

UNDERSTANDING COLLEGE PROMISE PROGRAMS

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Over the last decade, but especially in the past few years, programs with the “promise” label have been advanced at the local, state, and federal levels. Many of these programs are designed to increase college attainment in particular places. Created in 2005, the Kalamazoo Promise program inspired the establishment of similar programs in economically disadvantaged communities in Michigan and other states (Miller-Adams, 2015). Michelle Miller-Adams and others at the Upjohn Institute for Employment Research (e.g., Andrews, 2013; Miller-Adams, 2009) label these programs “place-based scholarship programs,” defined as programs that provide “universal or near-universal access” to financial support for college for students who reside in the designated area (e.g., school district or city) or attend a specified school (Miller-Adams, 2009, p. 27).

Although covering place-based scholarships modeled after the Kalamazoo Promise program, this definition does not include many other college-oriented programs that also have a “promise” label. Among the excluded are the “free community college” programs that have recently been adopted by some state governments. In February 2014 Governor Bill Haslam announced the creation of the Tennessee Promise, an initiative that offers up to five semesters of “free” tuition and fees, effective for Tennessee residents graduating from a Tennessee high school beginning with the class of 2015. To be eligible, students must enroll in an in-state community or technical college immediately after graduating from a Tennessee high school and meet other requirements. Although six states have proposed some type of legislation that the Education Commission on the States now considers “dead,” three states (Tennessee, Minnesota, and Oregon) have enacted “free college” legislation and an additional 13 states had legislation pending final action as of April 2016 (Pingel, 2016).

State-sponsored promise programs that focus on raising college attainment may become more common if the federal government adopts policies to match state investment in these initiatives. In January 2015 President Barack Obama announced America’s College Promise, a \$60 billion matching grant program modeled after the Tennessee Promise that would eliminate tuition and fees for the first two years of attendance at community colleges (Executive Office of the President, 2015). President Obama (Executive Office of the President, 2015) identified four categories of promise programs: free community college programs, free community college and four-year programs, programs addressing student debt, and dual enrollment programs for high school students to receive college credit. To advance President Obama’s proposal, on July 8, 2015 Senator Tammy Baldwin and Congressman Bobby Scott introduced

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America's College Promise Act of 2015. The proposed first-dollar scholarship program would cover tuition and fees for up to three years for first-time students who are enrolled in a community college at least half time. The proposed legislation authorizes the federal government to spend \$80 billion over ten years and requires states to not only provide additional funding but also engage in efforts to improve the performance of community colleges (Association of Community College Trustees, n.d.).

Programs with a promise label may have goals in addition to promoting college attainment. As one example, Murphy Oil Corporation championed the El Dorado Promise program (Arkansas) at least in part because of its interest in improving the education and preparation of potential workers (Landrum, 2008).

Although program goals likely reflect the objectives and priorities of the sponsoring organization (Miller-Adams, 2009; Wiggins, 2014), funders' goals are not always transparent. Government officials commonly state the rationale for directing resources to publicly funded promise programs, but sponsors of privately-funded programs are often less explicit, especially when the sponsors are anonymous donors (Miller-Adams, 2009).

While "promise" programs may have many goals, we focus on programs that have as a primary goal increasing higher education attainment. We thus exclude federally-designated Promise Zone Neighborhoods, as Promise Zones focus primarily on improving the economic well-being of low-income communities. Improving educational attainment is a secondary goal, as suggested by the U.S. Department of Housing and Urban Development's (n.d.) listing of goals for Promise Zones: to "create jobs, leverage private investment, increase economic activity, expand educational opportunities, and reduce violent crime." In contrast, the Kalamazoo Promise is intentionally structured to increase college enrollment, with economic development as a secondary goal. The explicit overarching goal of the Tennessee Promise is to help ensure that 55% of Tennessee adults attain at least a certificate or associate's degree. President Obama's America's Promise is intended to enable students to "earn the first half of a bachelor's degree and earn skills needed in the workforce at no cost" (Executive Office of the President, 2015, p. 3).

By offering the promise of a financial or other award to students who meet specified eligibility criteria, promise programs have the potential to promote educational attainment, especially among students who would not otherwise attend college. But, existing programs differ in terms of the nature of the "promise," required eligibility criteria, and other characteristics (Andrews, 2013; Hemenway, 2016; Miller-Adams, 2009; Perna & Hadinger, 2012; Wiggins, 2014). Even programs that meet Miller-Adams' (2009) criteria for being a place-based scholarship program have different features. Programs vary in terms of residency requirements (e.g., reside in a state or school district or attend particular schools), time when students "commit" to the program (e.g., before middle school, during high school), demographic and academic eligibility requirements (e.g., family income, grade point average), structure of the financial awards (e.g., first or last dollar), postsecondary institutions at which the financial award may be used, availability of support services to address non-financial barriers to college access and completion, funding sources, and sustainability and scalability (Andrews, 2013; Hemenway, 2016).

Differences in these and other characteristics are not surprising given the nature of program development. Programmatic variations may even be advantageous, given the potential benefits of crafting programs to meet the needs of a particular community and context (Miller-Adams, 2009). But, the heterogeneity of programs under the promise label complicates efforts to determine how a program should be structured to improve higher education attainment or achieve other results.

