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Research Article

Leveraging insights from behavioral science and administrative burden in free college program design: A typology

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Abstract: Amid concerns over college affordability, many communities and states have enacted free college programs, and the Biden administration has brought momentum to federal free college discussions. Today, hundreds of college promise programs exist in communities across the country, including at least 20 state-sponsored free college programs. While free college policies have the potential to increase enrollment by reducing college costs, substantial variation in program design likely shapes how effective these programs are at expanding college access and reducing racial and economic disparities. This paper leverages insights from administrative burden and behavioral science to develop a typology of statewide free college programs, offering a framework for examining how policy design reduces (or increases) the burden individuals are likely to incur in receiving free college benefits. To do so, we collected data on design features of free college programs (e.g., eligibility criteria, application procedures, maintenance requirements) and created indices capturing the extent to which each program imposes administrative burden and, conversely, offers behavioral supports to help students navigate the aid process. Our findings offer insight for policymakers as they design free college programs and provide context for researchers examining the effectiveness and equity outcomes of statewide free college programs.

Keywords: Free college, State policy, Policy design, Administrative burden, Behavioral economics

Supplements: Open data

College tuition and fees have doubled at community colleges and nearly tripled at public four-year colleges in recent decades (College Board, 2019). Although funding for grant aid has also increased, it has not been sufficient to meet the needs of many students, leading to a growing reliance on loans to pay for college (Goldrick-Rab, 2016). While loans offer one avenue for college financing and can promote access and success (Black, Denning, Dettling, Goodman, & Turner, 2020; Marx & Turner, 2019), racial and economic disparities in borrowing, repayment, and pursuit of graduate education raise equity concerns (Baker, 2019; Rothstein & Rouse, 2011; Scott-Clayton, 2018). "Free college" programs, sometimes called college promise or place-based scholarships, have emerged as a popular policy response to improve college affordability and reduce racial and economic disparities in college access at local, state, and federal levels. Around 20 states have enacted free college programs, the majority of which have been implemented since 2017 (Mishory & Granville, 2019). In the face of the COVID-19 pandemic and related economic downturn, there are early signals from states expressing continued interest in free college programs, especially those targeting high-need jobs and training

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essential workers (Miller-Adams, 2020). While free college programs aim to reduce college costs for eligible students, their design varies substantially across programs (Gándara & Li, 2020; Li & Gándara, 2020; Mishory & Granville, 2019). These design variations are likely to impose different burdens as students seek to access and maintain free college benefits.

Researchers have coupled insights from administrative burden and behavioral science, drawing on theory from political science, public administration, economics, and social psychology, to understand individuals' experience with public programs and identify and design outreach strategies to encourage program participation among target populations (Christensen, Aarøe, Baekgaard, Herd, & Moynihan, 2020; Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017). In this paper, we advance that work by developing a typology of statewide free college programs based on the extent to which their design is likely to impose administrative burden and, conversely, the extent to which they offer behavioral supports to help students navigate the aid process. While our analysis could be applied to financial aid programs at the federal, state, or local levels, we focus on statewide free college programs since they represent one-quarter of the increase in state funding for student aid in recent years and vary substantially in design and implementation (Mishory & Granville, 2019).

By identifying free college programs that are more (and less) likely to create barriers, our typology provides context for researchers as they examine the effectiveness and equity outcomes of these programs, particularly across different student populations. For instance, programs with high administrative burden and few behavioral supports may have smaller enrollment impacts than programs that impose fewer costs and provide assistance to intended recipients, which will likely widen racial and economic disparities as students have inequitable access to information and assistance navigating bureaucratic processes. Our typology also offers information for policymakers seeking to enact or revise free college programs regarding other states' approaches to policy design and how programs can be designed to reduce burden and increase behavioral supports.

Free College Programs

Free college programs build on research demonstrating college enrollment returns to investments in financial aid (Leslie & Brinkman, 1987; Dynarski, 2003; Deming & Dynarski, 2010). Yet not all financial aid efforts equally improve student outcomes (Deming & Dynarski, 2010). For example, research on Pell grants, the largest federal means-tested student aid program, has found small effects on enrollment for most student populations (Kane, 1995; Marx & Turner, 2018; Rubin, 2011; Seftor & Turner, 2002). Many college students who would likely be eligible for the Pell grant do not apply for federal financial aid (Bird & Castleman, 2016; Kofoed, 2017; Rosinger & Ford, 2019), and some hypothesize students receive eligibility information too late in the college-going process to affect enrollment (Carruthers & Welch, 2019). Further, non-guaranteed renewal of the Pell grant each year may introduce uncertainty to students' planning and hamper college persistence (Denning, Marx, & Turner, 2019).

Free college programs are often widely advertised by states and communities, with some providing advance notice of eligibility prior to students' senior year of high school. Free college program evaluations have often found positive effects on initial college enrollment (Bartik, Hershbein, & Lachowska, 2017; Bifulco, Rubenstein, & Sohn, 2019; Carruthers & Fox, 2016; Gurantz, 2020; Page, Iriti, Lowry, & Anthony, 2019) and persistence/completion (Bartik et al., 2017; Bifulco et al., 2019; Gershenfeld, Zhan, & Hood, 2019; Mendoza & Mendez, 2013), though some programs yield null to modest effects (Toutkoushian, Hossler, DesJardins, McCall, & Canché, 2015; Nguyen, 2019). Some free college programs have been shown to increase enrollment among racially marginalized students (Bartik et al., 2017; Gándara & Li, 2020), however, some programs, including programs that offer more generous awards, have had larger effects among more economically advantaged and/or White students, and may contribute to racial and economic gaps (Bifulco, et al., 2019; Gándara & Li, 2020; Taylor & Lepper, 2018). Clear and early communication of aid eligibility can also affect K12 education outcomes: Black high school students' GPA improved and suspension among all students decreased on average following the regional Kalamazoo Promise (Bartik & Lachowska, 2014).

