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Information disclosure and college choice

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Contents

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ABSTRACT

We examine whether informational disclosure policies are sufficient to help students and their families make college choices that fit their needs. Across a variety of choice contexts, we find that the effect of informational disclosure on consumer decision making varies widely. The impact of informational disclosure on consumer choices depends on the accessibility, content, and presentation of information, and the way that firms respond to disclosure requirements and their resulting market pressures. Within the context of college choices, policies requiring institutions to disclose information about the cost and return on a college education, and guiding the way that information is delivered and presented to students and their families, can reduce informational disparities and set more accurate expectations. However, evidence on the impact of informational disclosure policies on college choices is scant and difficult to isolate from the impact of other regulatory measures. Some evidence suggests that deficiencies in information accessibility, content, and presentation limit the ability of existing disclosure policies, on their own, to enable students and their families to make college choices that best meet their needs. Moreover, institutional responses to disclosure policies are sometimes at odds with the goals and aims of those policies. To better support college choices, we recommend that policymakers design disclosures to address these barriers, and supplement informational disclosure policies with additional accountability measures for institutions.

Introduction

Choosing whether and where to attend college is increasingly one of the most important financial decisions that American consumers make. In the United States, the cost of a college education ranges widely and can be as much as the cost of buying a home. And yet, the lack of transparency in the college pricing system means that students and their families often have limited insight and ability to anticipate the cost of attending a college, especially lower-income students for whom a college's "sticker price" often misrepresents the actual net price they would pay after accounting for grants and scholarships (Levine, 2014). The return on a college education can vary just as widely and be just as difficult to anticipate. On average, American college graduates earn 65 percent more than their high-school-educated peers and enjoy better employment rates, job satisfaction, economic mobility, and health (Baum, Ma, & Payea, 2013). Yet some consumers choose to attend colleges that fail to prepare them for success in today's job market, leaving them with high debt and low earnings (Cellini et al., 2017). This can lead to debt burdens that are unsustainable for the consumer and that become shared with the government and taxpayers.

In an effort to better support consumers in making this consequential decision, researchers and policymakers alike have advocated for informational disclosure regulations to help students, their families, and other stakeholders assess the likely financial and professional outcomes of attending a particular institution (Long, 2010). This report examines whether policies requiring institutions to disclose information about the cost and return on a college education and guiding the way that information is delivered, summarized, and presented are sufficient to help students and their families make college choices that are the best fit for their needs. First, we describe the efficacy of informational disclosure policies at improving consumer decision making across a variety of choice contexts. To do so, we examine the features that influence disclosure effectiveness: the ease or difficulty of accessing information, the content of information, and the presentation of that information. Next, we look specifically at the efficacy of existing disclosure policies at supporting college choices and how key features contribute to their success or failure. Finally, we offer recommendations for the role that disclosures should play in supporting college choices and how they should be designed to maximize their value.

Informational disclosure as a policy tool

Informational disclosure is among the most common policy tools in American law. Disclosure policies have been leveraged to support consumers in making a wide range of decisions such as those involving securities, loans, health care plans, food and drugs, privacy agreements, and colleges, by regulating what information firms ought to provide to consumers and how they ought to deliver information (e.g., by posting information on a public website or by sending information to consumers directly), summarize information (e.g., by detailing all terms in a statutory prospectus or by highlighting key terms in a standardized, plain-language summary prospectus), and present information (e.g., by listing options in alphabetical order or by categorizing, sorting, and filtering options based on key features). Disclosure policies are popular among policy makers because they have the potential to help consumers make better decisions by removing information asymmetries, reducing infor-

mation search costs, educating consumers about their options, and improving standardization and comparability. Disclosure policies can also encourage firms to behave more judiciously, either as a direct response to disclosure requirements or as an indirect response to the way that consumers respond to the disclosed information (Loewenstein et al., 2014). Another reason why disclosure policies are so appealing is that they are thought to have few costs. It is often assumed that informational disclosure would only improve consumer decision making, and at worst, would not harm it (Hillman & O'Rourke, 2011). And, relative to other regulatory solutions, disclosure demands less government intervention, requires less time to implement, and imposes fewer restrictions on consumers and firms' options. Disclosure policies also have the advantage that they may be used alone, or in combination with other regulations.

Some experts have argued that "disclosure is one of the chief tools that policymakers can use to improve the operation of consumer markets" (Sunstein, 2011a, p. 2). Although the impact of disclosure is often difficult to measure (Durkin & Elliehausen, 2011), there is some evidence that mandated disclosure can improve consumer decision making and improve market efficiency (Fung, Graham, & Weil, 2007). However, there are also cases in which mandated disclosure policies have been shown to be ineffective or even harmful (Ben-Shahar & Schneider, 2014). The current practice of simply providing information through disclosure relies on the notion that the consumers have the ability and skills to access, understand, and contextualize the information for their individual decisions. Yet, consumers often fail to notice, read, understand, and use disclosures to make the choices that are best for them (Ben-Shahar, 2009; Loewenstien, Sunstein, & Golman, 2014; Ripken, 2006). And, as disclosures become more common mechanisms for information sharing and accumulate over time, consumers are being inundated with more data than they can conceivably process and prioritize effectively (Ben-Shahar & Schneider, 2014). This has led some experts to challenge the notion that disclosure policies alone are sufficient to improve consumer choices. Some have proposed that disclosure policies should be supplemented with performance standards and monitoring systems to ensure comprehension and suitability (Ayres & Schwartz, 2014; Willis, 2015). Others have suggested that disclosure policies should be complemented or replaced with more concrete accountability measures that impose more substantive sanctions or prohibit certain practices altogether (Cellini et al., 2017; Deming & Figlio, 2016; Ripken, 2006).

How informational disclosure influences consumer decision making

Although there is disagreement as to whether informational disclosure is sufficient as a regulatory tool, there is agreement that disclosure can be an important tool for supporting the consumer decision making process. Some have even argued that the real question is not whether to disclose, but how to design and disseminate disclosures so that they can be as effective as possible (Sunstein, 2011b). The success of disclosure policies at improving consumer decision making depends on the accessibility, content, and presentation of the information provided. Disclosure policies will be more effective if information is disseminated in a manner that makes it easy to access, communicated in a manner that makes it easy to understand, and presented in a manner that makes it easy to evaluate.

Information accessibility

Consumers cannot make informed decisions unless they have access to information pertinent to those decisions. It is therefore important to disseminate information proactively, make it easy to find and use, and deliver it in a timely manner.

Dissemination. Even if relevant information is available, consumers may not realize that it exists or bother to seek it out. For example, more than 80 percent of consumers report that they did not engage in information search prior to choosing a credit card or loan (Chang & Hanna, 1992). Many consumers do not do any research prior to choosing a mortgage (Lee & Hogarth, 2000). Moreover, disadvantaged populations with the greatest need for information—such as those with less education and lower incomes—are often the least likely to seek out information (Claxton, Fry, & Protis, 1974; Chang & Hanna, 1992). One potential solution is to provide information directly to consumers, upon request or without inquiry, to ensure that they have the information they need. For example, sending consumers personalized cost information about Medicare Part D prescription drug plans rather than relying on consumers to access this information themselves increased plan switching from 17 percent to 28 percent and reduced plan costs by 5 percent (Kling et al., 2012). Another potential solution is to facilitate information dissemination by making sure that information is shared with a wide range of stakeholders in a format that can be easily accessed, repackaged, and further disseminated (Sunstein, 2011b).