Purpose

This paper is designed to inform understanding of how promise programs are, and should be, structured to promote college enrollment and attainment. We first present a conceptual framework for understanding how students make college-going decisions and the forces that influence those decisions. We then use this conceptual framework to identify the programmatic characteristics that should promote college enrollment and attainment. We also offer recommendations for the ideal structure and characteristics of promise programs based on the best available research-based knowledge. We conclude by identifying productive directions for future research. Additional research is required to more fully understand whether programs work, how programs should be designed to promote higher education attainment, and the effects of programs on outcomes not only for students but also for K-12 schools, colleges and universities, and communities.

Guiding Conceptual Perspectives

Drawing on a comprehensive review and synthesis of prior research, Perna (2006) proposed a conceptual model for understanding students' college enrollment processes and outcomes. At its core, the model assumes that students make college-related decisions as predicted by human capital theory; namely, students decide to enroll in college based on a comparison of the expected benefits with the expected costs. The expected benefits are both monetary and non-monetary, while the expected costs include the costs of attendance and foregone earnings. As also predicted by human capital investment models, calculations of the expected benefits and costs are influenced by an individual's academic preparation for college and availability of resources to pay the costs of attendance.

The conceptual model also recognizes the role of bounded rationality (Perna, 2006). Human capital theory does not assume that individuals have perfect and complete information about the benefits and costs of all potential postsecondary education options, but that they decide to enroll in college based on available information. A decision is rational when based on available information regardless of the information's accuracy (DesJardins & Toutkoushian, 2005).

The conceptual model assumes that students' calculations of the expected costs and benefits of college are influenced by the particular contexts in which students are embedded (Perna, 2006). Students are embedded within multiple layers of context, including their particular family, school, community, state, and national contexts. With its attention to context, the conceptual model recognizes differences in the availability of resources to promote and limit college attainment for particular groups of students, attending particular schools, living in particular places (Perna, 2006).

Consistent with the tenets of the conceptual model, available research demonstrates that, in order to enroll and succeed in college, students need the financial

resources required to pay college costs, the academic preparation and readiness required for college-level work, and the knowledge and support required to navigate their way into and through our nation's complex higher education system (Perna, 2006; Perna & Finney, 2014). But, whether students have the required academic preparation, financial resources, and knowledge and support depends on the resources and opportunities that are available in contexts in which students are embedded (Perna, 2006; Perna & Finney 2014). Students' college-related opportunities and outcomes are influenced by the characteristics, resources, and perspectives of their families, the K-12 schools and colleges they attend, and the community, state, and nation in which they live (Perna, 2006; Perna & Jones, 2013).

Variations in the resources that are available to students in particular contexts create structural differences in college opportunity and outcomes. For instance, whether a student aspires to attend college, and has necessary information about the college-going process, is influenced by the knowledge and prior educational experiences of the members of a student's family. Whether an individual is academically prepared for college is influenced by the availability of academically rigorous courses at the high school a student attends, and whether a student has the opportunity to participate in the courses that are available (Perna, 2005; Perna et al., 2015). Academic readiness for college is also influenced by the extent to which academic requirements for graduating from high school align with the academic requirements for college-level work (Perna & Finney, 2014). The ability to pay college costs depends on a student's and family's personal financial resources, as well as the extent to which state and institutional tuition-setting policies and federal, state, and institutional policies for student financial aid come together to make college affordable (Perna, 2006; Perna & Finney, 2014; Perna & Kurban, 2013).

College enrollment, persistence, and attainment are outcomes of complex, longitudinal processes (Perna & Thomas, 2008). These processes arguably begin at birth, given the substantial variation in resources that different families, communities, and schools have available to advance their students' educational outcomes (Reardon & Bischoff, 2011). Making meaningful progress in closing gaps in higher education requires a comprehensive approach that recognizes the multiple forces that influence attainment (e.g., academic readiness, financial resources, and information), and the multiple ways that various stakeholders (e.g., families, K-12 schools, colleges and universities, community organizations, state and federal governments) influence these forces for different groups of students in particular places (Perna, 2006; Perna & Kurban, 2013).

Programmatic Characteristics That Should Promote College Attainment

Little is known from rigorous research about the ideal structure of promise programs. A review of available research and theory suggests that, to increase higher education attainment, promise programs should have the following characteristics:

1. Recognize that college-going opportunities and resources vary based on the contexts in which an individual is embedded, including the place a student lives and the schools a student attends.
2. Promote early awareness of college and the availability of financial aid;
3. Target students who would not otherwise enroll in or complete college;

4. Provide a financial award that reduces the cost of attending particular types of colleges;
5. Engender confidence that the program will deliver the “promise;”
6. Encourage academic preparation and achievement; and
7. Assist students with navigating their way into and through the nation’s educational systems.

The following subsections discuss each of these characteristics and how a program may be structured to operationalize these characteristics.