Researchers hypothesize that variation in program design may drive different effects across free college programs (Perna, Leigh, & Carroll, 2017). Prior research offers helpful typologies of free college programs, from Miller-Adams' (2015) evaluation of the expansive/restrictive and universal/limited nature of programs to more recent groupings according to eligibility criteria, financial award structure, and institutional restrictions,

forming more nuanced categories of program design (Hemenway, 2018; Perna & Leigh, 2018). Even so, heterogeneity remains within groupings. Recent work has moved to understanding the effects of design components on student outcomes. For example, programs without income requirements had larger enrollment effects than those with restrictions (Li & Gándara, 2020) while programs with merit requirements and more generous financial awards had a larger effect on White students than racially marginalized students (Gándara & Li, 2020). Focusing on program implementation, a study of Oklahoma's Promise examined the role of school counselors as street-level bureaucrats, finding that different counselor models affected students' experience of administrative burden (Bell & Smith, 2020).

This paper provides a comprehensive inventory of the burden students face in receiving statewide free college benefits and draws on public administration and behavioral science literature to compare designs and complexity of program design across state programs. We extend the analysis to document support structures in place to help students navigate bureaucratic processes and create a typology of programs based on the extent to which administrative burden and behavioral supports that can mitigate burden are present. Our typology provides a framework through which to understand the variation in effects on student outcomes found in the extant literature and for future analyses to formally assess the relationship between program design and student access and success.

Theoretical Framework

Working within a framework of "bounded rationality," behavioral science literature argues that individuals have limited time and attention and rely on simplifying strategies, or heuristics, to navigate complex decisions (Simon, 1982; Tversky & Kahneman, 1974). Research has explored both the source of these limits and the heuristics individuals employ as well as intervention strategies to facilitate decision-making. The limits individuals face in the policy arena include administrative burden, or the costs incurred from interacting with bureaucratic processes, which acknowledge that policy can become onerous depending on implementation and individual factors (Burden, Canon, Mayer, & Moynihan, 2012).

While administrative burden can deter anyone, low-income Americans, for whom many public benefits services are directed, face particular obstacles that can prevent them from accessing resources (Heinrich, 2016; Herd & Moynihan, 2018; Mullainathan & Shafir, 2013). Cognitive bandwidth, or the attention available to individuals, expands or contracts in different circumstances (Mullainathan & Shafir, 2013). Many factors may temporarily reduce cognitive bandwidth and affect decision-making, including financial scarcity or heightened salience of financial circumstances (Mani, Mullainathan, Shafir, & Zhao, 2013). Thus, individuals' financial situation, which drives a need to access public benefits, concurrently hampers capacity to navigate processes to access benefits (Christensen et al., 2020). Administrative burden can also disproportionately fall on racially marginalized groups, acting as a tool to reproduce racial disparities and serving to limit access to public services and programs (Ray, Herd, & Moynihan, 2020).

Researchers have leveraged behavioral science insights to examine various stages of the college-going process (Meyer & Rosinger, 2019). Interventions aimed at simplifying the process and reducing administrative costs have focused on pre-matriculation tasks (Castleman & Page, 2015, 2016; Page, Castleman, & Meyer, 2020; Page & Gehlbach, 2017), applying for college (Hoxby & Turner, 2013), applying for financial aid (Bird, Castleman, Denning, Goodman, Lamberton, & Rosinger, 2021; Castleman & Page, 2016; Page et al., 2019), and borrowing (Barr, Bird, & Castleman, 2019; Darolia & Harper, 2018; Marx & Turner, 2019; Rosinger, 2017, 2019).

While a large body of research has focused on simplifying processes and helping students apply for federal student aid (Dynarski & Scott-Clayton, 2008; Dynarski & Wiederspan, 2012; Castleman & Page, 2016), less research has considered barriers students face when it comes to state financial aid programs. Statewide free college programs represent another complex process that could deter intended recipients from receiving aid. Using Moynihan, Herd, and Harvey's (2015) categorization of administrative burden into learning, compliance, and psychological costs, Table 1 outlines costs students incur when accessing and maintaining statewide free college benefits. We then highlight behavioral responses that exacerbate costs and list behavioral strategies from education and other domains that have been effective in mitigating costs.

Table 1

Free College Program Components, Behavioral Responses, and Behaviorally-informed Strategies to Reduce Costs

	Program components contributing to costs	Behavioral responses that exacerbate costs	Behavioral strategies to reduce costs
Learning costs	Learning the program exists and financial benefits Determining individual eligibility Learning about the application process	Availability bias Ambiguity aversion Status quo bias	Proactive outreach about eligibility Automatic enrollment/renewal Clarity around program benefits
Compliance costs	Sign and uphold pledge to meet specified academic and other benchmarks Submit aid application(s) Complete annual eligibility checks to maintain award	Present bias Decision paralysis	Prompt action and send personalized reminders Simplify paperwork Reduce hassles by bundling compliance tasks with other tasks the individual is more likely to complete
Psychological costs	Psychological strain from: • Stigma associated with requiring aid • Sharing personal information • High standards (GPA, volunteering) • Negative stereotypes (drug tests, criminal background checks)	Anxiety about social belonging Reduced cognitive bandwidth Stereotype threat	Frame individual characteristics as strengths Remind students of long-term goals to mitigate cognitive load from financial stress

Learning costs include learning about the existence of free college programs and their financial benefits, as well as eligibility requirements and the application process. Students might rely on various heuristics to evaluate their eligibility or willingness to engage in applying for aid. For example, ambiguity aversion considers how individuals are less likely to engage in costly behaviors when risk is unknown, such as ambiguity around a program's funding structure or eligibility requirements (Berger, Bleichrodt, & Eeckhoudt, 2013). For programs that require full-time or continuous enrollment, there may be a status quo bias for working adults—a preference to continue with a current course of action rather than leaving work (Madrian & Shea, 2001; Samuelson & Zeckhauser, 1988).

Strategies to mitigate learning costs include tasking street-level bureaucrats with increasing awareness or launching outreach campaigns (Finkelstein & Notowidigdo, 2019). For example, school counselors serve as one source through which students learn about free college offerings; however, counselors vary in how they interpret their role in that process and exhibit racial biases in advising (Bell & Smith, 2020; Francis, de Oliveira,

& Dimmitt, 2019). A recent University of Michigan campaign that mailed students information about eligibility for a guaranteed scholarship is one example of a successful campaign to reduce learning costs (Dynarski, Libassi, Michelmore, & Owen, 2018). Other public programs automatically enroll eligible individuals based on administrative records and receipt of other programs (Herd, DeLeire, Harvey, & Moynihan, 2013).

