Applying behavioral insights to improve postsecondary outcomes: A review of Obama administration efforts and next steps under the Trump administration

Katharine Meyer¹ and Kelly Ochs Rosinger²

¹University of Virginia
405 Emmet Street
Charlottesville, VA 22904
kem3e@virginia.edu (corresponding author)

²Pennsylvania State University
400 Rackley Building
University Park, PA 16802
krosinger@psu.edu

Abstract
Amidst growing public concern in the United States over college access and affordability, federal policymakers have implemented many low-cost, behaviorally-informed strategies aimed at simplifying the college-going process and reducing informational barriers. Our paper reviews recent US federal policies and interventions that draw on insights from the behavioral sciences to help students navigate various stages of the college-going process and summarizes empirical evidence of these efforts on college outcomes, highlighting variations across interventions and for various student populations. We conclude with up-to-date discussions of policy proposals and opportunities for behavioral science applications in postsecondary education. This review is timely given the upcoming reauthorization of the Higher Education Act and the 2018 Congressional midterm elections in the United States, both of which are likely to feature discussions around college access and affordability.

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In 2009, the United States ranked 14th among Organization for Economic Co-operation and Development (OECD) nations in the proportion of adults with a college degree, prompting the Obama administration to launch a campaign aimed at increasing college attainment rates. In a joint address to Congress that year, President Obama said that by 2020 the United States would “once again have the highest proportion of college graduates in the world,” and the Department of Education (ED) targeted expanding the share of adults with an associate’s degree or higher from 40 to 60 percent as part of this goal (Obama, 2009; Fry, 2017). In the push toward advancing this goal, higher education policy discussions in the United States in recent years have largely centered on issues of college access, completion, and affordability. Although college participation rates have increased across income levels, the gap in college enrollment and completion between high- and low-income students has widened (Bailey & Dynarski, 2011). Fewer than half of high-achieving, low-income students earn a college degree compared to three-quarters of similarly achieving students from high-income households (Dynarski, 2015). Rapidly increasing tuition rates raise additional concerns about college affordability, particularly given the growing number of students relying on loans to finance their education. Many students struggle to repay that educational debt. More than one-quarter of borrowers have defaulted on at least one loan after entering repayment, with higher default rates among undergraduates, students who never earned a credential, and students of color (Federal Student Aid [FSA], 2014; Kelchen & Li, 2017; National Center for Education Statistics, 2017; Podgursky et al., 2002; Scott-Clayton, 2018).

Over the past decade, the U.S. federal government has taken substantial steps to improve access, completion, and affordability by simplifying college and financial aid processes and reducing informational barriers students face when evaluating college options. These efforts
expanded under the Obama administration and included the creation of a suite of informational tools, policies, and interventions intended to help students navigate the college-going process and make informed decisions on the way to and through college. For instance, changes to the financial aid process included connecting the Free Application for Federal Student Aid (FAFSA) with tax data and revising application timelines. Related efforts led to the development of consumer information tools designed to help students evaluate college options, such as the College Scorecard, a website that allows students to search for and compare colleges on outcomes such as net price, graduation rates, and earnings.¹

Many efforts to simplify the college-going process and reduce informational barriers drew on the behavioral sciences, which incorporate insights from economics, psychology, cognitive science, and other social sciences, to understand and inform decisionmaking. In this policy retrospective, we review empirical evidence surrounding federal efforts that applied behavioral science insights to college and financial aid processes in the United States over the past decade. Prior reviews have focused on mapping educational investment decisions onto a behavioral science framework (Jabbar, 2011; Lavecchia, Liu, & Oreopoulos, 2014), the outcomes of behavioral “nudge units” in Canadian domestic policy (French & Oreopoulos, 2017), and highlighting lessons learned from evaluations of non-profits’ and colleges’ behaviorally informed interventions for future government policy (Castleman, 2017; Castleman et al., 2017). This paper builds on and extends previous reviews in several ways. First, we examine specific U.S. federal education policy efforts in the past decade and evidence regarding

¹ 1998 and 2008 reauthorizations of the Higher Education Act (HEA) included precursors to more defined goals of the Obama administration related to college-going simplification and information. For example, the College Navigator, part of the 1998 HEA, is a website aimed at facilitating college search, and “tuition shame lists” – list of colleges with highest net and list prices – required under 2008 reauthorization can be seen as earlier attempts to improve transparency and accountability
their effects on several student outcomes, including college completion, as opposed to previous reviews that have largely focused on college entry. Second, we discuss the efficacy of different approaches, highlighting ones that appear particularly promising and estimating the return on investment needed to make such efforts feasible for government provision in the long run. Finally, we focus on the public provision of informational tools, policies, and interventions aimed at helping students to and through college and discuss how public versus private efforts are likely to shape student outcomes and the continued provision of such services.