Recognize the Context, Including the “Place” Where a Student Lives

College-related decisions do not occur in a vacuum, but instead are influenced by the contexts in which students are embedded (Perna, 2006). As such, promise programs should recognize the ways that college-going opportunities and resources (and the lack thereof) reflect the contexts in which an individual is embedded, including the place a student lives and the schools a student attends.

Promise programs acknowledge “place” by limiting eligibility based on the state, city, county, or school district in which a student resides and/or the school a student attends. Residency restrictions alone, however, may not reflect sufficient recognition of the resources and opportunities that are, and are not, available to promote college attainment within a particular state or local context. The primary goal of residency criteria in state-sponsored aid programs is “to provide a state’s residents/taxpayers with cheaper access to public institutions of higher education” (McBain, 2011, p. 7). For state-sponsored promise programs, a “state residency” requirement is also an imperfect indicator of the state context when states have tuition reciprocity agreements with neighboring states (McBain, 2011).

Using place to define program eligibility is also a more narrow approach than the concept of “place-based” education. Drawing on Dewey and other theorists, Sugg (2015) explored the features of “place-based” education in a case study of an elementary school in Appalachia. Sugg argued that place-based education involves problem-based and interdisciplinary learning as well as applied learning outside the traditional classroom, in nature and the community.

More than limiting eligibility to individuals who live in a particular place or attend a particular school, programs should recognize the role that “neighborhood effects” play in limiting educational and occupational attainment and mobility for individuals from lower socioeconomic status, African Americans, and Hispanics (Massey, 2013). As Massey discusses in a review of related scholarship, residential segregation by race and income combined with concentrated poverty create persisting, multi-generational, and multifaceted spatial disadvantage.

Promote Early Awareness of College and Financial Aid

To benefit, students and their families must be aware of the promise program. Some (Harnisch & Lebioda, 2016) speculate that, with “the simple, powerful message of ‘free college,’ complemented with extensive program marketing and coordination with K-12 education and community organizations,” promise programs may send clear

messages to students and their families about the affordability and economic value of a college education (p. 10).

Communicating information about the availability of financial assistance to pay college costs has the potential to promote college enrollment directly by providing students and their families with the resources required to pay college prices, and indirectly by encouraging students to engage in college-related behaviors (Perna, 2010; Perna & Steele, 2011). If middle and high school students are confident they will have the financial resources necessary to pay for college, they may aspire to attend college, take the rigorous academic courses required for college entrance and success, and seek information about, and sources of support for, other aspects of the college enrollment process (Harris, 2013; Perna, 2010; Perna & Steele, 2011).

Whether programs ease concerns about college costs and encourage students to engage in behaviors that increase the likelihood of college enrollment and completion likely depends on the point in time that students and parents learn of the award (e.g., kindergarten versus senior year of high school). Perna and Hadinger (2012) found that most of the 35 place-based programs in their review require students to apply for the scholarship during their senior year of high school. A small number of programs require students to “register” or sign a “contract” with the program by the start of ninth grade (e.g., Detroit College Promise; Promise for the Future). While not requiring early enrollment, others (e.g., Pittsburgh Promise) strive to begin preparing students as early as kindergarten (Perna & Hadinger, 2012).

Research suggests the positive effects on college enrollment when the criteria for receiving financial aid are simple, clear, and transparent (Dynarski, 2000; 2004; Perna & Steele, 2011). The complexity of the eligibility and application processes for need-based federal student aid limits students’ and families’ ability to understand and anticipate the amount of financial aid they will receive (Advisory Committee on Student Financial Assistance, 2005; Perna & Steele, 2011).

Some research suggests the challenges of educating potential beneficiaries about the benefits of a program. Three years after the Kalamazoo Promise program was implemented, some in the community continued to believe that the program was not for people like them and that individuals in groups that have been historically underrepresented in higher education may have the greatest misconceptions (Miron, Jones, & Kelaher-Young, 2012). Data collected through focus groups suggest that at least some students who were eligible for the Pittsburgh Promise had incomplete knowledge of the program’s requirements and financial benefits (Gonzalez, Bozick, Tharp-Taylor, & Phillips, 2011).

Target Students Who Would Not Otherwise Enroll or Complete College

“Universal” place-based scholarship programs provide benefits to any student who meets the program’s residency requirements (Miller-Adams, 2010). Alternatively, programs may limit eligibility for a financial award based on academic performance criteria and/or financial need. Communication about the availability of a financial award is likely simpler for programs that are universally available or that are limited to students who meet particular academic criteria than for programs that are limited to students with financial need. Universal programs may be more politically palatable and sustainable, but also likely have higher costs and are inefficient, as they allocate finite resources to

individuals who would enroll in college even without the program (Vaade & McCready, 2011). Clear recognition and articulation of the advantages and disadvantages of universal versus targeted approaches may be critical to obtaining support for a program from stakeholders and achieving program goals (Vaade & McCready, 2011).