There are many compliance costs associated with accessing and maintaining free college funds. Most programs require annual evidence of financial need while some have enrollment, GPA, and volunteer requirements to maintain eligibility. Two behavioral science insights help explain why students, in the face of compliance costs, may fail to complete tasks. Present bias refers to the tendency to overvalue the present and undervalue the future, believing it will be easier to complete a task in the future (Thaler & Benartzi, 2004). As a result, a task may never be completed as it is repeatedly relegated to tomorrow. Similar inaction can result from decision paralysis—in the face of many options (e.g., numerous ways to volunteer) a student may face indecision and fail to act (Iyengar & Lepper, 2000).

In other public programs, outreach with clear information about tasks or redesigning program forms to highlight salient information has improved outcomes (Linos, Quan, & Kirkman, 2020). Tennessee, for example, leveraged text messages to remind students about upcoming free college deadlines, using behaviorally-informed message variants; however, these variants did not improve outcomes (Kramer, 2020). Another option for reducing compliance costs is to bundle program-specific reporting with other reporting processes—for example, a behavioral intervention in financial aid coupled FAFSA filing with tax preparation and led to increased college enrollment (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012).

Psychological costs include the stigma associated with receiving public benefits and psychological strain from providing personal information to demonstrate eligibility—for example, having to repeatedly identify oneself as low income on multiple financial aid forms. Further, many free college programs have volunteer requirements akin to job-training or work requirements in public benefits programs such as TANF.

The social psychology literature has documented the lack of belonging many college students feel and its negative effect on persistence (Walton & Cohen, 2007, 2011). Monitoring requirements such as drug tests to maintain a scholarship may reinforce negative stereotypes and intensify a sense of isolation (Steele & Aronson, 1995). The targeting of free college also affects the extent to which stigma might occur: one argument for universal rather than means-tested aid is not only to garner public support (Skocpol, 1995) but to reduce stigma (Vaade & McCready, 2011). Several interventions highlight ways to increase a sense of belonging and reduce the perception of stereotype threat (Nguyen & Ryan, 2008; Walton & Cohen, 2011) or recontextualize backgrounds as sources of strength to reduce the negative effect of financial stress (Stephens, Hamedani, & Destin, 2014; Destin & Svoboda, 2018).

Students' experiences of administrative burden, their behavioral responses to complex procedures, and behavioral supports aimed at helping students overcome complexity are shaped by program design. In this paper, we examine the process through which students receive free college benefits for each statewide program and create a typology to describe the extent to which students are likely to experience administrative burden and behavioral supports as they navigate the aid process.

Data and Methods

We drew on information compiled by The Century Foundation to identify statewide free college programs, which are defined as state programs that provide funds to cover full tuition for eligible state residents (Mishory, 2018; Mishory & Granville, 2019). Table 2 lists the 18 states with free college programs in our study and the year enacted. Tennessee and Indiana operate concurrent programs; we included both programs in each state.

Table 2

Statewide Free College Programs and Year Enacted

State	Program	Year enacted
Indiana	Indiana 21st Century Scholars	1990
Oklahoma	Oklahoma's Promise	1992
Missouri	Missouri A+ Scholarship	1993
Mississippi	Mississippi Higher Education Legislative Plan (HELP) for Needy Students Grant	1997
Louisiana	Louisiana Taylor Opportunity Program for Students (TOPS)	1998
Delaware	Delaware Student Excellence Equals Degree (SEED) Scholarship	2005
Tennessee	Tennessee Promise	2014
Oregon	Oregon Promise	2015
Arkansas	Arkansas Future Grant (ArFuture)	2017
Hawai'i	Hawai'i Promise	2017
Indiana	Indiana Workforce Ready Grant	2017
Kentucky	Work Ready Kentucky Scholarship	2017
Nevada	Nevada Promise	2017
New York	New York Excelsior Promise	2017
Rhode Island	Rhode Island Promise	2017
Tennessee	Tennessee Reconnect	2017
New Jersey	New Jersey Community College Opportunity Grant	2018
Washington	Washington College Grant	2019
Maryland	Maryland Community College Promise Scholarship	2019
West Virginia	West Virginia Invests	2019

Notes: List of states and year adopted comes from Mishory (2018) and Mishory and Granville (2019).[1]

To create an index, or overall measure, of administrative burden and behavioral supports, we operationalized the program components in Table 1 as specific design features of free college programs. For instance, to operationalize learning costs associated with "determining individual eligibility," we collected information for each program on the presence or absence of seven design features: means-tested eligibility requirements, high school academic requirements, pledge or enrollment required in high school or earlier, residency and citizenship requirements, repayment of educational loans, and restrictions on institutions, degrees, or programs where funds can be used and requirements such as full-time or continuous enrollment (with the assumption that more restrictions increase burden). Table 3 lists the design features we collected alongside associated program components related to administrative burden and behavioral supports.

Table 3

Factors Contributing to Administrative Burden and Behavioral Supports, and Associated Program Design Features

	Factors contributing to administrative burden or behavioral supports	Associated program design features (used to create indices)

Administrative burden: learning costs	Determining individual eligibility	Means-tested requirement (+) High school academic requirements (+) Sign pledge or enroll in program in high school or earlier (+) State residency requirement (+) Citizenship or eligible non-citizen requirement (+) Repayment of state/federal education loans required (+) College enrollment or field of study restrictions (+)
	Learning about the application process	Financial aid application required (+) Additional forms required (program application, GPA or income verification) (+) Deadline for applying (+)
Administrative burden: compliance costs	Sign pledge and meet eligibility requirements for initial receipt	Requirement to sign pledge (+) Parent(s) must sign pledge or enroll student (+) Means-tested requirement (+) High school GPA requirement (+) Other high school academic requirement (e.g., standardized test score) (+) High school attendance requirement (+)
	Submit application(s)/forms for initial receipt	State residency requirement (+) Citizenship or eligible non-citizen requirement (+) Repayment of state/federal education loans required (+) Funds limited to associate degree or certificate offerings (+) Field of study restrictions (+) Full-time college enrollment restriction (+) Enroll in college within specified timeframe after high school graduation (+) Volunteering, mentoring, or other involvement to receive award (+) Financial aid application required (+) Additional aid or program application required (+) Income verification required (+)