In the following section, we begin by providing a brief overview of the behavioral sciences and their recent applications in public policy. We then discuss how insights from the behavioral sciences have been applied to higher education settings to help students navigate the college transition and financial aid processes and the effects of such efforts. Next, we discuss promising directions for the federal government to further apply behavioral science insights to improve college outcomes (and potential limitations of this approach), as well as estimate the benefits that would have to be realized to make government provision of postsecondary informational tools, policies, and interventions feasible in the long term. Finally, we hypothesize where efforts to simplify the college-going process and reduce informational barriers are likely to go under the Trump administration.

**BEHAVIORAL SCIENCE: OVERVIEW OF THE FIELD AND RECENT POLICY TRENDS**

The field of behavioral science explores individuals’ engagement around three margins related to decisionmaking, especially when decisions involve complexity, risk, and uncertainty: (1) identifying behavioral barriers to making an optimal choice, (2) labeling typical responses to those barriers, and (3) developing solutions and strategies to overcome those responses.
At any given moment, individuals are evaluating choices and making many decisions, often without complete information about the costs and benefits of each option. Researchers have long documented that people have limited attention, or cognitive bandwidth, available to solve a particular problem (Kahneman, 2012; Mullainathan & Shafir, 2013). Many factors affect the cognitive bandwidth people are able to dedicate to decisionmaking – for instance, time limits, hunger, or stress from poverty (Gennetian & Shafir, 2015; Mullainathan & Shafir, 2013; Schilbach, Schofield, & Mullainathan, 2016). Limited cognitive bandwidth creates barriers to making fully informed and rational decisions. Individuals thus often make decisions using “bounded rationality,” that is, rational given a set of practical constraints (Simon, 1982; Kahneman, 2003).

Kahneman and Tversky’s influential work in the 1970s (e.g., 1974, 1979) explored how the framing and context of choices affect how people respond to complicated decisions under constraint or uncertainty. Individuals might put off a making a decision or taking action, deterred by hassles associated with carefully evaluating options and believing they will handle complexity better tomorrow, and fail to follow-up with an active choice (Karlan et al., 2016; Thaler & Benartzi, 2004). They might also rely on heuristics, or “rules of thumb,” to evaluate options and make choices (Kahneman, 2012). These heuristics include, among others:

- **Availability bias**: Someone might use easily accessible information rather than spending time and bandwidth needed to find more informative data (Tversky & Kahneman, 1974). For example, a student deciding what colleges to apply to might rely on the anecdotes or experiences of friends or older siblings with the college search rather than seeking out other perspectives. Indeed, the college choices of younger siblings often mirrors that of older siblings, especially when it comes to
enrolling in a four-year college and admissions selectivity of a college (Goodman, Hurwitz, Smith, & Fox, 2015).

- **Anchors and reference points**: An individual might evaluate a choice differently when it is compared to different options. Put another way, whether you call a tomato a fruit or a vegetable often depends on whether it is sitting next to an apple or a beet. When considering college options, a family might determine whether the cost of attendance is acceptable at a nearby four-year college differently by whether it is compared to a two-year college (which is likely to have comparatively low tuition) or a private four-year college (which is likely to have comparatively high tuition) (Ariely, Loewenstein, & Prelec, 2006).

- **Default and status quo bias**: Often, when faced with complexity, people fail to make an active choice – sticking with the default or status quo option (Samuelson & Zeckhauser, 1988; Thaler & Sunstein, 2008). For example, students deciding where to enroll in college may select the closest school rather than evaluating which institution best matches their goals or aspirations.

Acknowledging these tendencies, academics as well as public and private sector practitioners have developed and implemented various behavioral nudges and interventions that shift how individuals encounter choices, often taking advantage of heuristics to encourage an optimal choice (Thaler & Sunstein, 2008). By identifying behaviorally rooted challenges that people face, organizations can then make structural program changes (simplifying processes, changing the default, removing hassle factors) and/or support individuals’ decisionmaking process (sending timely, salient, and actionable reminders, developing commitment devices, and prompting active choices).
While behavioral interventions have the potential to improve individual welfare, they also have the potential to improve the general welfare by affecting the externalities associated with sub-optimal decisionmaking, such as reducing the need for public health welfare interventions if individuals stop engaging in unhealthy behaviors (Furman, 2017). Given this distributed interest, a growing movement across the globe supports the application of behavioral insights toward improving public policy outcomes, in areas such as nutrition, credit card and mortgage disclosures, automobile purchases, and the take-up rates of government social programs. This groundswell has resulted in several countries (including the United Kingdom, Australia, Canada, and Germany) establishing nudge units that focus on implementing and evaluating behavioral science innovations in government policy, and is also reflected in the growing use of behavioral insights to inform the work of international institutions such as the World Bank and the OECD. In 2014, the Obama administration launched the Social and Behavioral Sciences Team (SBST) in the United States to collaborate with federal agencies to implement and evaluate behavioral interventions aimed at improving the effectiveness and efficiency of government programs. The following year (2015), an executive order more broadly encouraged federal agencies in the United States to consider ways of applying behavioral insights to improve public policy outcomes. Most of these nudge units, including the SBST, emphasize rigorous evaluations of behavioral interventions, aiding in the growing movement toward evidence-based social programs and policies (Haskins, 2017; see also Gopalan & Pirog, 2017 for an overview of U.S. efforts to apply the behavioral sciences to social policy, and a framework for doing so).