Ease of access. In addition to proactively pushing information out to consumers, it is also important to make information easy to find for consumers who seek it out. Information friction—the wedge between the availability of information and people's access to it—can greatly reduce the use of that information (Kling et al., 2012). If information is difficult to find or effortful to access, consumers may be less likely to use it. Lowering search costs can help make consumers more likely to use available information to inform their decisions. For example, an online shopping tool that lowered search costs for price, quality, and comparative information increased customer enjoyment, satisfaction, and retention (Lynch & Ariely, 2000). Lowering barriers to access can also help consumers to get the information they need. Even seemingly small barriers, like requiring consumers to click on a link to access information, can substantially reduce the likelihood that consumers will read that information: a study of retail software consumers found that only one in one thousand consumers clicked through to software license agreements (Bakos, Marotta-Wurgler, & Trossen, 2014).

Timely delivery. It is not only important that consumers access the information they need, but that they access that information at the right time. It is important that consumers receive information before rather than after making a decision. Once a decision has been made, consumers are unlikely to read and use new information (Kramer, 1978, as cited in Mazis & Staelin, 1982). It is also important that consumers receive ample time to process information prior to making a decision. In an incentive-compatible experiment, Chin and Beckett (2019) show that consumers are more likely to read and respond to information when they are given a mandatory waiting period, that is, a minimum amount of time to review the information prior to a decision.

Information content

Consumers also need to be able to understand the information they receive to be able to use it effectively. Thus, it is important to communicate information content in a manner that is standardized, intuitive, simple, and personalized.

Standardization. Standardization allows for "transfer learning" between informational disclosures (Hogarth & Merry, 2011), where consumers learn to recognize and process information in similar, recognizable formats. Expressing information in terms that are standardized and easily comparable can improve choices. For example, consumers choose more generous health care plans when cost-sharing parameters of plans are standardized (Ericson & Starc, 2016). Using a standardized format can also help. For example, standardized nutritional labels on packaged foods can help consumers to find and evaluate nutritional information and use it to make healthier food choices (Drichoutis, Lazaridis, & Nayga, 2006). It also is important that consumers receive information that is based on an up-to-date and standardized timeframe so that it can provide a relevant and comparable basis for decision making.

Plain language. Expressing attributes in terms that are intuitive and easy for people to understand can also facilitate decision making. For example, consumers are more likely to choose fuel-efficient vehicles when fuel efficiency is expressed in gallons per mile than in miles per gallon (Camilleri & Larrick, 2014). Expressing an attribute in terms of multiple translations (e.g., fuel economy as miles per gallon, fuel cost in dollars, tons of greenhouse gases emitted) can increase preference for the option that is better aligned with objectives congruent with this attribute (e.g., the more fuel-efficient car for those with pro-environmental attitudes), even when the new information could be derived from known information (Ungemach et al., 2018).

Simplification. Simplification can improve understanding as well, with implications for choice. Simplifying mortgage loan terms—for example, by shortening the documentation, removing unimportant and confusing information, and using plain language—can improve consumers' understanding of the terms (Lacko & Pappalardo, 2010). Simplification can also impact choice: decreasing the complexity of a notice intended to encourage recipients to claim the earned income tax credit increased take-up and increasing the complexity of the notice decreased take-up relative to the baseline notice (Barghava and Manoli, 2013). Aggregating information to reduce the number of information dimensions can help to simplify complex information and improve decision making (Hwang & Lin, 1999). For example, aggregating interest cost and payoff time can improve credit card payment choices (Agarwal et al., 2015; Salisbury, 2014), and simplifying the communication of annual percentage rate for loans can help improve consumer understanding of loan costs (Stark et al., 2014). Along these lines, calculation aids can also help. Providing calculation aids for consumers can help them choose more cost-effective healthcare plans (Johnson et al., 2013) and improve prepaid card choice (Carpenter et al., 2019). However, simplification should be used carefully, as it can lead to an overemphasis on a single metric or can come at the expense of providing needed context. It can also come at a cost to transparency. For example, when Mexico aggregated load and management fees into a single index for investment products, the new formula obfuscated management fees relative to loads, and many consumers who relied on the simplified index chose funds with higher costs (Duarte & Hastings, 2012).

Personalization. Personalization can also facilitate decision making by focusing consumers only on information that is relevant and tailored to their individual needs. Different consumers may respond differently to the same information. For example, cost information increases repayment for some borrowers, and time information decreases repayment for others, especially those with little knowledge of interest compounding (Salisbury, 2014). Perhaps unsurprisingly, personalized nudges tend to be more effective than one-size-fits-all nudges (Goldstein et al., 2008; Johnson et al., 2012).

Information presentation

Consumers' understanding and use of information is driven as much by the way in which the information is presented as it is by the content itself (Bertrand et al., 2010). To this end, it is important to present information in a manner that organizes options in a meaningful way, facilitates side-by-side comparisons, and provides a frame of reference.

Choice architecture. The choice architecture—or the manner in which options are organized for consumers and preferences are elicited from consumers—can play an important role in shaping the decisions that consumers make, either for the better or worse (Loewenstein et al., 2014; Thaler & Sunstein, 2008). One important aspect of choice architecture is how options are categorized. Converting information into ranked categories—such as stars or letter grades—can improve comprehension and impact choice (Newell & Siikamaki, 2014; Thorne & Egan, 2020; Wiel & McMahon, 2003). However, categories should be used carefully, as they can lead consumers to exaggerate the difference between options that fall on either side of a particular cutoff (Houde, 2014) and distort choice (Ubel, Comerford, & Johnson, 2015). Another important aspect of choice architecture is how options are sorted. Sorting options from best to worst in order of expected attractiveness can improve choices (Dellaert & Häubl, 2012; Häubl & Trifts, 2000). A third important aspect of choice architecture is the filterability of options. Filtering options by meaningful criteria can decrease consumer confusion and facilitate choice (Morales et al., 2005). For example, interactive technology-based tools that facilitate sorting and filtering can help consumers to identify attractive options, narrow the choice set, and choose more effectively.

Side-by-side comparisons. Presenting options in a manner that makes it easy to perform side-by-side comparisons can also facilitate decision making. Consumers who are faced with complex decisions typically use a two-stage process by which they first screen relevant options based on a few key criteria and then conduct a more in-depth analysis of the most promising options based on a comparison of their attributes (Payne, 1982; Payne et al., 1988). In this second stage, it is important to enable consumers to easily compare attribute information about multiple alternatives side-by-side so that they do not have to hold all that information in memory (Alba et al., 1997). For example, providing consumers with a comparison matrix that presents attribute information about multiple alternatives in an alternatives x attributes table format can enable consumers to make better decisions while expending less effort (Häubl & Trifts, 2000).

Reference points. It is also important to give consumers an appropriate frame of reference to contextualize the information they receive. This can be achieved by providing consumers with meaningful reference points, comparisons, and/or ranges of possible values. For example, providing information so that it can be seen as relatively better or worse than a relevant comparison standard—such as a consumer's home energy rating relative to that of

a standard new home or existing home on the Home Energy Rating System Index—can help consumers better understand otherwise abstract measures (Larrick, Soll, & Keeney, 2015). Similarly, providing information so that it can be seen where it falls on a scale ranging from worst to best possible values—such as a vehicle's greenhouse gas rating on a numeric scale ranging from *1* to *10* = *best* on the Fuel Economy Label—can improve understanding among consumers who are unfamiliar with the market (Larrick, Soll, & Keeney, 2015).