		GPA verification required (high school or college) (+) Deadline for applying (+)
	Complete annual requirements to maintain award	New financial aid application required to renew (+) New program or state aid application required to renew (+) Deadline to renew (+) Drug test required (+) Criminal background check/reporting required (+) Other code of conduct required (+) Volunteering, mentoring, or other involvement to renew (+) Fees required to renew (+) College GPA requirement (beyond satisfactory academic progress) (+) GPA verification required to renew (+) Income verification required to renew (+) Maintain continuous enrollment (+) Maintain full-time enrollment (+) Comply with field of study restrictions (+) Live in state for specified period of time after receiving award (+)
Administrative burden: Psychological costs	Psychological strain from: Stigma associated with requiring aid	Means-tested requirement (+)
	Sharing personal information	Financial aid application required (+) Income verification required (+) GPA verification required (high school or college) (+) New financial aid application required to renew (+)
	High standards	Volunteering, mentoring, or other involvement to receive or maintain award (+) High school GPA threshold to receive award (+) College GPA threshold for renewal (beyond satisfactory academic progress) (+)
	Negative stereotypes	Drug test required (+) Criminal background check/reporting required (+) Other code of conduct (+)

Behavioral supports	Proactive outreach and support	Proactive outreach (-) Individualized mentoring or advising in high school (-) Individualized mentoring or advising in college (-)
	Reduce complex information and processes	Separate website with program information (-) Estimated award amount provided (-) Information about costs scholarship covers provided (-) Personalized award estimate provided (e.g., award calculator) (-) Couples aid application with one used for other aid (-) Couples program application with aid application (-) Automatic enrollment (no information beyond FAFSA needed) (-) Automatic renewal of scholarship (no information beyond FAFSA needed) (-)

Notes: To create administrative burden and behavioral supports indices, we assigned one point for the presence of each factor. (+/-) indicates whether a factor is likely to increase (+) or decrease (-) burden.

Our data collection and analysis accounted for design features that impose multiple costs. For example, academic requirements to receive and/or maintain funds impose learning, compliance, and psychological costs: a learning cost associated with knowing about merit requirements, a compliance cost associated with maintaining and reporting grades, and a psychological cost associated with high standards. In other cases, we distinguished which parts of a design feature were learning (learning about required forms), compliance (submitting an aid and program application, annually verifying income and/or GPA), and psychological (submitting personal information) costs.

We compiled data on 51 unique design features (55 that appear in our administrative burden index and 11 that appear in our behavioral supports index; some design features are included as imposing multiple costs and are counted more than once) from higher education agency and state aid commission documents, state legislation, and college websites. We identified design features prior to data collection based on previous federal student aid research (Castleman & Page, 2015; Dynarski & Scott-Clayton, 2008). As we reviewed documents for each program, if we encountered additional bureaucratic procedures (e.g., documentation to verify GPA), we included them in data collection (and retroactively collected them for programs already completed) to provide as accurate a picture as possible of the extent to which programs incorporated design features that impose burden or support students. Together, the design features we considered document the process through which students learn about, assess eligibility for, apply for, and maintain benefits, providing face validity to our measures of cumulative administrative burden and behavioral supports.

Two research team members worked on data collection for each state, and the research team went back to original documents to reconcile discrepancies to ensure reliability in how we defined and coded the presence or absence of each design feature. Once we completed data collection, one team member re-collected data for five programs, finding agreement with the initial coding more than 95 percent of the time, indicating intercoder reliability. We cross-checked some of our data with the Penn AHEAD database (Perna & Leigh, n.d.), where possible, although the data elements we collected generally differed from the ones included in the Penn AHEAD dataset. Any discrepancies are due to our interpretation of documents. Our data collection relied on

primary source documents, and we did not conduct surveys of students or interviews with state aid commissioners that could illuminate other burdensome or supportive design features. Nonetheless, our data collection aimed to map the process through which students access and maintain free college benefits under each program.

We created an administrative burden index by assigning 1 point for the presence of each of the 55 policy design features we identified as likely to contribute to administrative burden (higher values indicating higher burden). We then created a behavioral supports index by assigning one point for each of the 11 design features that were likely to help students navigate the aid process (higher values indicating more support). This method of assigning 1 point for the presence of each feature aligns with the welfare policy index used by Ewalt and Jennings (2004). We next created standardized z scores for each index with a mean of 0 and a standard deviation of 1, similar to Moynihan, Herd, and Rigby's (2016) measure of administrative burden in state Medicaid processes. Positive scores indicate a program is likely to impose greater administrative burden or offer more behavioral supports than the mean program; negative scores indicate lower levels of administrative burden or behavioral supports than the mean program. We used these scores to create a typology identifying free college programs that are more (or less) likely to deter students from accessing benefits based on the extent to which administrative burden, and conversely, behavioral supports, are present.