Research demonstrates that need-based grants are especially important to promoting college-related outcomes for students from low-income families (Mundel, 2008; Perna & Titus, 2004). Using regression discontinuity analysis, Castleman and Long (2013) found that, compared with non-recipients, recipients of the need-based Florida Student Access Grant had higher rates of enrolling in public four-year colleges and universities, higher rates of continuous enrollment through the freshman year, and higher rates of completing a bachelor's degree within six years. Low-income first-year undergraduate students attending public universities in Wisconsin who were randomly selected to receive a need-based grant had higher rates of retention to the second year, higher rates of accumulating at least 12 credits by the end of the first year, and higher four-year bachelor's degree completion rates (Goldrick-Rab, Harris, Kelchen, & Benson, 2012; Goldrick-Rab, Kelchen, & Harris, 2015).

Programs that restrict awards to students who meet minimum academic achievement (e.g., state-sponsored merit aid programs) tend to award aid to students who would have enrolled in college even without the aid (Dynarski, 2000; Groen, 2011; Heller, 2006). Most (71%) recipients of Missouri's merit-based Bright Flight scholarship program had annual household incomes above \$60,000 (Harrington et al., 2015); according to data from the American Community Survey, the median household income in Missouri in 2010-14 was about \$47,760 (U.S. Census Bureau, n.d.). Relatively few students who were African American, Hispanic, from low-income families, had limited English proficiency, or had a disability met the test-score minimums required to receive Massachusetts's merit-based John and Abigail Adams Scholarship Program (Heller, 2006).

Research suggests that state-sponsored merit-aid programs shift student enrollments from one type of postsecondary educational institution to another (Dynarski, 2004). Georgia's HOPE Scholarship shifted enrollment from out-of-state four-year institutions (especially those in bordering states) to in-state four-year institutions (Dynarski, 2000, 2004). Enrollment increases were greatest at the state's most selective four-year public institutions (Dynarski, 2000).

The effects of state merit aid programs on college enrollment for students of different racial/ethnic groups appear to vary based on characteristics of the program. Georgia's HOPE Scholarship increased differences in college enrollment across racial/ethnic groups, as the program had a stronger positive effect on enrollment of White students than Black students, while the merit-based aid programs in Arkansas, Florida, and Mississippi had larger positive effects on the enrollment of Blacks and Hispanics than Whites (Dynarski, 2000, 2004). Dynarski speculates that the differential effect of the state-sponsored merit aid programs is attributable to differential program characteristics, including the higher academic requirements for the Georgia HOPE Scholarship.

Although state-sponsored merit-based aid programs may influence the type of college or university a student attends, these programs may not increase a state's overall level of degree attainment. Using difference-in-differences analyses and data from the American Community Survey to examine the effects of 25 state scholarship programs

adopted between 1991 and 2004, Sjoquist and Winters (2015a) found that these programs were unrelated to the likelihood of completing any college, the likelihood of completing an associate's degree, and/or the likelihood of completing a bachelor's degree among adults age 24 to 30 in a state. This lack of a relationship held for the examination of programs overall, as well as for examinations of the effects of the programs in each of the 25 states (Sjoquist & Winters, 2015a).

Provide a Financial Award that Reduces the Cost of Attending Particular Types of Colleges

In addition to variations in eligibility criteria described in the prior section, programs also vary in terms of the amount of assistance provided to students with financial need, the duration of the financial award, and the types of institutions at which students may use the financial award. As such, the effects of the program on college-related outcomes will likely depend on the characteristics of individuals who meet the eligibility criteria, as well as the extent to which the program reduces the costs of college attendance for particular groups of students, reduces financial costs from time of college entry to time of college completion, and restricts the type of institution a student may attend.

Reduce the costs of college attendance for low-income students

Programs vary in terms of the types of costs covered by the financial award. Some programs (e.g., Aims Community College Promise, Challenge Scholars, Legacy Scholars, and College Bound Scholarship-Washington) promise to cover tuition, fees, and books. Others (e.g., Gateway College Promise; Peoria Promise) are limited to tuition and fees. Still others (e.g., El Dorado Promise; Northport Promise; Pensacola Pledge Scholars) provide a nominal fixed award amount.

The amount of the financial award also depends on whether the award is a "first-dollar" or "last-dollar" scholarship. First-dollar scholarships award a fixed amount to students regardless of any other financial aid a student may receive. The Kalamazoo Promise Program is one of the relatively few "first-dollar" scholarships. Most promise programs (e.g., Great River Promise; Legacy Scholars; Say Yes to Education) are "last dollar," meaning that the financial award is reduced by the financial assistance that the student receives from the federal or state government and other sources. A few programs (e.g., Baldwin Promise) reduce the award only by the amount of federal and state need-based aid that a student receives.

Compared with last-dollar scholarship programs, first-dollar programs have other advantages to students and families. First, first-dollar awards allow a program to provide clear and transparent information about the amount of financial aid a student will receive. In an exploratory study, Perna and Steele (2011) found that awareness and knowledge of the availability of state financial aid was greater for students in Florida and Georgia, states that award aid to students who meet particular academic achievement thresholds, than in Illinois and Pennsylvania, states programs that award financial aid only to students who complete the Free Application for Federal Student Aid (FAFSA) and are eligible for the need-based financial aid.

Second, because the financial award is not reduced by other financial aid, the process for determining eligibility for first-dollar scholarships can be simplified. In

contrast, students and their families must complete the FAFSA before learning the amount of, or obtaining, the last-dollar scholarship. The (first-dollar) Kalamazoo Promise Program requires students to complete only a one-page form; the FAFSA is not required (Miller-Adams, 2010).