How firm responses to disclosure policies influence consumer choices

Disclosure policies affect consumer decision making not only directly but also indirectly by influencing firm behavior. Mandating that firms disclose certain attributes can sometimes lead them to change those attributes for the better. For example, requiring firms to disclose trans fats prompted many firms to eliminate trans fats (Unnevehr & Jagmanaite, 2008). However, firms may fail to comply with disclosure requirements outright or may fail to comply with the standards set for disclosure content. They may also seek out ways to be technically in compliance but to distract consumers from key information that is disadvantageous to the firm or add "counter-nudges" (Sunstein, 2017). For example, banks overshadowed overdraft opt-in disclosures by engaging in active marketing and offering incentives to persuade consumers to opt in (Willis 2015). When loans have multiple disclosure terms, creditors use advertising to highlight their more competitive terms and shroud their less competitive terms (Gurun, Matvos, & Seru, 2016). And, salespeople can misdirect attention by confirmation biases (Stark, Choplin, & LeBoeuf, 2013), dual tasking (conversation; Stark et al., 2013), violations of conversational norms (LeBoeuf, Choplin, & Stark, 2015), and preying on memory biases (LeBoeuf, 2014). Firms may also seek out ways to game the system so as to seem competitive on disclosed attributes while increasing costs to consumers on non-disclosed attributes or attributes that consumers pay less attention to. As an example of the former, in response to Mexico's aggregation of load and management fees into a single index for investment products, firms exploited the index formula to lower the index while raising revenues (Duarte & Hastings, 2012). As an example of the latter, when loans had multiple disclosure terms, lenders offered lowered initial rates but more costly add-on features (Agarwal, Song, & Yao, 2017; see also Zaki, 2018).

Higher education disclosure policies and college choices

The U.S. government has created several disclosure policies and tools to support college choices. These policies and tools were developed to address public pressures to increase transparency and help students make more informed college choices (Neilson et al., 2016) and to provide a compromise between the higher education sector's desire for increased autonomy and the legislative desires for regulation (Carey & Kelly, 2011). The first of these policies was the Higher Education Act (HEA) of 1965. Title IV of the HEA authorized the use of federal funding for student loans at participating higher education institutions, and

created a loan disclosure process for students, institutions, and participating lenders. The next significant milestone came with the Student Right-To-Know Act of 1990, which established formulae and disclosure requirements for loan default rates and graduation rates for Title IV institutions.

Next, the Higher Education Opportunity Act of 2008 mandated that Title IV institutions enrolling first-time full-time certificate- or degree-seeking undergraduates place a "net price" calculator on their public website to provide prospective students and their families with a personalized approximation of what they would pay annually to attend an institution after accounting for grants and scholarships. The need for net price calculators arises from the fact that few domestic students pay full advertised ("sticker") prices to attend institutions, and that many students qualify for federal, state, and institutional financial aid. Net price calculators enable users to input their household financial information to get a rough estimate of the total cost of attendance after taking into account grants and scholarships for which they might be eligible. Colleges have the option of creating their own net price calculator or using a template provided by the U.S. Department of Education (https://collegecost.ed.gov/net-price).

Then, in 2012, the U.S. Department of Education created the College Shopping Sheet, (updated and renamed the College Financing Plan in 2019), an optional standardized disclosure that some Title IV institutions give admitted students in place of or as a supplemental cover sheet to the college's existing financial aid award letter. The College Financing Plan informs students of the total cost of attendance, the amount of grant and scholarship support they would receive, and the loan and work study options for which they would be eligible. The purpose of the College Financing Plan is to standardize the net price calculation and other relevant information students and their families receive so that they can make an "apples to apples" comparison of the costs to attend a college with other colleges. The College Financing Plan may be printed and sent to the student or made available as an electronic document, and may be created using a college's own design or a template provided by the U.S. Department of Education (https://www2.ed.gov/policy/highered/guid/aid-offer/collfinplantemplate.pdf).

In 2014, the Gainful Employment Rule specified that Title IV career education programs were to disclose financial outcomes of their graduates in the form of a debt-to-earnings ratio. The purpose of the rule was to enable prospective students and their families to assess whether their expected earnings after attending a particular institution would be adequate to pay off their student loan debt. The rule also set minimum debt-to-earnings ratio standards that certain Title IV career education programs must meet to maintain access to federal student loan funds. Thus, a key distinction between this and the aforementioned disclosure policies is that disclosure was used in combination with specific direct accountability. However, in 2019, the U.S. Department of Education rescinded the Gainful Employment Rule, citing unfair treatment of for-profit institutions (Program Integrity: Gainful Employment, 2018).

Finally, in 2015, the U.S. Department of Education created the College Scorecard (https://collegescorecard.ed.gov), an interactive, website-based tool that provides prospective students, their families, and other stakeholders with key data about colleges: costs, graduation rate, loan default rate, loan amounts, and labor market outcomes. Users can also sort, filter, and compare colleges based on a variety of attributes. The College Scorecard is also a data reporting effort that includes data derived from various federal sources including the U.S. Department of Education and the U.S. Department of the Treasury. The

College Scorecard website also allows users to download the data used to produce the scorecard and documentation for the data. In 2019, the College Scorecard website began to report loan and median earnings by program major, data which was previously unavailable from public data sources.

Other federal agencies also provide tools for disclosing information about the costs of college. For example, in 2014, the U.S. Department of Veterans Affairs enacted a campaign that provided GI Bill beneficiaries with access to the GI Bill Comparison Tool (https://www.va.gov/gi-bill-comparison-tool/). This tool not only allows beneficiaries to identify and sort postsecondary institutions but also provides information on out-of-pocket costs (net of education benefits through the GI Bill) and veteran-specific institutional performance metrics (i.e., retention and graduation rates). Finally, this tool provides continually monitored and updated alerts that provide feedback to beneficiaries on the potential fiscal health and accreditation issues of institutions.

In addition to these federal disclosure policies and tools, there are also several third-party tools for disclosing information about the costs of higher education that may influence consumers' college choices. College ranking tools, the most widely-used being those published by U.S. News and World Report (https://www.usnews.com/best-colleges), use a variety of data sources and criteria that signal academic quality to build competitive rankings and detailed institution profiles. Typical data sources include the College Scorecard, the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS; https://nces.ed.gov/ipeds/), and sometimes include primary data produced by the ranking entity that is not necessarily available in informational disclosure tools produced via regulation. For example, College Board's BigFuture (https://bigfuture.collegeboard.org) website has granular data on freshmen entrant grade-point averages. Niche.com, a neighborhood and school information aggregator, has user-submitted data on student satisfaction for many higher educational institutions. The Common Data Set, an initiative by the College Board, Peterson's, and U.S. News and World Report, makes available information about different colleges' students and their families (https://www.commondataset.org/). Typical data reported by these tools include the academic performance of incoming freshmen, standardized test scores, graduation rates, measures of exclusivity (e.g. admission and enrollment rates), financial aid awarding behaviors (e.g. the share of students receiving a Pell grant), labor market outcomes after graduation, and the demographics of the student body[1]. Users are often able to filter, sort, and compare institution profiles based on a customizable set of criteria. Many of these tools are freely available, and others require individuals or institutions to pay for access.

Some web-based commercial tools allow users to input information about their academic achievement and household finances to generate more customized rankings and profiles. Somewhat akin to net price calculators, websites such as Edmit.me and CollegeBoard's BigFuture allow a user to enter in household information and get a personalized estimate of cost to attend an institution. Other features of these tools allow for considerable personalization of outcome measures and estimates given user inputs. For example, some tools allow a user to select their desired program major and choice of institution so the user can be shown fine-grained estimates of post-graduate earnings that span early to mid-career. These tools can also take into consideration a user's academic performance and financial

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1. For more details on the methodologies, see https://www.usnews.com/education/best-colleges/articles/how-us-news-calculated-the-rankings or https://washingtonmonthly.com/magazine/september-october-2018/a-note-on-methodology-4-year-colleges-and-universities-9/

need to estimate expected aid packages and cost to attend institutions, and when combined with estimated earnings after graduation and estimated debt payments, can be used to create personalized debt-to-earnings estimates and flag excessive student debt burdens. Some tools also provide "user education" components, such as tips and advice, online financial literacy and college budgeting courses, libraries of informational resources and "college guides," and even access to college counseling.