Findings

Our findings indicate free college programs vary substantially in the administrative burden students are likely to experience. Of the 55 program design features we identified as contributing to administrative burden through learning, compliance, and/or psychological costs, we observed a range of 13 to 38, with a mean of 24. Once standardized, our measure of administrative burden ranged from 1.50 standard deviations below the mean in the lowest administrative burden programs (Hawai'i Promise and Indiana's Workforce Ready Grant) to 1.93 standard deviations above the mean in the highest administrative burden program (Mississippi HELP Grant). Table 4 provides z scores by program, and Figure 1 maps states with free college programs with lower and higher administrative burden, relative to the mean of all programs. All but four design features were positively correlated with the administrative burden score (see Appendix A).[2]

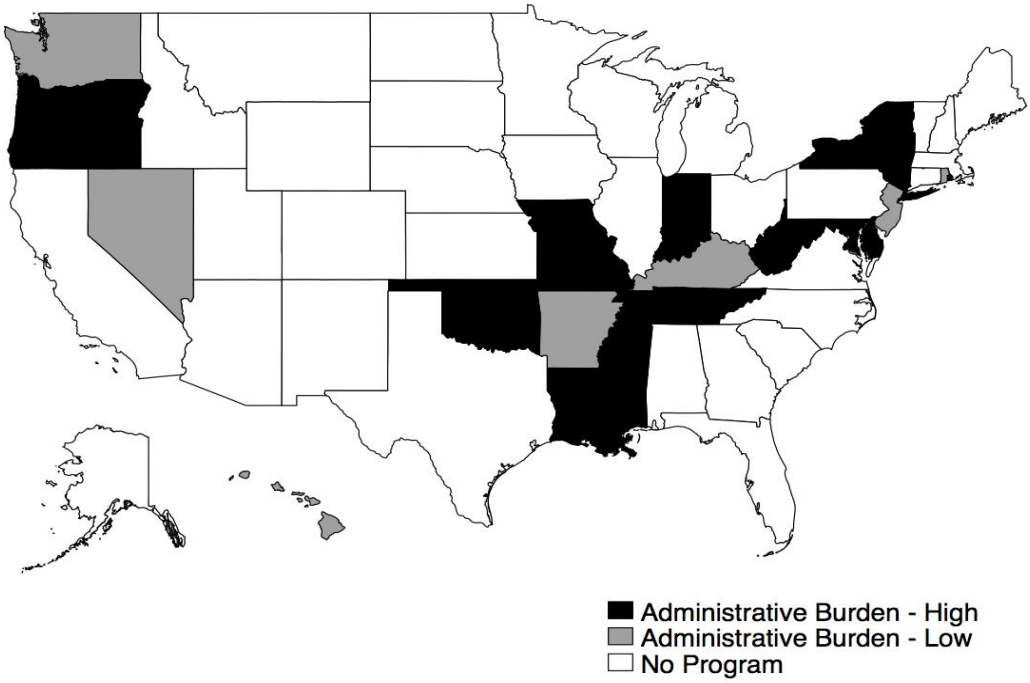
Table 4
Indices of Administrative Burden and Behavioral Supports in Free College Programs

Program	Administrative burden score	Behavioral supports score
Indiana 21st Century Scholars	1.38	-0.72
Oklahoma's Promise	0.01	0.08
Missouri A+ Scholarship	1.51	0.08
Mississippi HELP Grant	1.93	-1.52
Louisiana TOPS	0.56	0.88
Delaware SEED	0.28	0.08
Washington College Grant	-1.36	2.48
Tennessee Promise	0.42	0.08
Oregon Promise	0.14	-0.72
Arkansas Future Grant (ArFuture)	-0.95	0.08
Hawai'i Promise	-1.50	-0.72
Indiana Workforce Ready Grant	-1.50	0.88
Work Ready Kentucky Scholarship	-0.82	0.88
Nevada Promise	-0.13	0.08
New York Excelsior Scholarship	0.14	-1.52
Rhode Island Promise	-0.13	-0.72
Tennessee Reconnect	-0.13	0.08
New Jersey Community College Opportunity Grant	-1.23	1.68
Maryland Community College Promise Scholarship	0.83	-0.72
West Virginia Invests	0.56	-0.72

Notes: Programs ordered by program enactment years. Scores are standardized z scores (mean of 0 and standard deviation of 1) within each index.[1]

Figure 1

Free College Programs with High and Low Administrative Burden Scores

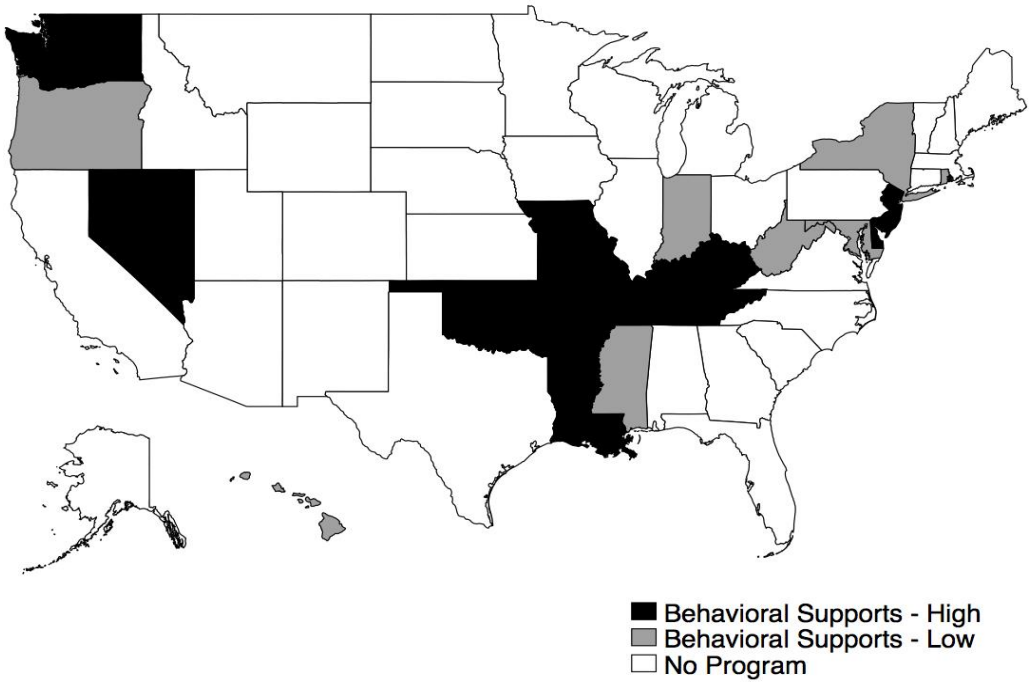


Notes: Programs with z scores above 0 were coded as "high" administrative burden programs; programs with z scores below 0 were coded as "low" administrative burden programs. Indiana and Tennessee operate concurrent programs; this figure displays the oldest free college program in the state (Indiana's 21st Century Scholars program and Tennessee Promise).