Finally, last dollar scholarships are regressive, as they tend to award fewer financial resources to students with the most financial need. For students who are eligible for federal and state need-based grant aid, the actual amount awarded by a last-dollar scholarship program may be very small. Last-dollar scholarships may provide no financial award to low-income students attending a community college, “as the maximum federal aid exceeds community college tuition rates in the vast majority of states” (Harnisch & Lebioda, 2016, p. 10). A small financial award is especially likely when the last-dollar scholarship covers only up to the cost of tuition and/or fees. Compared to first-dollar scholarships, last-dollar scholarships are less expensive per student and thus may enable a program to serve more students with available fiscal resources. Nonetheless, students face additional costs to attend college beyond tuition and fees, including the costs of living expenses and books and supplies. Moreover, in addition to finding resources to pay the costs of attendance, students from low-income families also often have a responsibility to contribute funds to their family’s financial well-being.

Provide a financial award through program completion

The effects of a program on college completion are likely to vary based on whether the program provides financial and other support for one semester or through degree completion, as well as the requirements for maintaining or renewing the financial award (Perna & Hadinger, 2012; Zhang, Hu, & Sensenig, 2013). Programs vary on both dimensions. Perhaps most generously, the Kalamazoo Promise permits students to take up to 10 years to use funding to cover the costs of up to 130 credit hours. In contrast, other programs provide a set dollar amount or cover costs for only a few semesters. The Kalamazoo Promise allows students who lose the scholarship due to insufficient academic progress to regain the scholarship if they “return to college and meet academic standards for one semester” (Miller-Adams, 2010, p. 12). Other programs (e.g., Central Arizona College) state that a student who fails to meet any of the program requirements for any reason will “permanently lose” the scholarship (Perna & Hadinger, 2012). These provisions may contribute to the finding that, among high school graduates, the Kalamazoo Promise is positively related to the likelihood of enrolling in any college or university, the likelihood of enrolling in a four-year institution, and the likelihood of completing a bachelor’s degree, as well as the number of credits completed within two and four years of high school graduation (Bartik, Hershbein, & Lachowska, 2015).

Students who lose their eligibility for a financial award may experience challenges in identifying alternative sources to pay college costs. Although the continued relevance of the findings is unclear, one study found that 68% of students who received the Georgia HOPE Scholarship to enter college in fall 1995 no longer met the academic eligibility criteria after taking 30 college credits (Henry, Rubenstein, & Bugler, 2004). Students who had close to the minimum required high school grade point average were especially likely to lose the HOPE Scholarship once enrolled in college (Henry et al., 2004). The positive effects on college persistence and graduation of receiving a HOPE

Scholarship were greater for students who retained HOPE than for those who lost their eligibility (Henry et al., 2004).

Consider the implications of the award for the types of institution attended

Available data and research suggest that program characteristics may influence the type of college or university that a student attends. For instance, consistent with the provision that the Kalamazoo Promise covers the costs of up to four years of tuition at any public four-year college or university in the state of Michigan, Andrews, DesJardins, and Ranchhod (2010) concluded that the program increased the likelihood that a student will consider attending an in-state public four-year institution. More specifically, program participants were more likely than a matched sample of non-participants to send ACT test-score reports (a proxy for college applications) to the state's most selective public universities (i.e., University of Michigan, Ann Arbor and Michigan State University) as well as to nearby public colleges (e.g., Western Michigan University).

State-sponsored merit-based aid programs also have characteristics that may influence the college or university that a student attends. In fall 2015, the first year after the adoption of the Tennessee Promise, full-time freshman enrollments were 24% higher than the prior year at the state's community colleges and 20% higher at the state's technical colleges – the institutions with “free tuition” – but 8% lower at the Tennessee Board of Regents Universities and 5% lower at the University of Tennessee (Harnisch & Lebioda, 2016). Using regression discontinuity analyses to compare outcomes for students just above and just below the test-score eligibility criteria, Cohodes and Goodman (2014) found that Massachusetts' merit-based Adams Scholarship encouraged enrollment at the in-state institutions where recipients could use the aid and reduced enrollment at non-eligible institutions. This pattern occurred even though the non-eligible institutions were of higher “quality” than the eligible institutions (with quality measured by institutional graduation rates, average academic qualifications of students, and instructional expenditures). Because the scholarship encouraged enrollment in institutions with lower graduation rates, the scholarship was associated with lower likelihood of completing a bachelor's degree within six years.