How disclosure policies influence college choices

Despite the increasing number of disclosure policies and tools in higher education, there is currently little evidence on the unique impact of informational disclosure on college choices. However, there is evidence that informational disclosure can reduce informational disparities, set more accurate expectations, and influence preferences for colleges and program majors.

Research has demonstrated that students and parents from low-income and disadvantaged communities are less informed about both the immediate and long-term costs of higher education (Hoxby and Turner 2013). Given these information gaps, one might expect informational disclosures about the costs of college to be especially important for these information-poor populations. Kelly and Schneider (2011) found that providing additional context on college completion information reduced the information gap and differences in college choice between low-income and more affluent families. Additionally, work by Hoxby and Turner (2013) has highlighted this fact and demonstrated that providing low-income, high achieving students with access to information on not only institutional net costs, but also information on the application process significantly influences where students apply to college, the number of colleges they apply to, and the selectivity of those colleges. Additionally, they show that information recipients are more likely to attend more selective colleges. However, Hurwitz and Smith (2018) found that the release of the College Scorecard led high-income students to apply to colleges with higher median earnings but had no effect on low-income students. One potential explanation is that simply making general information available, rather than directly providing semi-customized information as did Hoxby and Turner (2013), does not adequately address informational barriers for low-income populations. Learning how to better tailor and disseminate disclosures to low-income communities is especially important, as students from these communities are more likely to attend colleges with lower completion outcomes and less competitive financial aid packages (Page & Scott-Clayton, 2016). Simply making information available may also fail to address structural barriers that many prospective college students face. For the most disadvantaged students, economic, technological, and geographic constraints—such as limited financial resources to explore college options, limited access to reliable internet and technology, and limited local program offerings—may render information less actionable.

Research has also demonstrated that students and parents, especially those from low-income backgrounds, tend to be poorly informed about program outcomes. Fortunately, there is some recent evidence that young adults can update their expectations and make more informed choices when given labor market information (Hastings et al., 2016). College students revised their expectations of their own wage/salary earnings at age 30 and reported that they would revise their choice of major when given an informational treatment on population earnings for U.S. adults (Wiswall & Zafar, 2015). Baker et al. (2018)

found that community college students had difficulty ranking majors by their wage/salary outcomes, overestimated the wage/salary returns to program majors, and overestimated the likelihood of finding paid employment after degree completion. After an informational treatment was given to the study participants, experimental estimates found that a 1 percent increase in the wage/salary of a particular major was associated with a 1.4-1.8 percent increased probability that a student would prefer that major. Using a nationally representative sample who were between 14 and 22 in 1979, Arcidiacono et al. (2012) also found that updating student expectations of wage/salary outcomes would lead them to prefer different majors, and that 7.5 percent of students reported that they would switch majors had "they made no forecast errors." A notable limitation of these studies is that they measured beliefs rather than behavior, and updated beliefs may not necessarily lead to different choices. In a study that measured behavior, Blagg and colleagues (2017) randomly assigned some schools to have access to program level outcomes and students at these schools did not make use of this information to select programs.

Based on the existing evidence, it is conceivable that informational disclosures about costs and student outcomes could be used by students to improve choices about colleges and program majors. However, it is clear that additional research and more conclusive evidence is sorely needed to understand the effect of disclosures on college choices. Furthermore, to understand when disclosure policies are likely to succeed at supporting student choices, it may be important to consider not only what information must be disclosed, but also the accessibility, content, and presentation of the information provided.

Information accessibility

There is a growing body of evidence within the higher education sector that simply making information available may not be enough to influence college choices. Whether it be information about the benefits of returning to college (Ortagus, McFarlin, & Tanner, 2020), relevant information on key elements of the college application process (Gurantz et al., 2020), or additional information on student loans (Darolia & Harper, 2018), simply increasing the supply of information to students is not enough. For example, in one experiment, students in high schools that were randomly assigned to receive access to program level outcome information did not make use of information relative to students in high schools that did not have such access (Blagg et al., 2017). Unsurprisingly, then, providing information did not alter the programs students chose to enroll in.

Dissemination. One reason why students and families may not access this information is that they are not aware it exists. After the creation of the College Scorecard, recent work found an increase in Google searches for keywords related to high-earnings and lower-tuition colleges, but the overall effect was small (Huntington-Klein, 2017). One reason for this outcome may be that College Scorecard does not generate enough internet search traffic as compared to better-known and better-advertised college ranking products to make a significant impact (Huntington-Klein, 2017). One way to increase the impact of the College Scorecard data may be to provide it to students directly rather than relying on them to search for it. Whereas general disclosures within the College Scorecard do not appear to influence where students are considering attending, directly providing students with post-graduation earnings within the College Scorecard framework can make that information more salient to students and influence the college search process (Hurwitz & Smith, 2018). Another potential solution is to better disseminate information to a broader audience—

taking a cue from the success of rankings websites, the U.S. Department of Education could experiment with limited online advertising efforts to determine the cost to acquire internet search traffic of students and families searching for college information online.

Ease of access. Another reason why students and families may not access or find benefit from available resources intended to support their college choices is because they have difficulty finding and using them. Even when colleges are technically in compliance with disclosure regulations, there is wide variability in the location and labeling of mandated disclosures on college websites, making this information difficult to find. For example, one study found that less than half of reviewed institutions had a functioning webpage designed to provide the required HEOA disclosures (Carey & Kelly, 2011). These pages had a wide variety of titles ("Consumer Information", "Required Disclosures," "Notifications,") and were rarely accessible directly from the institution's homepage. Institutions' net price calculators are also notoriously difficult for students to find and use. Nearly one quarter of reviewed institutions did not have links to their net price calculators on the financial aid or costs sections of their websites (TICAS, 2012). The number of required questions to get a net price estimate ranged from 8 to 70 (TICAS, 2012). Perhaps unsurprisingly, estimates suggest that only 14 percent of prospective students use net price calculators (Fishman, 2015). Making net price calculators easier to find and simplifying the steps needed and data required to get an estimate could help reduce barriers to accessing this key information.

Timely delivery. Another common issue with the delivery of key information for college choice is that information is not released and disseminated to students in a timely manner. One criticism of higher education data provided or mandated by the federal government is that the data can be out-of-date by many years, such that students and their families do not have access to the more current and relevant information they need when they are making college choices. For example, as of May 2020, the most recently available net price data from NCES IPEDS is for the 2017-2018 academic year, such that these net prices are likely to substantially underestimate the real price to students for the academic year starting in the fall of 2020. Not only does the federal template for net price calculators contain out-of-date information, institutions' net price calculators are also often based on out-of-date data. Perna, Wright-Kim, and Jiang (2019) found that only 37 percent of their sampled institutions utilized data from the current or upcoming academic year. This is problematic in that using out-of-date data will lead to underestimates of actual institution costs (Cheng et al., 2012). Another example of key data that is released with a significant lag is the Department of Education's Financial Responsibility Score, publicly available on StudentAid.gov, which is used to grade institutions on their financial management (and if their scores are poor enough, they can lose access to Title-IV funds). As of April 2020, the most recently available academic year for these data is for 2017-2018. Given the demographic changes in the U.S. that are shrinking entering freshmen classes, and the potential for revenue and enrollment shocks (e.g. from the COVID-19 pandemic), timely measures of institutions' financial health will become increasingly important to students and families. Consumers also need ample time to process and act on the information they receive. Pairing information with more optimal alignment with the decision-making timing has highlighted its potential to be more effective in addressing information gaps and influencing decision-making (Charles et al., 2020). While not directly related to the initial college choice, the timing of information can play an important role in facilitating college enrollment. Castleman, Page, and Schooley (2014) find that providing timely reminders and information—mitigating the "summer information gap"—significantly increases the likelihood a student will attend college.