**BEHAVIORAL SCIENCE AND FEDERAL HIGHER EDUCATION POLICY**

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2 The change in presidential administrations resulted in the disbanding of SBST.
In postsecondary education, policies aimed at simplifying the college-going process and reducing informational barriers represent low-cost, often bipartisan efforts intended to improve college access, completion, and affordability. Such efforts often draw on behavioral sciences to help students navigate college decisions. Given little interest within the U.S. Congress in expanding funding for student financial aid programs, behaviorally informed policies and interventions present a promising way to improve the effectiveness and efficiency of existing programs focused on access and affordability (Dynarski & Wiederspan, 2012). In this section, we review steps in the college-going process, from initial application to loan repayment, and empirical evidence of how recent behaviorally informed federal policies and interventions enacted during the Obama administration affected student outcomes.

Students, particularly low-income, first generation, and minority students, often struggle with successfully applying to, matriculating to, paying for, and graduating from college in the United States for many reasons. Students must first decide to pursue postsecondary education, then evaluate a set of institutions to apply to, complete federal, state, and institution-specific financial aid paperwork, potentially undergo FAFSA verification, decide where to attend, decide whether and how much to borrow, complete graduation requirements, and repay loans taken out along the way. At any of these points, students can encounter behavioral and informational barriers that disrupt their educational trajectory, a particular concern for low-income, first-generation, and minority students who interact with fewer college counselors and often lack family knowledge about the college-going process (Castleman & Page, 2014; Lareau, 2003; Ross, White, Wright, & Knapp, 2013).

Over the past decade, researchers have extensively documented this complex college-going process, highlighting these behavioral and informational barriers and developing
interventions to facilitate the transition to and through college (e.g., Bettinger et al., 2012; Castleman & Page, 2016, 2015; Castleman, Page, & Schooley, 2014; Dynarski & Scott-Clayton, 2006). Many of these interventions have focused on providing students with access to quality college advisors, with either in person or virtual opportunities to address specific questions about the college transition (e.g., Barr & Castleman, 2016). Others have focused on pushing information about the college search and high-quality college options out to high-achieving, low-income students who are unlikely to have access to an individual who would otherwise find and share that information with them (e.g., Hoxby & Turner, 2013).

Research increasingly shows interventions that occur early on in the college-going process affect subsequent steps and the ultimate likelihood of degree completion. For instance, informational packets about college options not only affected where students applied, but where they enrolled, with treated students attending schools with higher graduation rates and larger per pupil instructional and student support expenditures (Hoxby & Turner, 2013). Attending a more selective institution often means students are more likely to eventually earn a degree – just meeting the test score threshold for eligibility to a four-year versus two-year college in Georgia substantially increased the likelihood those students would earn a bachelor’s degree within six years, particularly for low-income and black students (Goodman, Hurwitz, & Smith, 2016). This logic – that early interventions serve to shift educational trajectories and can affect long-term completion – underlies much of the federal policy efforts around the college search and application margin.

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3 Given high loan default rates among individuals who do not complete a degree and the cost of additional years of education without necessarily experiencing an income boost from completing a degree, the benefit of policies that induce enrollment among marginal students but fail to affect completion is ambiguous and merits more attention.
In the following section, we discuss recent U.S. federal policy efforts aimed at simplifying the college-going process and helping students make informed decisions and present the empirical evidence of how these policies affect college outcomes, emphasizing variations across interventions and for various student populations. In Table 1, we summarize these recent policy efforts along the college transition and completion timeline, as well as the behavioral obstacles they target, and the behavioral principles the policies embody.

Table 1 about here

Getting To and Through College: College Application, Enrollment, and Completion

Acknowledging informational barriers in the college search process, the U.S. Department of Education launched the College Scorecard in September 2015. Originally intended as a college-rating tool to identify high- and low-performing colleges and warn low-performing colleges they could lose access to federal student aid funds, backlash over federal college ratings led the Obama administration and ED to revamp the Scorecard to serve as a consumer information tool. The final product was an information portal that enables students to search for colleges by location, size, or other attributes, such as whether the school is public, private, or religiously affiliated. Each institution has a profile page that features average cost, graduation rate, and post-graduation earnings benchmarked against the national average, with the option to compare institutions or view more details for one college.

In theory, the Scorecard addresses several behavioral barriers to a successful college search, application, and college completion process. The tool is user-friendly, and provides appropriate anchors or reference points against which students can assess a college’s
performance (e.g., comparing a school’s graduation rate to the national average), potentially nudging students toward schools that score higher on performance metrics and away from poor-performing institutions. The Scorecard also enables students to access information in digestible phases (e.g., using a filter to search for schools, previewing three key metrics, and then letting students dig deeper into colleges they find interesting). This allows students to focus on a small amount of information at a time, reducing the cognitive bandwidth required to sift through vast amounts of text.