Research consistently demonstrates that state-sponsored scholarship programs are associated with an increase in enrollment at in-state colleges or universities, but a decrease in enrollment in out-of-state institutions. Using a difference-in-differences framework, Cornwell, Mustard, and Sridhar (2006) found that Georgia's merit-based HOPE Scholarship increased first-time freshman enrollment in the state's four-year colleges and universities, largely by reducing enrollment in out-of-state institutions. Using fixed effects models and a longitudinal panel dataset of 50 states, Toutkoushian and Hillman (2012) found that state merit-based grants were positively related to a state's overall college enrollment rate and negatively related to the percentage of graduating high school seniors who attended college out-of-state; state need-based grants were unrelated to both overall enrollment and out-migration. Using a similar methodological approach, Zhang and Ness (2010) found a similar pattern across 13 state-sponsored merit-aid programs, with the largest effects on enrollment at in- and out-of-state research and doctoral institutions. Also using a difference-in-differences methodological approach, Hawley and Rork (2013) found that, on average, state-sponsored merit-aid programs increased in-state college enrollment and reduced out-migration of recent college

graduates. But, because the programs also increased out-migration of older college educated adults, the net number of college graduates in a state remained unchanged (Hawley & Rork, 2013).

Engender Confidence that the Program Will Deliver Its “Promise”

Research suggests benefits of structuring a financial or other award to incentivize students to engage in behaviors that promote desired outcomes. In one recent study, low-income students attending eight institutions in six states were randomly assigned to receive a “performance-based scholarship” if they completed institutionally-defined measures of performance (e.g., academic benchmarks, use of particular support services) (Mayer et al., 2012). Even though covering a relatively small share of the costs of attendance, the awards had positive effects on a number of outcomes, including credits earned, use of support services, and degree completion.

In order to incentivize changes in students’ college-going behaviors, students (and their families) must believe that the promised benefit will actually be received (Perna & Hadinger, 2012). A review of the information that promise programs present on their websites suggests the challenges of creating a financially sustainable program that will deliver on its promised financial award. A few programs have been announced but now appear to be inactive (e.g., Sparkman Promise). Some programs make clear that the financial award will only be offered for a specified number of years (e.g., 18 years for Arkadelphia Promise; 20 years for El Dorado Promise). Others have caveats that suggest that students should not plan on the availability of aid to pay college costs, stating that the availability of a scholarship depends on “the sufficiency of available funding” (Perna & Hadinger, 2012). Aims Community College Promise discloses its changing funding structure, but attempts to assure prospective beneficiaries that financial awards will be awarded. Per the Aims Community College Promise website: “The program is also expanding from an annual fund to an endowment. This means that students in middle school—and their parents—can be assured that the program is sustainable and not dependent on annual investments.”

Encourage Academic Preparation and Achievement

Academic criteria for receiving a financial award may incentivize students to improve their academic readiness for college (Dynarski, 2004; Perna, 2010). But, as others (e.g., Andrews, DesJardins, & Ranchhod, 2010) have observed, whether a promise program can affect academic preparation depends on the timing of the announcement and the number of years students know of the program in advance of their potential college enrollment date.

A few studies have examined the effects of the program on pre-college academic outcomes (Ash, 2015). Ash matched students who had the opportunity to benefit from the El Dorado Promise with similar students in similar districts to examine the effects of the program on pre-college measures of achievement, including test scores in grades 4 through 8 and high school graduation rates. On average, participating students in the study received 1.5 years of the program “treatment.” Ash found that students exposed to the El Dorado Program had higher math and literacy test scores than students in the control group, with larger effects for high-achieving students. The effects of the program

on high school graduation were mixed, and included some negative effects depending on the measurement of high school graduation (Ash, 2015).

Academic requirements for scholarship eligibility may also have negative unintended consequences, such as incentivizing students to take less-rigorous courses (Dynarski, 2004). Although the underlying causal mechanisms are not clear, merit-based scholarship criteria may also have unintended consequences for choice of major. Using difference-in-differences regression analyses and data from the U.S. Census and American Community Survey, Sjoquist and Winters (2015b) found that, among bachelor's degree recipients age 24 to 39, strong merit-based state scholarship programs were associated with lower likelihood of majoring in STEM. The negative effects of the merit aid program were larger for men than for women (Sjoquist & Winters, 2015b).

The effects of a program on students' academic preparation and progress during college likely depend on the renewal requirements. Scott-Clayton (2011) found that, although other researchers have found Georgia's HOPE Scholarship to be associated with lower college credit accumulation, West Virginia's merit-based scholarship program was associated with higher credit accumulation. She concluded that the difference is attributable to differences in the criteria for renewing the scholarship. Renewal of Georgia's scholarship is contingent on grade point average (which may incentivize a less-rigorous course load), whereas West Virginia's program is contingent on credit hours completed.

Assist Students with Navigating the Nation's Educational Systems

While important, a financial award alone is insufficient to promote college enrollment and attainment, especially for students from groups that are historically underrepresented in higher education (Perna & Kurban, 2013). The U.S. higher education system is complex, with multiple potential postsecondary educational options. Moreover, because curricula and assessments of K-12 and higher education systems are not aligned, students in the U.S. may graduate from high school without being academically ready for college-level work (Perna & Finney, 2014).

The availability of services to help students navigate their way into and through higher education varies across programs. Programs may offer support services before, during, and after students enter and complete college. These services may be oriented toward academics, college admissions, socio-cultural topics, and other issues.