Information content

Evidence within the higher education sector also highlights the importance of communicating content in a manner that is standardized across sources, intuitive and simple to understand, and tailored to individual needs of students and their families.

Standardization. A lack of standardization also presents a barrier to students' ability to evaluate college costs. One problem is a lack of standardized terminology. For example, the phrase "net price" is defined in federal statute as an individual's price for higher education. However, the College Financing Plan refers to this same concept as "net cost," and the College Scorecard refers to it as "average annual cost." Further complicating matters, institutions use a variety of terms to label their net price calculation aids, including "Education Cost Calculator," and "Tuition Calculator" (TICAS, 2012). This lack of standardization impedes understanding of a concept that is both important to making optimal college decisions but already found to be opaque (Morgan & Dechter, 2012). There is also substantial variability in how these net prices are calculated (Anthony, Page, & Seldin, 2016). As another example, Kelchen, Goldrick-Rab, and Hosch (2017) found that, even when located in similar areas, colleges varied widely on allowed living-cost allowances. There is also considerable variability across institutions in the timeframe for which data are reported. A recent study found that colleges use data for their net price estimates ranging from the upcoming academic year to four years prior (Perna, 2019). Standardizing the algorithms and timeframes for net price calculators could help students to make more systematic comparisons across their college options. Beyond standardization issues in communicating about net costs, a lack of standardization in financial aid offer communications is also a major challenge. A recent report found substantial variability in the terminology, formatting, and content of financial aid award letters (Burd et al., 2018).

Plain language and simplification. The college disclosure landscape is rife with complex terminology and calculations. Simplifying this landscape can help to improve comprehension and decision making. A recent experiment with community college students demonstrated that the way that cost information is presented (i.e., the total cost of attendance, cost of attending full/part-time, or cost per credit hour) can significantly influence both student loan borrowing behaviors and enrollment intensity (Charles et al., 2020), with some presentations leading to better decisions than others. Baum, Ma, and Payea (2013) conducted FAFSA simplification simulations and found that simplifying the complexities of the financial application significantly influenced consumer engagement with the form and increased information understanding. Calculation aids can also help students to simplify complex information in order to make effective decisions. Net price calculators enable students to get a single net price estimate by entering their financial information and subtracting estimated grants and scholarships from the cost of attendance. However, although this sort of aggregation can be helpful, it is still important to itemize the inputs to these calculations and group them in meaningful ways. For example, confusion can arise when financial aid awards do not distinguish clearly between grants and loans or provide comprehensive information on the cost of attendance (Burd et al., 2018).

Personalization. Within a variety of sectors, personalizing information content can increase the impact of that content. This is particularly true within higher education. Recent work by Mulhern (2019) found that students who were presented with visually personalized information on college fit were more likely to attend academically "matched" colleges, compared to students who were presented a set of "safety" schools and thus more likely to

attend those set of institutions. In an effort to better support college choices, the federal government and institutions have incorporated personalization into disclosures. For example, the College Scorecard recently added information on "average annual cost" by income brackets. However, while the "average annual cost" for the total student population at a given institution is prominently displayed, income-specific information is buried under additional navigational features. This decision to focus more on the overall average could overestimate the potential costs for low-income students while underestimating the cost of for affluent students. As another example, net price calculators enable users to get personalized cost estimates; however, scholars have flagged concerns around variability in precision (Anthony et al., 2016).

Information presentation

Evidence suggests that the way that policymakers and administrators design the disclosure environment and the way that information is presented also influence the effect of informational disclosure on college choices.

Choice architecture. The categorization, sorting, and filtering rules used to determine how to present college options to students and their families can influence the choices they make. Commercial college ranking products typically categorize options based on program offerings and sort options based on an assessment of their quality. Using the U.S. News and World Report college rankings, Luca and Smith (2013) find that a one-unit ranking significantly increased the number of applications to a given institution. However, they find no effect when colleges are listed alphabetically by default, even when users are also provided with information about college quality, suggesting that the organization of information is critical in influencing decisions. Within the College Scorecard, options are uncategorized by default rather than categorized based on program offerings, and the default sort presentation was recently changed to list available colleges and universities by graduation rate rather than employment outcomes. This makes it more likely that shorter-term for-profit certificate programs appear at the top of the default search and may increase the salience of graduation rate relative to employment outcomes and other potentially relevant factors (e.g., price). The College Scorecard also provides users the ability to customize their search results based on a limited number of sorting criteria (i.e., graduate rate, annual cost, name) and a variety of filtering criteria (e.g., degrees/certificate, type of school, field of study, etc), which may encourage users to prioritize institutions based on the criteria most relevant to them.

Side-by-side comparisons. Side-by-side comparisons can also affect students' and parents' judgment. In examining the role of information, Kelly and Schneider (2011) invited parents of high school-aged children to make a college choice based on the information presented. They found that parents were 15 percentage points more likely to pick the institution with higher graduation rates. The side-by-side comparison of institutions served as a reference point, and it did not appear to matter if both schools had below-average or above-average graduation rates. By presenting the schools side-by-side, the authors illustrate that college choice decisions may be influenced by the set of schools within the selection set rather than overall information about institutional performance.

Reference points. Relative information can be particularly important for students, as they often do not have the ability to contextualize institutional performance. Prior to September

2018, the College Scorecard contextualized a college's net price, graduation rate, student loan repayment rate relative to the national median and post-college earnings relative to the national median of college graduates as well as earnings of high school graduates. Similarly, the College Financing Plan contextualized an individual's access to grants, scholarships, loans, individual net price, and institutional academic performance with comparative information from a national set of the postsecondary institutions. However, this relative information was recently removed, potentially making it more difficult for students and their families to evaluate a given college's performance on these metrics. As evidence of the value that contextual information can provide, Rosinger (2019) found that providing students with information about a college's graduation rate relative to that of other colleges in the College Financing Plan reduced loan borrowing at colleges with poor graduation outcomes. The relative information was particularly influential among populations who have faced information barriers for accessing higher education. The effect of reference information on students' decisions can vary depending on its perceived relevance. Students are more likely to revise their expectations of their own wage/salary earnings at age 30 and report that they would change their major when provided with earnings data on how earnings from their specific major compare to average earnings from receiving a bachelor's degree (Wiswall & Zafar, 2015).

How institutional responses to disclosure policies influences college choices

The way that institutions respond to disclosure policies may also influence consumers' choices and welfare. Since the adoption of Gainful Employment regulations, which included both disclosure requirements and accountability measures, some for-profit institutions have made changes—such as reducing tuition, reducing costs, reducing student out-of-pocket expenses, increasing grants and scholarships, limiting financial aid, increasing cash contributions from students, raising admission standards, reducing or eliminating "ability to benefit" as an eligible admission category, implementing early screening or mutual cancellation policies, reducing program enrollments in low-performing programs, adding internships, shortening programs, upgrading programs, increasing job placement staff, increasing academic support staff, and increasing social network support staff and infrastructure (Fain, 2011; Hentschke & Parry, 2015).

That said, there is concern that many colleges have not fully complied with disclosure reporting requirements. A 2011 study found that a majority of colleges were non-compliant with mandatory reporting requirements for student outcomes, with the most common omission being outcomes for low-income students (Carey & Kelly, 2011). Within commercial college ranking tools, there is significant concern surrounding data accuracy and the potential for data manipulation and falsification since there are few formalized regulations against it. The U.S. News and World Report rankings provide an example of when disclosure policies create incentives for misreporting of data. For instance, in July 2019, U.S. News and World Report reported that five institutions misreported data (Morse, Mason, & Brooks, 2019). This misreporting resulted in removal of these colleges from the ranking system for a single year. Some of this misreporting was attributable to the complexities of calculating specific metrics, while others were strategic misreporting to increase placement within the ranking system.