Free college programs leveraged the 11 behavioral supports in the index to different degrees, with an observed range of 3 to 8 and mean of 4.9. After standardizing the index, New York's Excelsior Scholarship and Mississippi's HELP Grant were 1.52 standard deviations below the mean and Washington's College Grant was 2.48 standard deviations above the mean in the extent to which behavioral supports were built into program design (scores listed in Table 4). States with free college programs with lower and higher behavioral supports, relative to the mean, are shown in Figure 2. All design features except one were positively correlated with the behavioral support score (see Appendix B).[3]

Figure 2

Free College Programs with High and Low Behavioral Support Scores



Notes: Programs with z scores above 0 were coded as "high" behavioral support programs; programs with z scores below 0 were coded as "low" behavioral support programs. Indiana and Tennessee operate concurrent programs; this figure displays the oldest free college program in the state (Indiana's 21st Century Scholars program and Tennessee Promise).

Table 5 presents our typology with programs grouped into one of four categories based on scores for the two indices: 1) low administrative burden/low behavioral supports, 2) low administrative burden/high behavioral support, 3) high administrative burden/high behavioral support, and 4) high administrative burden/low behavioral supports.

Table 5
Typology of Free College Programs Based on Administrative Burden and Behavioral Supports

Administrative burden	Behavioral supports	
	Low	High
Low	Hawai'i Promise Rhode Island Promise	Washington College Grant Arkansas Future Grant (ArFuture) Indiana Workforce Ready Grant Work Ready Kentucky Scholarship Nevada Promise Tennessee Reconnect New Jersey Community College Opportunity Grant
High	Indiana 21st Century Scholars Mississippi HELP Grant Oregon Promise New York Excelsior Scholarship Maryland Community College Promise Scholarship West Virginia Invests	Oklahoma's Promise Missouri A+ Scholarship Louisiana TOPS Delaware SEED Tennessee Promise

Notes: Programs ordered by adoption year.

This typology identifies programs that are theoretically more or less likely to benefit a larger share of potentially eligible students based on different levels of burden and supports. For example, the Washington College Grant has an administrative burden score that is 1.36 standard deviations below the mean and a behavioral supports score that is 2.48 above the mean—falling into the "low administrative burden/high behavioral supports" category, ostensibly the type of program likely to have the highest take up. The program has a means-tested eligibility threshold and requires students to submit a FAFSA or state aid application annually but has few other requirements. Further, the grant website lists the estimated award by income and includes a link to subscribe to texts about upcoming deadlines and to connect with a state financial aid administrator, providing clear information up front and offering support. The program has a relatively high take-up rate—at one of the state's largest community colleges, we estimate about 13 percent of students receive the grant (Whatcom Community College, n.d.; Washington State Institute for Public Policy, 2014). The grant had such interest from students that upwards of 20,000 applicants in prior years were eligible but unfunded; recent legislation increased funding to cover all eligible applicants (Washington Student Achievement Council, 2019).

New Jersey's Community College Opportunity Grant has an administrative burden score that is 1.23 standard deviations below the mean and behavioral supports score that is 1.68 above the mean. Similar to Washington's program, there are relatively few requirements for the award: students must meet specified income criteria and submit the FAFSA or state aid application annually by a specified deadline but have few academic, service, or other requirements. In 2019, around 7,600 community college students received the grant, 55 percent of whom were working adults, and the state reports that awareness of the program increased the number of students applying for and receiving other aid (Higher Education Student Assistance Authority, 2019).

Conversely, the typology is useful to identify programs that may be particularly difficult to access due to the likelihood of encountering burden and the offer of few behavioral supports. These programs show up in the "high administrative burden/low behavioral supports" category. Mississippi's HELP Grant, for example, has an administrative burden score that is 1.93 standard deviations above the mean and its behavioral supports score is 1.52 standard deviations below the mean. Students must meet a means-tested eligibility threshold, meet GPA and test score thresholds, have their school counselor verify their curriculum, submit program and aid

applications, and enroll full-time in college within two years of high school graduation. To maintain funds, students must submit a program application annually (in addition to FAFSA), maintain continuous full-time enrollment and a specified GPA, and have no criminal record. The behavioral supports we identified were minimal—the state has a program website, but award amount estimates were not listed. One evaluation of the grant estimated 1-2 percent of eligible students enrolled in the program (Pingel, 2016).

Our typology gives equal weight to each design feature; however, some elements may be more onerous than others, leading students to experience greater burden even with fewer eligibility or maintenance restrictions. We conducted a robustness check by assigning double weight to design features that require longer-term, more sustained effort. We based this weighting strategy on research that points to the barriers that longer-term, more sustained tasks impose and the effectiveness of behavioral interventions for helping students complete discrete tasks (Oreopoulos & Petronijevic, 2019; Page, Lee, & Gehlbach, 2020). Data from the Tennessee Promise program provides additional evidence to support this weighting strategy: reports indicate around 89 percent of applicants complete the FAFSA but only 45 percent of applicants (and 50 percent of those who applied and completed the FAFSA) completed the program's volunteer requirement, flagging this as a potentially more burdensome task (Tennessee Promise, 2020).

In this robustness check, design features that contribute to administrative burden and require more sustained effort, such as drug testing, GPA requirements, volunteering, and enrollment restrictions, received greater weight than more discrete tasks, such as signing a pledge or completing an aid application. For behavioral supports, more sustained efforts such as proactive outreach and mentoring received greater weight than automatic renewal of funds. Appendix C provides a list of design features with greater weights. Results from this robustness check are qualitatively similar to those presented and are provided in Appendix D and E. In this analysis, three programs move categories: Oklahoma's Promise, the Missouri's A+ Scholarship, and the Delaware SEED grant move from the high administrative burden, high behavioral supports group to high administrative burden, low behavioral supports group (given the smaller number of design features in the behavioral supports index, some movement on this index is not surprising).