However, researchers have not yet detected dramatic shifts in college search or application behaviors associated with the Scorecard’s introduction. On the search margin, Huntington-Klein (2016) measured Google Search Trends for 3,595 two- and four-year institutions in the Scorecard dataset before and after Scorecard introduction. He found significant but small increases in searches for colleges with lower tuition, higher graduation rates, and higher earnings. At the application margin, researchers used SAT “score sends” as proxies for applications and found similarly small but significant effects, with 2.4 percent more SAT test scores sent to schools with higher earnings but no effect on score send behavior in response to an institutions’ cost or graduation rate information (Hurwitz & Smith, 2018). They found effects concentrated among schools with a low proportion of underrepresented minority students or a low proportion of students eligible for free- or reduced-price lunch and among Asian and White students and students with higher SAT scores. They did not find significant effects on the college enrollment margin.

These papers suggest that while the Scorecard had a small effect on college search and application behaviors, those effects were concentrated among relatively high-achieving and economically advantaged students, and may contribute to widening socioeconomic gaps in
college matriculation. As the authors note, the relatively unimpressive effects of the Scorecard contrasted with other successful proactive college outreach campaigns may reflect differences in how students access information. While active, more involved informational interventions have typically pushed outreach directly to students via mailings, text messages, and sometimes by interactions with college advisors (e.g., Castleman & Page, 2015; Hoxby & Turner, 2013), the Scorecard relies on students to seek out information on their own. Students of all income levels may benefit from well-organized information to guide college decisionmaking, but delivery systems matter, and low-income students are more likely to realize benefits from proactive outreach.

While the intended purpose of the Scorecard is to help students during the college search and application process by identifying colleges that are a good fit for them and allowing them to compare colleges on a variety of metrics, it may also indirectly influence college completion. If giving students information about college outcomes nudges them to apply to and subsequently enroll in colleges with better outcomes (e.g., higher graduation rates), it may improve the likelihood that students graduate. It is still too soon to evaluate the Scorecard and other consumer information tools outlined in the following section for an effect on graduation rates; however, if such efforts are able to shift students into attending colleges with better outcomes, it may be an effective policy lever to affect degree attainment. If, however, the Scorecard and similar efforts primarily benefit relatively advantaged students, as recent evidence seems to indicate, it could exacerbate existing inequalities in college access and completion.

**Footing the Bill: Financial Aid and College Financing**

After searching for and applying to college, many students encounter challenges navigating the complex and multi-step financial aid application process in order to pay for
college. The FAFSA is a lengthy, cumbersome application (more than 100 questions) that students must complete to apply for federal student aid. In the face of this complexity, many students who would benefit from federal student aid simply do not complete FAFSA (Bird & Castleman, 2016; Dynarski & Scott-Clayton, 2006; Kofoed, 2016). Even after filing, approximately 30 percent of filers are selected (some randomly, some due to incomplete applications) for income verification requiring them to submit additional paperwork to assess their financial need (Page, Castleman, & Meyer, 2016). Researchers and college advising organizations have long advocated that the FAFSA undergo simplification to ease hassles associated with completing the application and accessing financial aid.

The U.S. Congress and the ED have made progress toward simplifying the process of applying for federal student aid. These changes include incorporating skip logic into the online application form to reduce the number of questions students encounter, launching a data tool that provides school counselors with updated FAFSA completion rates at their schools, and connecting FAFSA with tax records via the Internal Revenue Service Data Retrieval Tool (IRS-DRT) (Dynarski & Wiederspan, 2012). The IRS-DRT integration in particular helps ensure accurate FAFSA reporting; the IRS-DRT website touts the main benefits of the tool as reducing FAFSA mistakes and ensuring that students selected for verification will not need to provide additional tax information.

In 2016, via executive action, the Department of Education began accepting FAFSAs as early as October as opposed to a previous January start date, and calculated aid based on the previous year’s (termed prior-prior year, or “PPY”) tax information. The shift in application start date gave students more time to complete the form, and by using PPY tax information, students could receive an earlier estimate of their aid eligibility, resulting in a financial aid application
timeline more closely tied to college admission cycles. Unfortunately, this change was accompanied by a temporary but months-long mid-filing cycle shutdown of the IRS data retrieval tool in spring 2017, attributed to cybersecurity concerns. Because the introduction of the new filing timeline, previous year tax reporting, and IRS data retrieval tool occurred at the same time, it is challenging to separately measure the effects of these changes on FAFSA filing rates. FAFSA filing did increase by about nine percent in 2017 above the 2016 cycle – adding about an additional 17,500 filers - and early evidence suggested that schools enrolling a higher proportion of White students and schools in high-income districts experienced larger increases in FAFSA filing associated with the earlier deadline and PPY tax information policy shifts (Hillman, 2017; Hillman, Bruecker, & Crespin-Trujillo, 2017). However, simulations suggest using PPY tax information alone is unlikely to substantially change aid awards (Kelchen & Jones, 2015).