There is also concern among higher education analysts that some disclosure requirements have incentivized some colleges to change their enrollment practices in unintended ways. There is evidence that for-profit institutions may have responded to Gainful Employment disclosure requirements and accountability measures by engaging in strategic enrollment practices (Fountain, 2019). Some institutions have responded to commercial college ranking tools by reallocating financial resources to increase prestige. Bastedo and Bowman (2010) argue that rankings provide incentives for institutions to spend significantly more to recruit marginally better students to increase their rankings. Institutions have also begun to increase international student enrollment and international faculty hiring as a way to increase international reputation scores (Delgado-Márquez, Escudero-Torres, & Hurtado-Torres, 2013).

Leveraging disclosure policies to improve college choices

Overall, the evidence shows that mandated disclosure policies in higher education could potentially help students and their families form more accurate expectations about the cost and return on a college education—or at the very least begin to fill information gaps that may exist within the college choice process. However, there is currently little existing evidence on the unique impact of informational disclosure policies on college choices. What the available evidence suggests is that barriers in information accessibility, content, and presentation limit the ability of existing disclosure policies to help students and their families make choices that fit their needs. Additionally, institutional responses to disclosure policies affect how well these policies deliver on their promise to improve consumer decision making and market efficiency, sometimes helping and sometimes hindering their impact. To better support college choices, policymakers should design disclosure policies to address these barriers and supplement disclosure policies with additional accountability measures.

How to Design Disclosure Policies to Be More Effective

Using guidance from the evidence above, we propose the following recommendations to improve disclosure policies within higher education. To enable consumers to make better decisions, information must be disseminated in such a way as to make information easy to access, communicated in a manner that is easy to understand, and presented in a manner that facilitates easy comparisons.

Make information easy to access when it is needed

The federal government should take steps to ensure that students and their families can easily find information when it is needed, so that they can make cost-effective college

choices. These steps include giving information directly to students when possible, disseminating information as broadly as possible, making information easy for students to find, making information less effortful for students to access, and ensuring timely delivery.

Recommendation #1: Give information directly to students when possible. Consumers are more likely to use information when they receive it directly than when they have to seek them out. Given that the FAFSA and other federal resources are key to the college application, entrance, and college financing process, the federal government is well positioned to ensure that consumers are given the information they need to make choices about higher education. One action that the federal government can take is to directly inform consumers about federal resources about college choice and education financing. For example, the Department of Education could send information to prospective students about how to access federal resources to support college choice (e.g., College Scorecard) and determine financial aid eligibility (e.g., FAFSA) rather than expect them to seek out this information on their own. The federal government can also help connect consumers with college-specific resources. For example, the Department of Education could send prospective students who complete the FAFSA links to the net price calculators for the institutions they listed on their FAFSA. Or, Congress could require institutions to send students who listed them on the FAFSA a disclosure with key cost and outcome measures for the most recently completed academic year, even before those students apply. The federal government can also compel colleges to give other key information directly to students. For example, Congress could require, rather than just encourage, colleges to provide accepted students with standardized financial aid offers including cost of attendance, financial aid eligibility, and net price.

Recommendation #2: Disseminate information as broadly as possible. Consumers seem to be largely unaware of many of the federal resources available to help support their college choices. Thus, the federal government should strive to better disseminate the information it collects to a broader audience of stakeholders. One way the federal government can do this is by further promoting itself to consumers as the central clearinghouse for higher education information. Taking cues from private sector successes with online college information tools, the U.S. Department of Education could allocate funds to online advertising to promote the College Scorecard and other available resources. The federal government can also partner with educational, social services, and employment organizations and with other federal agencies, who may use federal resources to advise consumers. For example, the U.S. Department of Education could offer training to high school counselors and other intermediaries on how to use the College Scorecard to provide decision support. Another action the federal government can take is to make higher education data more easily usable by institutional administrators, researchers, non-profits, and for-profit companies that operate in the context of higher education, who can help to further disseminate the information. For example, the federal government could make data from multiple agencies more easily usable by making application programming interface (API) endpoints and documentation available, and adopt convenient data file formats (e.g., CSV). The College Scorecard currently offers a data retrieval API, and other sources of data from the U.S. Department of Education and the federal government could follow this model. An analogous initiative ongoing for government data is the JobKit platform, a website that curates data resources specific to labor markets from across the federal government's data resources.

Recommendation #3: Make information easy for students to find. Consumers often have difficulty locating federally mandated disclosure information on college websites, due in large part to variability in how and where this information is described across institutions. As a result, policymakers have an opportunity to ensure that this information is presented in a standardized and predictable manner across colleges to make it easier for consumers to find. One action that the federal government can take is to work with colleges to establish a standardized naming convention for key federally-mandated disclosure information (e.g., as is already the case for the term, "net price calculator;" see NPEC (2009) for other suggested terminology) and the website where this information can be found (e.g., "Student Consumer Information"). Another action the federal government can take is to provide more specific standards for where this information is located. For example, Congress could require colleges to have a link from their main website homepage directly to a single consumer information portal webpage that provides links to all of the federally mandated disclosure information. Another action that the federal government can take is to provide a centralized resource with information on where students can find this information on each college's website. For example, the U.S. Department of Education could require institutions to provide a link to their student consumer information webpage, and the U.S. Department of Education could make the link available to students and other interested parties on College Scorecard, as is already the practice for colleges' net price calculator webpages.

Recommendation #4: Make information less effortful for students to access. Consumers are less likely to use information if it requires a lot of effort to access. Thus, the federal government should seek to remove barriers to access where possible. One way to do this is by creating additional centralized federal tools, like College Scorecard, where students can get information about multiple colleges all in one place. For example, the federal government could create a "universal" net price calculator that would enable students to enter their financial information one time and get net prices for multiple colleges at once using those colleges' own pricing methodologies. Another way that the federal government can help is by minimizing the required steps, entries, fill-ins, and other actions needed to access information from federal tools that require entering personal financial information (e.g., Loan Simulator Tool) and encouraging institutions to do the same for the tools they provide (e.g., net price calculators). This could be achieved by limiting the number of required questions, making it clear which questions are and are not required, and allowing reasonable default values or ballpark estimates if students do not have certain information on hand. A third way that the federal government can help is by enabling students to authorize the federal government to enter the necessary data automatically on their behalf, akin to how consumers can give permission to the Internal Revenue Service to transmit their tax data to the U.S. Department of Education to automatically populate the FAFSA. Taking this a step further, the government could enable students to link their federal student aid profiles to resources like College Scorecard to get automatically customized estimates. The federal government can also take steps to ensure that students are able to get a rough sense of how their costs and outcomes might vary as a function of their financial resources without providing detailed financial information. For example, Congress could require colleges to publish average net price by household income quintile in the same place that they publish their pricing on their website, as it is done in the College Scorecard.

Recommendation #5: Make information provision timely. The timing by which information is released and disseminated is essential for that information to be actionable by students and families. Consumers need ample time to process and act on the information they receive. It is therefore important that the federal government ensure that information

is disseminated in a timely manner. First, the U.S. Department of Education should provide information about the College Scorecard, FAFSA, and other resources directly to prospective students before they enter their senior year of high school, when they are most likely to be considering whether and where to attend college. Next, shortly after prospective students fill out the FAFSA and list the schools they wish to send their scores to, the federal government should provide or require colleges to provide the most recent available net price information directly to students. And, perhaps most importantly, the federal government should encourage institutions to minimize the time lag between notifying students of an admissions decision and formal financial aid offer. It should also encourage institutions to ensure that students have adequate time to consider and compare their financial aid offers before admission acceptance deadlines.

