificial intelligence (AI), helping to mitigate some of their potential costs.[21]

Challenge 4: Reducing Inequality

The final challenge I briefly discuss is economic inequality. At first blush, an increase in inequality may not appear to be the sort of problem that lends itself easily to solutions from the behavioral tool kit. After all, it is implausible that small-scale behavioral nudges toward better decisionmaking can lead to massive changes in the distribution of income in the aggregate economy. Nevertheless, the sheer magnitude of the problem of inequality requires a no-stone-unturned approach when considering solutions.

Designing antipoverty programs that increase incentives for work while avoiding incentives to reduce work hours requires understanding how individuals weigh such incentives when deciding whether to enter the labor force. Behavioral science also has much to offer in helping policymakers and program administrators understand the take-up rate for antipoverty programs. In many cases, such rates can be quite low, and understanding the relative roles of informational failures, stigma, compliance burdens, and other factors could help policymakers improve the design and administration of programs like the Earned Income Tax Credit and the Supplemental Nutrition Assistance Program (SNAP).

Behavioral insights can also provide a better understanding of the impact of the minimum wage and other antipoverty policies on worker productivity, motivation, and retention, as well as their potential role in alleviating some of the stress and psychological burden of poverty that Sendhil Mullainathan and Eldar Shafir, among others, have discussed.[22]

"At first blush, an increase in inequality may not appear to be the sort of problem that lends itself easily to solutions from the behavioral tool kit."

Behavioral insights may also help policymakers understand and craft policies aimed at the upper tail of the income distribution. Some of these issues include understanding the motivations for seeking higher pay—for example, whether absolute well-being or relative status matters more when developing optimal tax policy. In addition, much of the increase in inequality has been the result of increasing compensation for managers. This compensation is usually set by corporate boards or other managers, so understanding the interpersonal dynamics at work in these pay decisions could be relevant in designing corporate governance policies. Requiring greater transparency surrounding CEO pay could also possibly induce favorable behavioral responses in pay setting that ultimately result in a decrease in inequality.

Finally, changes in economic inequality stem, in part, from the full complement of government policies. Therefore, much of what I have discussed above, such as combating recessions, improving health, and improving work incentives, would potentially have a positive impact on inequality reduction as well.

Conclusion: Toward Higher-Hanging Fruit

These are exciting times when it comes to integrating behavioral insights into public policy. The tool kit that behavioral science has developed is both expansive and powerful, but policymakers have yet to fully deploy these tools to solve a

number of pressing policy issues. In other words, a great deal of low-hanging fruit remains for behavioral science and public policy.

At the same time, I encourage behavioral scientists to look further up in the branches toward higher-hanging and potentially better fruit. That entails starting from the big questions, such as those outlined above—recessions, climate change, employment, and inequality—and then determining what behavioral insights and research, often as complements to more traditional policy tools, are needed to help solve them.

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references

1. Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.
2. Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics, 116,* 1149–1187.
3. Allcott, H., & Sunstein, C. R. (2015). Regulating internalities. *Journal of Policy Analysis and Management, 34,* 698–705.
4. Sunstein, C. R. (2016). The Council of Psychological Advisers. *Annual Review of Psychology, 67,* 713–737.
5. Congdon, W. J., & Shankar, M. (2015). The White House Social & Behavioral Sciences Team: Lessons learned from year one. *Behavioral Science & Policy, 1*(2), 77–86.
6. Sunstein, C. R. (2013). *Simpler: The future of government*. New York, NY: Simon & Schuster.
7. Singal, J. (2013, April 26). Daniel Kahneman's gripe with behavioral economics. *The Daily Beast.* Retrieved from http://www.thedailybeast.com/articles/2013/04/26/daniel-kahneman-s-gripe-with-behavioral-economics.html
8. Mullainathan, S., Schwartzstein, J., & Congdon, W. J. (2012). A reduced-form approach to behavioral public finance. *Annual Review of Economics, 4,* 511–540.
9. Chetty, R. (2015). Behavioral economics and public policy: A pragmatic perspective. *American Economic Review, 105*(5), 1–33.
10. Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy, 91,* 401–419.
11. Summers, L. H. (2016). The age of secular stagnation: What it is and what to do about it. *Foreign Affairs, 95*(2), 2–9.
12. Nordhaus, W. (2013). *The climate casino: Risk, uncertainty, and economics for a warming world*. New Haven, CT: Yale University Press.
13. Allcott, H., & Rogers, T. (2014). The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation. *American Economic Review, 104,* 3003–3037.
14. Sunstein, C. R., & Thaler, R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT: Yale University Press.
15. Council of Economic Advisers. (2016, June). *The long-term decline in prime-age male labor force participation*. Retrieved from http://www.obamawhitehouse.gov/sites/default/files/page/files/20160620_primeage_male_lfp_cea.pdf
16. Winkelmann, L., & Winkelmann, R. (1995). Happiness and unemployment: A panel data analysis for Germany. *Applied Economics Quarterly, 41*(4), 293–307.
17. Clark, A. E., Georgellis, Y., & Sanfey, P. (2001). Scarring: The psychological impact of past unemployment. *Economica, 68,* 221–241.
18. Knabe, A., & Ratzel, S. (2011). Scarring or scaring? The psychological impact of past unemployment and future unemployment risk. *Economica, 78,* 283–293.
19. Arulampalam, W., Gregg, P., & Gregory, M. (2001). Unemployment scarring. *The Economic Journal, 111*(475), 577–584.
20. Social and Behavioral Sciences Team. (2016, September). *2016 annual report*. Retrieved from http://www.obamawhitehouse.gov/sites/whitehouse.gov/files/images/2016%20Social%20and%20Behavioral%20Sciences%20Team%20Annual%20Report.pdf
21. Executive Office of the President. (2016, December). Artificial intelligence, automation, and the economy. Retrieved from http://www.obamawhitehouse.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.pdf
22. Mullainathan, S., & Shafir, E. (2013). *Scarcity: Why having too little means so much*. New York, NY: Times Books.