In addition to large-scale efforts toward structural financial aid application change, the Department of Education has also rolled out consumer information tools aimed at helping students understand aid and compare costs across colleges. One of these tools is a “shopping sheet” – a letter developed by the Consumer Financial Protection Bureau and the Department of Education to simplify financial aid award offers that colleges send students describing net costs and financing options. Financial aid award offers often lack information about cost of attendance and many do not clearly distinguish loans from grants; they typically vary from college to college and provide different information and use different language to describe financial aid, making it difficult for students and their families to assess costs and financing options (Fishman et al., 2018). In addition to providing simplified and standardized information about net costs and borrowing options, the shopping sheet also includes information about college outcomes, such as graduation and loan default rates, relative to other colleges. The shopping sheet incorporates
many lessons from behavioral science – for example, the comparison of an individual college’s outcomes to a national average creates a reference point or anchor that helps students evaluate whether a school’s graduation rate is high or low relative to other colleges. The uniformity of the sheet across institutions also allows for an “apples-to-apples” comparison of different schools’ offers and outcomes, much as the Scorecard does on the application margin, without having to seek out additional information that is often not readily available (e.g., cost of attendance).

The shopping sheet, created as part of the Higher Education Opportunity Act of 2008’s mandate to simplify award letters, was voluntary, and institutions chose whether to use the format to award financial aid. Initially, more than 700 institutions adopted the shopping sheet, including state systems of public higher education institutions in Maryland, Massachusetts, New York, and Texas. Today, more than 3,000 postsecondary institutions send the shopping sheet to students in an effort to clarify information about costs, borrowing options, and student outcomes. These institutions enroll 75 percent of undergraduates in the United States and represent nearly half of postsecondary institutions (Department of Education, 2016). Most colleges that have adopted the shopping sheet send it to all undergraduate and graduate students receiving aid while some provide it only to students receiving federal military and veteran educational benefits as part of the Obama administration’s efforts to ensure information about federal benefits for military personnel. Research indicates the shopping sheet has had relatively small effects on students’ enrollment and borrowing decisions at community colleges (Rosinger, 2017), likely because students typically attend the closest community college and have few other options available in the local area if graduation rates or other outcomes at the college are poor (Hillman, 2016). At four-year colleges, the shopping sheet related to a decrease in borrowing at colleges with riskier outcomes and at colleges serving larger shares of underrepresented students.
(Rosinger, 2018). Relatively mixed results at two- and four-year colleges possibly reflect the fact that although the intervention is more proactive than the Scorecard (that is, information is sent directly to students rather than students having to actively seek out information), it still requires students to interpret and make sense of information on their own, and students at four-year colleges on average may have access to more resources to assist in this.

While FAFSA reform and government support for informational tools focus on reducing the bureaucratic hassles and informational barriers students encounter while navigating the financial aid process, other interventions have focused on the importance of outreach and encouragement. Given limited attention on a given day, individuals often need targeted reminders and outreach to help them dedicate time to complete important tasks. A few timely text messages or emails prompting FAFSA and other financial aid form filing and have resulted in increased filing and college engagement across various settings (Bird et al., 2017; Castleman, Meyer, & Sullivan, 2017; ideas42, 2015; Page, Castleman, & Meyer, 2016). For $5-10 per student, text message reminders have increased low-income students’ college enrollment by up to six percentage points and first-generation students’ enrollment by around eight percentage points (Castleman & Page, 2015). Given this body of evidence, former First Lady Michelle Obama launched the “Up Next” campaign, sending text message reminders about college preparation and financial aid resources and deadlines to high school seniors to prompt them to take action around important tasks and deadlines. Early descriptive evidence indicates that relative to students who did not sign up for the text messages, students participating in various Up Next campaigns were 12 percentage points more likely to file the FAFSA, seven percentage points more likely to enroll in college, and 14 percentage points more likely to remain enrolled through their sophomore year of college (Nudge4, 2016).
Debt Free: Loan Repayment

Many U.S. students leave college having accrued some form of debt – the current national student loan debt sits above a staggering $1.3 trillion (Federal Reserve Bank of New York, 2017). While taking on debt can be a smart decision, more than one in ten borrowers from the 2013 cohort defaulted on their loans, facing potential repercussions such as wage garnishment and reductions in their credit scores (FSA, 2014). Default rates are higher for undergraduate borrowers, for students who attend for-profit institutions, for students who do not graduate, and for students of color, particularly black students (FSA, 2014; Kelchen & Li, 2017; Podgursky et al., 2002; Scott-Clayton, 2018).

Recognizing the negative and inequitably distributed consequences of default, researchers, policymakers, and advocacy groups have advanced numerous policy proposals. These include changing the default repayment plan to an income-based option, setting up automatic payment directly from paychecks, and reducing the number of repayment options to a single plan (Boatman, Evans, & Soliz, 2014). These recommendations draw on behavioral science research demonstrating that default options are difficult to overcome, that reducing the number of options simplifies decisionmaking, and that reducing hassles can increase the likelihood of individuals making active choices (Bettinger et al., 2012).