Make information content easy to understand and apply

The federal government should take steps to ensure that students and their families are able to understand and easily compare the information they receive. These steps include standardizing content, using plain language, simplifying information content, and tailoring information to the individual.

Recommendation #1: Standardize content. Disclosure content should be standardized to improve recognition and facilitate comparisons across institutions. One action that the federal government should take is to ensure that federal agencies and institutions use standardized terminology. For example, the federal government could require that federally-mandated disclosure elements—such as cost of attendance, direct costs, indirect costs, gift aid, loans, and net price—have precise titles and definitions (See Burd et al., 2018, for suggested definitions). It could also establish and maintain a glossary for standardized terminology available to colleges, students, and other stakeholders (NASFAA, 2013; See studentaid.ed.gov/glossary for an example). A second action that the federal government should take is to ensure that that federal agencies and colleges report data using a comparable timeframe. For example, the federal government could specify clear standards for how data elements should be calculated (e.g., as with the six-year graduation rate) and how often they should be updated (e.g., annually), or at minimum, require that the timeframe for data elements be clearly labeled (e.g., the beginning and end dates for graduation rates). It could also improve data standardization by exploring opportunities to leverage existing federal administrative data and reaffirm previous data-sharing agreements for data reporting whenever possible rather than relying on institutions to collect and report data to the government individually. For example, collaborations between the U.S. Department of Education and the Social Security Administration and IRS could not only support IRS data integration into the FAFSA form but could also support institution-based reporting of earnings and employment. A third action that the federal government should take is to ensure that colleges use standardized formats for federally mandated disclosures. For example, it could require colleges to use common templates for financial aid award letter cover sheets (e.g., the College Financing Plan), net cost presentations (see NASFAA, 2013, for suggestions), and student consumer information pages (see NPEC, 2009, for suggestions).

Recommendation #2: Use plain language. Disclosure content should use simple language that is free from unfamiliar jargon and acronyms whenever possible to enable the consumer to understand the disclosure content more easily. The federal government should work with colleges to consumer test common financial aid terms and acronyms, identify

those that cause confusion (e.g., "sticker price," "SEOG"), and suggest more consumer-friendly alternatives (e.g., "cost of attendance," "Supplemental Education Opportunity Grant program;" See Burd et al., 2018, for additional examples). When jargon or acronyms are unavoidable, the federal government should encourage colleges to write out acronyms, define terms, and provide additional explanation. For example, a college could embed pop-up or hover-over boxes with additional information into its website or create mock (or sample) financial aid letters that cover key terms. Institutions could also provide guides on how to interpret information and use it to make college choices, e.g. Harvard University's "Guide to Understanding a Net Price Estimate."[2]

Recommendation #3: Simplify content as appropriate. Disclosure content should be simplified as much as possible. The federal government can help ensure that consumers get the essential information they need without overwhelming them with too much information. To this end, the federal government should prioritize disclosure content to that deemed most essential. For example, the College Scorecard's user interface prioritizes information by presenting students with multiple "tiers" of information based on priority: the first tier contains only the most essential information (i.e., graduation rates, estimated salaries, and average annual costs), and from there, students can click on a series of tabs to get additional information (e.g. financial aid and debt, fields of study, student body). Similarly, the College Financing Plan serves as a cover sheet that prioritizes key information about a student's financial aid offer (e.g., expected family contribution, total cost of attendance, scholarship and grant options, net price, and loan and work study options). Policymakers could require colleges to use this cover sheet (or similar) to ensure that key information is highlighted to students. In addition to prioritizing key information, the federal government should seek to simplify information content by aggregating information when appropriate. For example, net price calculators enable students to combine information about the cost of attendance and estimated financial gift aid to estimate their own net price. The U.S. Department of Education should seek to develop additional calculation aids that can help students simplify information about the cost of college (e.g., like the Informed Borrower Tool and Loan Simulator Tool). However, information should not be over-aggregated. Congress should require institutions to clearly demarcate grants and scholarships, separate from loans and work-study, on financial aid letters to avoid confusion about what needs to be repaid.

Recommendation #4: Tailor information to the individual. Disclosure content should also be tailored to individuals. Given that is the nexus of the college application and financial aid process, the U.S. Department of Education should seek to do targeted outreach to ensure that consumers get information that meets their individual needs. For example, U.S. Department of Education could tailor communications to students who are likely to be eligible for the Pell Grant to spotlight the Pell Grant rather than just describing financial aid more generally. The federal government should also invest in ways to make its higher education resources more customizable to individual students. Although some of the information on the College Scorecard can already be tailored to the characteristics of individual students (e.g., students can select their family income bracket to compare income-adjusted average annual costs at selected colleges), there is room for improvement to provide more customized information as needed. For example, the College Scorecard user interface should enable students to input additional criteria (e.g., state residency, test scores, fields

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2. See https://college.harvard.edu/guides/understanding-net-price-estimate

of study) and see customized estimates for additional outcomes (e.g., graduation rates, typical earnings, typical monthly loan payments). The federal government should also share best practices with colleges for improving personalized tools like net price calculators. For example, U.S. Department of Education should regularly update its net price calculator template and share best practices for increasing the accuracy of individualized data within net price calculators, which vary widely in accuracy and comparability, as well as tips for improving ease of use.

Make information presentation easy to navigate

The federal government should take steps to ensure that the way that information is presented supports consumers in making good choices. These steps include organizing options in a meaningful way, facilitating side-by-side comparisons, and providing a frame of reference.

Recommendation #1: Organize options in a meaningful way. The way in which information is organized can play an important role in shaping the decisions that consumers make. The federal government should seek to ensure that resources like the College Scorecard organize information in a meaningful way. One way that the federal government can do this is by choosing meaningful default criteria for sorting and filtering colleges in the College Scorecard. In stark contrast to informal college ranking products that give consumers an easily understood criteria for choosing between schools within a set ("A is ranked higher than B, so choose A"), the College Scorecard currently defaults to organizing all colleges in descending order based on graduation rate, which gives precedence to very small specialized institutions that are not representative of typical well-attended colleges. Instead, the College Scorecard could present options in a more meaningful way, for example, by grouping colleges into four-year, two-year, and certificate programs, and within those groups, ordering colleges based on either multiple criteria (e.g., a ranking system based on cost, earnings, debt, graduation rate) or a single high-priority criterium (e.g., cost). Another way that the federal government can improve the organization of the College Scorecard is by expanding the options available for sorting and filtering colleges. The College Scorecard is currently sortable by only three criteria (i.e., name, average annual cost, and graduation rate). The federal government could add additional sorting criteria of interest (e.g., acceptance rate, average debt burden, debt-to-earnings ratio, etc) and enable sorting by multiple criteria simultaneously (e.g., akin to U.S. News and World Report's "My Fit Custom Ranking" https://www.usnews.com/best-colleges/myfit). It could also add additional filtering criteria of interest (e.g., liberal arts colleges, colleges for veterans, online programs, etc). Finally, the federal government should make it easier for students to save their sorting and filtering settings and search results. For example, the federal government could enable students to create profiles where they can save this information or link it to their existing federal student aid profiles. Together, these changes could help to reduce choice overload and enable consumers to focus on the colleges that fit their interests and needs.