Some research demonstrates the importance of interventions that provide personalized guidance and information about college application processes (Bettinger et al., 2009; Hoxby & Turner, 2013). Using an experimental design, Hoxby and Turner (2013) found that low-income, high-achieving students selected for the "Expanding College Opportunities Project" applied to and matriculated into more selective colleges and universities than other students. The selected students received materials with customized information to inform students' college choice sets, as well as no-paperwork fee waivers for applying to about 200 selective higher education institutions (Hoxby & Turner, 2013). Other research shows that, although simply providing information about eligibility for a financial award does not increase college enrollment rates, providing assistance with completing the FAFSA increases the likelihood of enrolling in college and persisting through the first two years (Bettinger et al., 2009; Bettinger, Long, & Oreopoulos, 2013).

Directions for Future Research

Although shedding light on some aspects of promise programs, available research only begins to address the questions that are of interest to program designers, funders, participants, and host communities. Individual programs should collect and analyze data to monitor and evaluate their own outcomes. Drawing on their review of place-based scholarship programs, Jennifer Iriti and Michelle Miller-Adams (n.d.) offer a set of tools that promise programs may use to monitor and evaluate program outcomes. Their Monitoring and Evaluation Framework specifies the components of a measurement plan, and provides guidance for identifying a theory of change, appropriate indicators, and measurement timeline.

While program evaluations may have value to individual programs, program directors, funders, and other stakeholders would also benefit from insights about what works, for whom, and how in other programs. Creating knowledge that is transferable to other programs requires conducting research that is theoretically grounded and methodologically rigorous (Perna, 2016).

The most important research questions for future research fall into the following three categories:

1. Do promise programs improve higher education attainment? How do effects vary based on characteristics of the program and population served?
2. How should promise programs be designed to improve attainment? What are the intended and unintended consequences of particular program features?
3. Do the effects of promise programs extend beyond individual student participants? What are the effects of promise programs on K-12 schools, colleges and universities, and communities?

Multiple research methods should be used to address these questions, as different methodological approaches offer different insights. Existing research uses a range of methodological approaches. Exploratory case studies have been used to probe the forces that contributed to the development of particular program characteristics (Vaade & McCready, 2011) and the engagement of the local community in creating change (Geller et al., 2014). Surveys and interviews have been used to explore the influence of a program on students' attitudes and aspirations (Miron, Jones, & Kelaher-Young, 2012). Quasi-experimental designs (most commonly difference-in-differences) have been used to identify whether a program "works," compared to an identified comparison group (e.g., Andrews, DesJardins, & Ranchlode, 2010; Bartik, Hershbein, & Lachowska, 2015; Cornwell et al., 2006). Randomized controlled trials have been used to examine the effects of providing financial aid information and assistance on college enrollment (Bettinger et al., 2009) as well as the effects of institutionally-defined performance-based scholarships (Mayer et al., 2015).

Do promise programs improve higher education attainment?

Promise programs have the potential to influence a host of outcomes across the educational pipeline. Important student-level outcomes include academic preparation for college during K-12 school years, college enrollment and choice, degree completion, post-baccalaureate education, and employment.

Much of the available research-based knowledge on whether programs improve these outcomes is based on a small number of programs. The Kalamazoo Promise Program is particularly well-researched (e.g., Andrews, DesJardins, & Ranchhod, 2010; Bartik, Hershbein & Lachowska, 2015; Miron, Jones, & Kelaher-Young, 2012). Attention to this program is not surprising, as this program was announced in 2005 and had its first cohort enter college in 2006. A considerable number of studies have also examined the state-sponsored merit-based aid programs in Georgia (e.g., Cornwell, Mustard, & Srdihar, 2006) and Florida (e.g., Zhang, Hu, & Sensenig, 2013) – programs that have been operating since 1993 and 1997, respectively. Relatively little is known about the many other more recently established programs.

Additional research is needed to more fully understand the effects of a broader range and diversity of programs on the spectrum of students' college-related outcomes. To develop a more complete understanding of whether promise programs achieve the goal of improving higher education attainment researchers should consider the following questions:

- How do promise programs interact with other interventions and reforms to promote higher education attainment? What are the effects of a program above and beyond the effects of other educational reforms?
- How do effects vary based on characteristics of the promise program and population served? To what extent are programs serving students who would have enrolled and completed college even without the program?
- How should the analyses take into account the self-selection of students into programs and/or the selection by programs of particular students?
- How do effects of promise programs on student outcomes change with program longevity?

Multiple interacting educational interventions and reforms

Promise programs are often just one “intervention” that a state, community, or school adopts with the goal of improving higher education attainment (Ash, 2015). For instance, the Tennessee Promise Program is part of the state’s larger “Drive to 55,” an effort to raise to 55 percent the share of state residents who have a college degree. Governor Haslam announced the Tennessee Promise in February 2014 and in May 2016 announced another new program, Advise Tennessee, a \$2.4 million effort intended to increase the availability of college counseling in state high schools (*Inside Higher Ed*, 2016). In Long Beach, California, the Long Beach City College Promise Program was established in 2008 to cover the costs of tuition for one semester at Long Beach City College and guaranteed transfer admission to California State University, Long Beach. The Long Beach Internship Challenge was created in 2015 to increase the availability of employment opportunities for high school and college students (Jameson-Meledy, 2016). The Pittsburgh Promise was one of several initiatives adopted with the goal of avoiding a potential state takeover of the Pittsburgh School District (Gonzalez et al., 2011).