In 2015 and 2016, the Department of Education, in conjunction with the SBST, conducted multiple pilot interventions aimed at increasing enrollment in income-driven repayment and a revised “pay as you earn” repayment (REPAYE) options, which structure payments relative to income. The Department randomly assigned more than three million borrowers to control or email prompt conditions, and saw a nine percent increase in applications
for income-driven repayment plans among borrowers who had previously indicated an interest in income-driven repayment options (SBST, 2016a). The campaign also tested different messaging to borrowers based on their characteristics, and found that loss aversion messaging (e.g., “Avoid making monthly student loan payments of more than 10 percent of your income”) resulted in a 20 percent increase in income-driven repayment plan applications among individuals who were already in forbearance on their loans (SBST, 2016a). Similar emails reminding people to re-certify their repayment plans by updating information about income and family size increased re-certification rates by 8.3 percent (SBST, 2016a).

DISCUSSION

This policy retrospective highlights the increasing influence of behavioral science research on federal postsecondary education policy and empirical evidence of how recent behaviorally informed policy changes affect student outcomes. Behavioral science tackles issues of decision making under less-than-ideal circumstances – when individuals have time constraints, other pressing issues demanding attention, incomplete information about options, and limited resources to evaluate and compare the quality of information they do have. The college-going process is complex, and it is unsurprising that students and their families struggle to navigate various stages on the way to and through college, including searching for and applying to college, applying for and renewing financial aid, and repaying loans.

Federal policy under the Obama administration aimed to improve college access, affordability, and completion by decreasing complexity (e.g., simplify financial aid forms and processes), prompting action (e.g., emails about reviewing loan repayment options), providing guidance and reference points to help students evaluate options (e.g., publishing the Scorecard, distributing shopping sheets), and providing psychological encouragement and support to
students about the college transition (e.g., Mrs. Obama’s Up Next outreach campaign). The widespread and sometimes simultaneous implementation of many of these programs make it challenging to measure the individual effects of each on college going and the relative nascency of these initiatives means we are unable to currently evaluate their effects on longer-term student outcomes. For example, since the Scorecard rolled out in September 2015, spring 2020 represents the earliest one could measure the effect of the tool on four-year graduation rates. Current evaluations suggest most of these changes resulted in positive outcomes – students applying to colleges with higher graduation rates and more borrowers making active choices about their loan repayment options. However, researchers have not yet detected an effect of these policies on key margins of educational attainment - college enrollment and college graduation rates.

Furthermore, many of these studies also point to inequitable benefits to consumer information tools – with the Scorecard primarily benefiting white and Asian students, early FAFSA increasing filing rates at higher-income high schools, and shopping sheet benefits concentrated among students attending four-year colleges. These inequitably distributed benefits suggest that for policy shifts to advance equity and improve outcomes for less-advantaged students, they should also include active outreach campaigns to get tools in the hands of students who need them most. Without active outreach, consumer information tools risk expanding educational inequalities by nudging already relatively advantaged students into better performing institutions while doing little to change the educational trajectories of less-advantaged students.

Policymakers contemplating incorporating behavioral science insights into higher education programs and initiatives should consider both the program costs and return on investment as well as the pros and cons of public versus private provision of goods and services.
One of the attractive features of behaviorally informed interventions and policies is their relatively low cost compared to large-scale, structural change. Ultimately, the decision whether to invest federal funds in behaviorally-informed strategies should consider what other alternative uses of those funds are - for example, investing more in federal financial aid. One common metric for evaluating the cost-effectiveness of postsecondary education interventions is the percentage point change in enrollment (or other outcomes) associated with a $1,000 investment (see Leslie & Brinkman, 1988; Dynarski, 2003; and Deming & Dynarski, 2009 for reviews using this method). For example, a $1,000 benefit from the Social Security Student Benefit Program caused a 3.6 percentage point increase in college enrollment (Dynarski, 2003), and $1,000 tuition decrease resulted in a roughly four percentage point increase in college enrollment (Kane, 1995).

In an analysis of behavioral strategies leveraged by the United States and United Kingdom nudge units, researchers similarly used the $1,000 investment benchmark, but translated results from studies into the number of additional students enrolling in college for every $1,000 spent (Benartzi et al., 2017). They found large benefits to behaviorally informed projects relative to implementation costs, especially when compared to traditional policy solutions (Benartzi et al., 2017). For example, an experiment that helped low-income families complete FAFSA during tax filing resulted in an 8.1 percentage point increase in college enrollment, or an additional 1.53 students enrolled in college per $1,000 spent (Benartzi et al., 2017; Bettinger et al., 2012). They compare this with an additional 0.035 students enrolled in college because of the Social Security Student Benefit Program (Dynarski, 2003). Analyses of the effectiveness of federal consumer tools or attempts to reduce complexity should use a similar scale for comparison and decision making about the most effective use of federal higher education dollars.
Beyond measuring the costs and benefits of federal initiatives on student outcomes of interest, evaluating the most effective use of funds requires pricing out some of these policies. While it can be difficult to estimate the exact cost of the federal initiatives highlighted in this review, many have intuitively low price tags. The College Scorecard uses data already collected through federal surveys, adjusting the framing of emails about loan repayment option is virtually costless (other than staff time to draft messages), and the Up Next messaging campaign likely cost around $5 per student (based on estimates from similar text messaging campaigns; see Castleman & Page, 2015). Obtaining additional cost information is easier with the implementation of the DATA Act and various tools available on USAspending.gov; however, it is still challenging to identify expenditures for specific components of the various informational tools, policies, and interventions we discuss. For example, the Integrated Postsecondary Education Data System (IPEDS) contract to the Research Triangle Institute runs 6.5 years at about $80.7 million, and includes work related to constructing the College Scorecard dataset, but it is unclear what portion of the overall contract is for College Scorecard as opposed to work necessary for IPEDS maintenance, annual data collection, and staffing. Many of the interventions discussed - including the Scorecard and shopping sheet – also involved upfront costs to design and build but are likely less expensive to maintain and update once created.