Recommendation #2: Facilitate side-by-side comparisons. Presenting information in a manner that enables side-by-side comparisons can help consumers to more easily determine which option is best for them. Thus, the federal government should seek to ensure that consumers can easily compare options with one another. One way that the federal government can do this is by better facilitating college comparisons within the College Scorecard. The College Scorecard allows students to compare up to 10 colleges at a time, in a

graphical format, and with some customization options (e.g., average annual cost by income bracket). This could be improved by enabling students to view side-by-side comparisons of a greater number of customized attributes (e.g., salary range by field of study). Another way that the federal government can help is by better facilitating comparisons of net price calculations across colleges. For example, the U.S. Department of Education could create a tool that would enable students to calculate their net prices for different colleges and display that information side-by-side along with other information about the colleges. And, as suggested previously, the federal government could better facilitate comparisons of student financial aid offers by requiring schools to provide students with a standardized cover sheet.

Recommendation #3: Provide a frame of reference. It is also important to help consumers to contextualize and interpret information by offering meaningful reference points, comparisons, and ranges of possible values. Prior to their recent redesign, the College Scorecard and the College Financing Plan both helped students to contextualize information by situating some attributes, like costs, on scales showing low, medium, and high values, and by comparing other attributes, like loan default rates, to national averages. We recommend a return to providing contextual information to ensure that students have a frame of reference for interpreting information. And, in future iterations of the College Scorecard, we encourage the federal government to give students the option of seeing comparisons to more specific standards (e.g., for particular degrees/certificates, types of schools, or types of students). Other recent changes in the College Scorecard included the removal of the share of graduates earning more than high school graduates and a switch from providing median earnings to providing a range of earnings for all students attending the college and median earnings for specific fields of study. Ideally, the College Scorecard should return to reporting the share of graduates earning more than high school graduates and provide *both* the median and range of earnings for all students and for specific fields of study. Additionally, the federal government should require colleges to provide contextual information such as national averages on their student consumer information pages and net price calculators to help students better assess that information as well.

Anticipate firm responses

Policymakers must not only anticipate how disclosure policies are likely to influence consumers' choices directly but also how consumers' choices might be affected by the way in which institutions respond to disclosure requirements and their resulting market pressures. Policymakers should strive to anticipate potential threats to data integrity and close the loop on data reporting requirements for colleges that may be overly vague, easily gameable, or difficult to enforce. As described previously, the federal government can help to ensure data integrity by providing colleges with more concrete standards for where information should be disclosed, what standardized terminology should be used, and when information should be released and disseminated. The federal government can also help to ensure data integrity by using existing federal administrative data for data reporting whenever possible instead of requiring colleges to collect and report data individually.

Policymakers should also strive to anticipate and mitigate potential unintended negative consequences of disclosure policies on enrollment practices. For example, student outcomes are not only influenced by institutional programs, but also by the demographic and economic characteristics of the student body. Disclosure policies that emphasize student

outcomes without accounting for student characteristics could disincentivize institutions from enrolling students from traditionally low-performing groups. Accounting for student characteristics within informational disclosures, either by supplementing student outcome metrics with information about student characteristics and social and economic mobility (Chetty et al., 2017), breaking down these metrics into more micro-level aggregates (i.e., demographic subgroups, income quartiles, etc.), or incorporating risk adjustments into these metrics (Deming & Figlio, 2016; but see also Johnston & Webber, 2003), could help to reduce strategic enrollment pressures.

Additional accountability measures

Ultimately, even the best designed disclosure policies cannot guarantee that consumers will not choose institutions with poor student outcomes or that institutions will not mislead or exploit consumers. In such cases, complementing disclosure policies with additional accountability measures—such as accreditation, monetary incentives, and non-monetary incentives—may be essential for improving college choices and student outcomes. Additional accountability measures may be warranted when the decision is complex, prior knowledge is limited, and the risk is high. They may be warranted when student and institutional priorities are misaligned such that there are incentives for institutions to deceive students or regulators or opportunities for institutions to exploit students. And, they may be needed when negative outcomes are likely to be externalized beyond the student to taxpayers.

Accreditation. One mechanism for holding colleges accountable for performance is through the accreditation process. Currently, most of the accreditation indicators focus on academic performance, institutional campus culture, and processes that occur after a student enrolls and up until their graduation. Very little of the accreditation process examines the ways in which institutions engage with students before they arrive on campus (i.e. the college choice process) and similar attention is paid to the post-completion outcomes. Future accreditation could incorporate disclosure compliance and student outcomes as part of the review process.

Monetary incentives. The federal government has a history of tying institutional performance on priority earnings and repayment metrics to access to Title IV funds. For example, the Gainful Employment Rule set minimum debt-to-earnings ratio standards that career education programs had to meet to maintain access to federal student loan funds. However, this rule was recently rolled back in part due to criticism for the limited number of schools it impacted and the targeting of for-profit institutions. Future regulations should examine integrating disclosure compliance and student outcomes with access to funding and consider tying some of the disclosure-based regulations recommended here to access to Title IV Funds.

Non-monetary incentives. Non-monetary penalties may also be applied in situations where institutions do not reach performance standards, do not disclose required information, or disclose inaccurate or misleading information. For example, the GI Bill Comparison Tool provides visual alerts, or warnings, to users of colleges and universities that are either non-accredited or are experiencing financial irregularities. Additionally, U.S. News and World Report flags and removes institutions from its annual rankings when it identifies misreported data. Similar alerts and flags could be included within the current version of the College Scorecard. Creating dynamic alerts and flags for institutions that

have seen a dramatic increase in costs or drop in student outcomes could further highlight essential factors for students within the college choice process and incentivize institutional performance.

Opportunities for research and innovation

Additional research is needed to better assess the effectiveness of disclosure policies in higher education and learn how to design more effective policies. One limitation of the existing research is that most studies of disclosures have focused on their effects on comprehension, and few have looked at the impact of disclosure policies on behavioral outcomes (Gillis, 2015), and even fewer have examined whether the costs of disclosure outweigh the benefits (Ben-Shahar & Schneider, 2014). Another limitation is that most research on disclosure has relied on laboratory studies (e.g., Lacko & Pappalardo, 2010; Chin & Bruine de Bruin, 2018), and few disclosure studies have used field testing to study the effects of disclosure, offering only a limited understanding of their impact in a more naturalistic context or over time (Hogarth & Merry, 2011; Johnson & Leary, 2017; Perry & Blumenthal, 2012). Additionally, with few exceptions, most studies of disclosure that have looked at real-world outcomes have been non-experimental, raising questions about causality. Future research should strive to use randomized controlled experiments so as to be able to assess the causal impact of disclosure policies.

Moreover, policymakers should strive to take an iterative design approach to designing disclosure policies in higher education. Iterative design, or "design-test-iterate" is a paradigm used in the practice of software development and is adaptable to informational disclosure usability design and improvement. Currently, informational disclosures created by the public sector are typically released to the public at the end of lengthy research and development processes with high fixed costs, and then additional testing and research in pursuit of improvements is either ad hoc and long after release, or not performed at all. Using an iterative design approach would prioritize making disclosures available to student users on an accelerated schedule, engaging in usability and behavioral outcome testing frequently, and making design improvements regularly.

Final thoughts

Disclosure policies are necessary but not sufficient to support college choices. Given the continued push to increase access to college and completion of a college degree, disclosure policies have the potential to play an increasingly important role alongside additional accountability measures in ensuring that students and their families are able to make college choices that meet their needs. Disclosure policies that address persistent information asymmetries and enable students to navigate market complexities are an essential mechanism in closing the college access gap—and they are an especially critical tool for students from low-income, first-generation, and underrepresented backgrounds. To make disclosure policies as effective as possible, policymakers must not only ensure that institutions provide students and families the information that they need, but also that information be disseminated in a manner that makes it easy to access, communicated in a manner that makes it easy to understand and presented in a manner that makes it easy to evaluate.

Policymakers must take steps to ensure accurate data reporting and avoid reporting requirements that perversely incentivize strategic enrollment practices. And, finally, policymakers must supplement disclosure policies with additional accountability measures and embrace opportunities for additional research and innovation.

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