Discussion

Amid college affordability concerns and persistent racial and economic disparities in college access, free college has become a popular policy response. In this paper, we created a typology of statewide free college programs that leverages insights from administrative burden and the behavioral sciences to document and classify variations in program design. Our findings demonstrate substantial variation in the extent to which students are likely to experience administrative burden in accessing free college benefits. Some states (e.g., Washington, New Jersey) coupled the free college program application with the FAFSA, which students submit for federal aid, and required few other forms, documentation, or obligations. Others (e.g., Mississippi, Tennessee Promise) required students to sign pledges in high school (or earlier) to uphold academic and conduct codes and/or required multiple applications and documentation of attending meetings, participating in volunteer service, and verifying income or GPA. Programs similarly vary in the extent to which they incorporate behavioral supports to help students navigate the aid process.

Implications for Future Research

Our typology offers a framework for examining how the design of statewide free college programs shapes their effectiveness. Absent substantial supports to help students navigate a complex process, administrative burden can prevent intended recipients from receiving benefits. By identifying programs that are more (and less) likely to create barriers, our typology allows researchers to examine the effectiveness of these programs. For instance, programs with high administrative burden and few supports may have smaller enrollment impacts than programs that impose fewer costs and provide more assistance to intended recipients. These design features may also lead to inequitable outcomes (Herd & Moynihan, 2018). For example, in the case of universal programs that extend free college benefits regardless of income, administrative burden, particularly in the absence of behavioral supports, can widen college-going disparities if higher-income individuals are better positioned to navigate bureaucratic processes. Additionally, seemingly race-neutral administrative processes can in fact disproportionately burden racially marginalized groups and serve to legitimize and reproduce racial inequities in

access to public services and programs (Ray et al., 2020). As a result, administrative burden in free college programs could prevent racially marginalized students from accessing benefits.

The administrative burden literature describes the costs individuals, particularly low-income and racially marginalized individuals, incur navigating administrative processes. While these costs may deter eligible individuals from accessing funds, some elements of free college that contribute to burden could improve student outcomes. Pledges students sign in middle or high school, for example, may help students stay on track to graduate high school. Similarly, supports such as mentoring programs could contribute to administrative burden through documentation requirements. Research demonstrates high school counselors can increase (or reduce) administrative burden as they use discretion working with students accessing Oklahoma's Promise (Bell & Smith, 2020). While our typology is useful for making distinctions across programs, it necessarily simplifies nuanced design features.

To understand the outcomes we can expect from free college programs, two additional factors should be considered. First, the amount of the award and design details that alter the generosity of funds shape college enrollment outcomes (Gándara & Li, 2020; Li & Gándara, 2020). Second, program implementation could also introduce burden as street-level bureaucrats (e.g., high school or financial aid counselors) work to deliver benefits to recipients (see Bell (2019)). Our study contributes to this work by offering a framework for examining how administrative burden and behavioral supports can similarly impact the effectiveness and equity outcomes of statewide free college programs.

Implications for Policy

Our typology suggests how policymakers could design or alter free college policies in ways that reduce administrative burden on the front-end and provide back-end outreach and support to ensure eligible students receive benefits. We acknowledge that reducing administrative burden is not always a policy goal. Recent work suggests certain eligibility requirements in free college programs, such as a minimum GPA, increase public support, while other eligibility requirements, such as income targeting, reduce support (Bell, 2020). Policymakers might also increase burden to reduce take-up, often to explicitly "sort" applicants in the pursuit of more efficient resource allocation (Heinrich, 2016; Moynihan et al., 2015; Nichols & Zeckhauser, 1982). As a result, the way in which free college programs are implemented reflect intentional design choices.

Further, each state's higher education context is different and financial aid strategies do not always translate across borders. While many merit-based scholarships increase college enrollment and persistence, at least for some student groups (Dynarski, 2000; Kane, 2003), Massachusetts' merit-based program had no discernable net effect on overall enrollment and reduced college completion rates, partially by shifting students from highly-resourced private institutions to public institutions with fewer supports (Cohodes & Goodman, 2014; Goodman, 2008). Free college programs rely on a well-funded higher education system equipped to help students navigate financial, academic, and psychological needs, and such supports vary widely (Baum & Johnson, 2015). Related is the availability of other state aid—for example, while we note low take up of Mississippi's HELP Grant, the state offers a merit-based scholarship that a large share of students eligible for free college likely receive.

Additionally, while using the FAFSA to determine free college eligibility reduces administrative burden relative to a separate application, completing that form incurs administrative burden. This is particularly true for students ineligible to complete the FAFSA due to citizenship or immigration status. Even among students eligible to complete the FAFSA, barriers remain and state FAFSA completion rates vary. While Washington's free college program has low administrative burden, the state has the 49th lowest FAFSA completion rate, suggesting widespread challenges accessing aid in the state (Form Your Future, 2020; Washington Student Achievement Council, 2019).

The insight into program design we offer is timely as states contemplate whether and how to enact (or revise) free college programs. In the midst of the COVID-19 pandemic and economic downturn, states may seek to scale back or alter programs. At the same time, momentum continues around free college: Michigan's governor recently announced a free college plan for essential workers (Miller-Adams, 2020). Our study offers insight regarding how free college program design could impose (or reduce) costs on intended recipients and potentially deter students from receiving benefits.

Notes

1. We excluded Minnesota, which operated a brief pilot program the state no longer funds, and Montana, where legislation exists but is not funded (Mishory & Granville, 2019). We also excluded California, which allocates funds to community colleges to meet access and attainment goals, in part by establishing early commitment to college programs with local partners (The California Promise, n.d.). Because implementation is decentralized, we excluded it from our analysis. Washington enacted an earlier program in 2007, but we included only the more recent Washington College Grant in our analysis since it has broader eligibility criteria and students can receive both awards.
2. Funds being limited to associate degree or certificate offerings, field of study restrictions, complying with field of study restrictions, and living in-state for a specified period of time after receiving free college funds were negatively correlated with overall administrative burden. Programs that included these restrictions tended to have fewer restrictions overall, hence the negative correlation. Because each of these are likely to impose compliance (and to some degree, learning) costs, we did not remove them from our index.
3. Information about costs the scholarship covers was negatively correlated with the behavioral supports index. Since prior research indicates that information, particularly clear and salient information, can help students navigate complex college processes, this was an important variable to include (see Meyer & Rosinger, 2019).