Given the difficulty of pricing out many of these interventions, we also propose evaluating what benefit an intervention would need to have for a $1,000 investment to prove more successful than investments in traditional aid programs. For example, for the College Scorecard to be more effective at inducing college enrollment than an additional $1,000 in grant aid, the program would probably need to increase enrollment by at least four percentage points - while this point estimate is within the range of those estimated using College Board data, those
estimates are very imprecise (Hurwitz & Smith, 2018). Of course, not all federal higher education dollars need to target the same margin and likely should be spread across different decision points along the path through college search, enrollment, graduation, and post-graduation financial management. The College Scorecard could very well be considered a success even without effects on college enrollment if it achieves policy goals of shifting application behaviors.

An additional advantage of behaviorally informed policies and interventions is their political feasibility, even in the midst of increasingly partisan legislative debates. The low-cost of many behavioral solutions make the field appealing to more conservative policymakers who may appreciate the fact that many behavioral science interventions focus on increasing active and informed choice in educational investments. In addition to having a comparatively lower price tag, the effects of many behavioral insights could even result in government revenue or reduced expenditures. The UK nudge unit applied behavioral design strategies to tax letters and fine notices, which not only resulted in increased fine payment but also cut down on repeat notice printing costs and the human resource expenditures necessary to follow-up on delinquent payments (BIT, 2015). Large-scale, structural policies addressing college access, affordability, and completion are important and necessary to address to reduce educational disparities. However, given bipartisan support for improving information and simplifying the college and financial aid processes make them more likely to move ahead.

Many of the federal policies and initiatives developed by the Obama administration mirror goods and services offered by the private sector. The final version of the College Scorecard moved away from explicit rankings of colleges, but inherent in the presentation of information are comparisons across institutions. Yet similar information about college size,
tuition, starting salaries, and graduation rate is available from *U.S. News & World Report* and numerous other organizations. Policymakers might reasonably debate why public provision of this information is necessary, especially given budget constraints.

First, the empirical research highlighted in this review indicates that the rollout of Obama-era informational tools such as the Scorecard did have some effect on students’ college search process, suggesting that the private provision of similar information was not meeting all of students’ and their families’ needs. Second, many college programs have misreported information to these rankings organizations; when detected, often their rankings are removed and administrators can face termination, but there are undoubtedly many undetected instances of false information published. While institutions could also misreport data to IPEDS, which feeds into the College Scorecard, there are severe consequences in terms of Title IV funding and fines for doing so. Third, the public provision of information may enable and inspire improved private services; in the fall of 2016, Google integrated Scorecard information into individual college search results, and in the spring of 2018 the company expanded the amount of Scorecard data incorporated (King, 2016; Schonberg, 2018).

**Recent Legislative Action and Federal Opportunities**

As the United States continues with a new presidential administration, prepares for 2018 midterm Congressional elections, and faces an overdue Higher Education Act reauthorization, open questions remain about the role of behavioral science in informing and shaping future higher education policy. Senator Lamar Alexander (R-TN), chair of the Senate Committee on Health, Education, Labor, and Pensions (HELP), has emphasized the importance of timely reauthorization of the Higher Education Act, which governs federal student aid programs, and has been a prominent, long-time supporter of FAFSA simplification. Recent reauthorization talks
have heavily featured discussions around financial aid transparency and simplification (HELP, 2018).

Senator Orrin Hatch (R-UT) introduced the College Transparency Act (S.1121) in May 2017, which proposes, among other simplification strategies, requiring colleges to use a standardized financial aid offer form, like the shopping sheet, in awarding aid in an effort to improve clarity around college costs and support informed college choices. The act also proposes requiring reporting of publicly available information about college- and program-level outcomes for all students (as opposed to the Scorecard that lists outcomes for students receiving aid through a federal student aid program). In the House, Representative Lloyd Doggett (D-TX) introduced complementary legislation through the Equitable Student Aid Access Act (H.R.2015), which would codify executive action under the Obama administration relating to early FAFSA and prior-prior year tax usage and expand eligibility for an “automatic zero” expected family contribution to simplify and reduce hassles around FAFSA completion. Neither piece of legislation has moved forward since introduction, though the College Transparency Act has received growing bipartisan support in the Senate (Kreighbaum, 2018).

In December 2017, Rep. Virginia Foxx (R-NC) and Rep. Brett Futhrie (R-KY) introduced the Promoting Real Opportunity, Success, and Prosperity through Education Reform (PROSPER) Act (H.R. 4508). The proposed act highlights student aid simplification as a main goal, introducing the idea of a FAFSA app and recommending a “one grant, one loan, and one work-study system” to “ease confusion” for students, which mirrors some of the recommendations made by the research community (Committee on Education and the Workforce, 2017; Boatman, Evans, & Soliz, 2014). The PROSPER Act also proposes the establishment of a College Dashboard, which would replace the existing College Navigator
information platform, but does not specifically address the College Scorecard. Generally, the Dashboard proposal includes more data points than the Scorecard (for example, student-faculty ratios, enrollment by student characteristics, and earnings disaggregated by academic program) (IHEP, 2017). However, the availability of multiple federal college comparison interfaces, each sharing different types of information, represents an increase in complexity; improvements on existing systems represents a more behaviorally-informed approach to improving student knowledge about college characteristics and outcomes. Unlike the Hatch and Doggett proposals, the PROSPER Act has moved to committee action, with the House Committee on Education and the Workforce issuing a report on the bill; however, as of writing the bill has not come to vote.

**CONCLUSION**

Despite extensive research into the role of behavioral science in affecting student outcomes, many questions remain. As this review suggests, there is a growing body of evidence on how students respond to simplified processes and timely, salient information. At the same time, there is not comparable information on how colleges have responded. The College Scorecard grew out of a college accountability framework, with the hope that making information about college outcomes more visible would inspire colleges to adapt their management to improve affordability and student outcomes to obtain favorable ratings. The extent to which institutions actually change in the face of publicized information on performance remains to be seen. Furthermore, questions linger about the ethics of nudging, with public opinion generally supportive but variable based on the wielders of behavioral tools (Jachimowicz, 2017; Sunstein, 2016).

While many of these policies focused on the college application and enrollment margins, future work should examine whether any shifts in access translated into shifts in completion
rates. For many Obama-era policies, it is simply too early to tell if they affected completion, although measures of first- to second-year persistence would provide suggestive evidence of completion likelihood. Researchers could also calculate estimated completion rates for induced enrollees; for example, for every 10 students induced to enroll at a school with an 80 percent graduation rate, one could reasonably expect an additional eight students to graduate as an upper bound. In addition to using measures of degree completion, researchers might consider the extent to which these college search and application tools affect other quality measures of an institution, such as the income mobility measures developed by Chetty et al. (2017) that focus both on the extent to which colleges’ provide educational access to economically disadvantaged students and the extent to which they provide upward mobility for these same students.

There is much uncertainty about the future of the various behaviorally informed policy shifts we highlight in this article. Some shifts have persisted, such as the early FAFSA application timeline. Despite technological issues with the IRS-DRT during spring 2017, the tool is back in use as of writing. The Department of Education published updated College Scorecard information in September 2017, notable since updates or maintenance of the tool is not mandated by law. The Department also announced a mobile FAFSA app that will be available for the upcoming FAFSA application cycle that may make it easier for students to complete FAFSA on the go (Kreighbaum, 2017). Many principles from behavioral sciences research could offer helpful suggestions for the design and rollout of the app; for example, strategically picking default options for questions to speed up the time to complete or integrating push notifications to remind families about missing components to complete.

While this review focused on federal policy pertaining to higher education policies, the Department of Education has identified K-12 school choice as a top policy priority with the
confirmation of Betsy DeVos, a prominent advocate of school choice, to head the department. The behavioral science that informed the development of higher education consumer information tools could be applied to guide families through the educational decisionmaking process in earlier grades. Already informational tools such as the Quality Rating and Improvement System for early childhood education exist to help states and communities evaluate educational quality, and we envision these will be important and could even expand to more consumer-facing tools under an administration focused on school choice. Recent evaluations of high school choice and informational interventions suggest that all students benefited from simplified information and targeted recommendations, though as with many of the higher education interventions there was evidence of comparatively economically advantaged students benefiting more (Corcoran, Jennings, Cohodes, & Sattin-Bajaj, 2018).

As noted in the introduction, the Obama administration set ambitious goals for improving U.S. college completion rates, aiming to have 60 percent of adults hold an associate’s degree or higher and to have the highest overall degree attainment rates among OECD countries. While progress has been made toward this goal - in 2016, 48 percent of young adults held an associate’s degree or higher and the United States now ranks 10th among OECD countries in the proportion of young adults with a college degree - more work remains. We believe behavioral science has an important role to play in affecting students’ postsecondary engagement, particularly in supplementing structural changes. For example, while recent changes in the FAFSA filing timeline provided students with more time to complete the form, this large shift may be unlikely to change behavior absent accompanying informational campaigns and nudges improving students’ understanding of the new system and reminding them to file earlier. Governments and colleges can leverage behavioral science to increase awareness of student financial aid initiatives.
and support services and programs, provided more involved, structural policy changes occur to provide services in the first place.
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