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Appendix

Appendix A. Correlations among Program Design Features and Administrative Burden Score

Program Design Feature	Correlation
Learning Costs	
Means-tested requirement	0.03
High school academic requirements	0.69
Sign pledge or enroll in program in high school or earlier	0.42
State residency requirement	~
Citizenship or eligible non-citizen requirement	0.41
Repayment of state/federal education loans required	0.06
College enrollment or field of study restrictions	~
Financial aid application required	~
Additional forms required (program application, GPA or income verification)	0.72
Deadline for applying	0.61
Compliance Costs	
Sign pledge or enroll in program in high school or earlier	0.42
Parent(s) must sign pledge or enroll student	0.42
Means-tested requirement	0.03
High school GPA requirement	0.69
Other high school academic requirement	0.57
High school attendance requirement	0.36
State residency requirement	~
Citizenship or eligible non-citizen requirement	0.41
Repayment of state/federal education loans required	0.06
Funds limited to associate degree or certificate offerings	-0.30
Field of study restrictions	-0.35
Full-time college enrollment restriction	0.70
Enroll in college within specified time after high school graduation	0.70
Volunteering, mentoring, or other involvement to enroll	0.36
Financial aid application required to enroll	~
Additional aid or program application required to enroll	0.61
Income verification required to enroll	0.45
GPA verification required to enroll	0.46
Deadline to enroll	0.56
New financial aid application required to renew	~
New program or state aid application required to renew	0.32
Deadline to renew	0.61
Drug test required	0.13
Criminal background check/reporting required	0.67
Other code of conduct required	0.43
Volunteering, mentoring, or other involvement to renew	0.22
Financial fees to renew	0.12

College GPA requirement to renew	0.56
GPA verification required to renew	~
Income verification required to renew	0.45
Maintain continuous enrollment	0.17
Maintain full-time enrollment	0.70
Comply with field of study restrictions	-0.35
Live in state for specified period of time after award	-0.05
Psychological Costs	
Means-tested requirement	0.03
Financial aid application required	~
Income verification required to receive or maintain award	0.45
GPA verification required to receive or maintain award	0.46
New application required each year	~
Volunteering, mentoring, or other involvement to enroll or renew	0.48
High GPA requirement to enroll	0.69
College GPA requirement to renew	0.56
Drug test required	0.13
Criminal background check/reporting required	0.67
Other code of conduct required	0.43

Appendix B. Correlations among Program Design Features and Behavioral Supports Score

Program Design Feature	Correlation
Proactive outreach	0.23
Individualized mentoring or advising in high school	0.03
Individualized mentoring or advising in college	0.03
Separate website with program information	0.17
Estimated award amount provided	0.40
Information about costs scholarship covers	-0.03
Personalized award estimate provided	0.21
Couples aid application with one used for other aid	0.42
Couples program application with aid application	0.40
Automatic enrollment (only FAFSA needed)	0.55
Automatic renewal of scholarship (only FAFSA needed)	0.50

Appendix C. Weighted Program Design Features that Require Sustained Efforts

Learning Costs
Means-tested requirement
High school academic requirements
State residency requirement
Citizenship or eligible non-citizen requirement
Repayment of state/federal education loans required
College enrollment or field of study restrictions
Compliance Costs
Means-tested requirement
High school GPA requirement
Other high school academic requirement
High school attendance requirement
State residency requirement
Citizenship or eligible non-citizen requirement
Repayment of state/federal education loans required
Funds limited to associate degree or certificate offerings
Field of study restrictions
Full-time college enrollment restriction
Enroll in college within specified time after high school graduation
Volunteering, mentoring, or other involvement to receive award
Drug test required
Criminal background check/reporting required
Other code of conduct required
Volunteering, mentoring, or other involvement to renew
College GPA requirement to renew
Maintain continuous enrollment
Maintain full-time enrollment
Comply with field of study restrictions
Live in state for specified period of time after award
Psychological Costs
Means-tested requirement
Volunteering, mentoring, or other involvement to receive or renew award
High school GPA requirement
College GPA requirement to renew
Criminal background check/reporting required
Other code of conduct required
Behavioral Supports
Proactive outreach
Individualized mentoring or advising in high school
Individualized mentoring or advising in college

Appendix D.

Weighted Indices of Administrative Burden and Behavioral Supports in Free College Programs

Program	Administrative burden score	Behavioral supports score
Indiana 21st Century Scholars	1.44	-0.29
Oklahoma's Promise	0.01	-0.29
Missouri A+ Scholarship	1.60	-0.29
Mississippi HELP Grant	1.85	-1.56
Louisiana TOPS	0.60	0.99
Delaware SEED	0.26	-0.29
Washington College Grant	-1.24	2.26
Tennessee Promise	0.51	0.99
Oregon Promise	0.10	-0.92
Arkansas Future Grant (ArFuture)	-1.08	0.35
Hawai'i Promise	-1.41	-0.92
Indiana Workforce Ready Grant	-1.41	0.35
Work Ready Kentucky Scholarship	-0.83	0.35
Nevada Promise	-0.15	0.99
New York Excelsior Scholarship	0.10	-1.56
Rhode Island Promise	-0.15	-0.92
Tennessee Reconnect	-0.24	0.99
New Jersey Community College Opportunity Grant	-1.33	0.99
Maryland Community College Promise Scholarship	0.85	-0.92
West Virginia Invests	0.51	-0.29

Appendix E.

Weighted Typology of Free College Programs Based on Administrative Burden and Behavioral Supports

Administrative burden	Behavioral supports	
	Low	High
Low	Hawai'i Promise Rhode Island Promise	Washington College Grant Arkansas Future Grant (ArFuture) Indiana Workforce Ready Grant Work Ready Kentucky Scholarship Nevada Promise Tennessee Reconnect New Jersey Community College Opportunity Grant
High	Indiana 21st Century Scholars Oklahoma's Promise Missouri A+ Scholarship Mississippi HELP Grant Delaware SEED Oregon Promise New York Excelsior Scholarship Maryland Community College Promise Scholarship West Virginia Invests	Louisiana TOPS Tennessee Promise

Notes: Programs ordered by adoption year.