Future research should also explore the ways that the financial award from a program contributes to student outcomes above and beyond the contributions of other forms and types of financial assistance. One examination found that, for students who completed the FAFSA and who were enrolled in a four-year college or university in Oklahoma, the likelihood of persisting from the first to the second year was higher for

students who received an Oklahoma Promise award and for students who received both an Oklahoma Promise award and a Federal Pell Grant than for other students (Mendoza & Mendez, 2013).

Efforts to understand the effects of a program must take into account the presence of other related initiatives. Difference-in-differences is a statistical technique that isolates the effects of a program by comparing changes in outcomes that occurred over the same period for cases that were not exposed to the program. This technique allows a researcher to model the effects of a “natural experiment,” but is unable to differentiate the effects on outcomes of two or more reforms that are simultaneously adopted or implemented.

Future research should also explore the ways that programs interact with other educational reforms to productively improve outcomes. Particularly important may be the ways that programs partner with local K-12 schools, school districts, and colleges and universities (Perna & Hadinger, 2012). Future research should also explore the individual and interacting roles and responsibilities of different stakeholders in the establishment, operation, and sustainability of programs, with attention to elementary, middle, and high schools; colleges and universities; local businesses; and local non-profit community and civic organizations (Sugg, 2015).

Variations in program characteristics and contexts

Promise programs are necessarily developed to respond to needs, conditions, and characteristics of the local context. Programs vary not only in terms of characteristics that may be reliably observed (e.g., funding amounts, eligible institutions, student eligibility requirements), but also in terms of harder to measure characteristics including the level and nature of involvement of various stakeholders (including school and district personnel), methods of disseminating program information, and knowledge among potential recipients of program availability (Perna & Hadinger, 2012).

Some (Zhang, Hu, & Sensing, 2013) have justified the need for research on particular state merit-aid programs (e.g., Florida’s Bright Futures program) by arguing that the generalizability of findings from research on other state programs (e.g., Georgia’s HOPE Scholarship program) is limited by differences in eligibility criteria, structure of awards, and other characteristics. The generalizability of findings about one program may also be limited by differences in the demographic, economic, and historical context of states, as well as differences across states in the characteristics of their K-12 and higher education systems (Perna & Finney, 2014). To identify the transferability of findings to other programs, researchers must identify not only the characteristics and contexts of individual programs, but also consider ways to productively conduct analyses of multiple programs.

In their examination of the effects of “performance-based scholarships” on college-related outcomes for low-income students, Mayer and colleagues (2012) found modest positive effects on academic outcomes across the study sites. Even though the programs targeted different populations, awarded varying amounts, and were implemented in different state, local, and institutional contexts, program effects were similar (Mayer et al., 2012). The authors concluded by emphasizing the importance of tailoring a program to meet local needs and goals, and recommending that program criteria be adapted to meet particular goals. For instance, providing a performance-reward during a semester will likely improve immediate academic behaviors (e.g., courseload)

while providing the reward at the end of the semester may encourage attention to graduation and minimum grade point average. Tying the award to use of particular support services will likely encourage use of those services (Mayer et al., 2012).

Future research should further explore the ways that programs may influence student outcomes in particular places. Such research might draw on sociological examinations of other outcomes (e.g., health-related outcomes) to develop a more complete understanding of how place-based programs may best improve attainment. For instance, drawing from a review of prior research, Galster (2010) identifies four categories of mechanisms within neighborhoods that may influence individuals' health-related outcomes: social-interactive mechanism and processes, including collective socialization, social networks, and competition; environmental mechanisms or attributes, including quality of the physical surroundings and conditions and exposure to violence; geographic mechanisms, including accessibility of employment opportunities and public services; and institutional mechanisms, including local institutional resources (e.g., charities, schools) and private market actors.

Selection bias

To identify the effects of a program on student outcomes, researchers must take into account selection bias. Students and their families may choose to enroll or participate in program activities, or may be selected by a program to participate in a program. As such, participants are different from non-participants, and different in ways that are likely related to the outcomes. The estimated positive effects of Indiana's Twenty-first Century Scholars program on whether a student enrolled in college, as well as whether a student enrolled at an in-state public two-year or four-year college, were smaller when statistical procedures (e.g., instrumental variables and propensity score weighting) were used to account for students' self-selection into the program (Toutkoushian et al., 2015).

Accounting for selection bias requires identifying the appropriate comparison group. Analyses of the effects of place-based and state scholarship programs often use difference-in-differences regression analyses and consider the "intent-to-treat" effect. This approach compares outcomes for cases that had the opportunity to participate in a particular program (e.g., individuals living in a state with a state-sponsored merit-based aid program) with outcomes for cases that did not (e.g., individuals living in states without state-sponsored merit-based aid programs, Sjoquist & Winters, 2015a). An "intent-to-treat" approach differs from a "treatment-on-the-treated" approach, as the latter compares outcomes for those who received the treatment with outcomes for those who did not receive the treatment.

Intent-to-treat is typically appropriate, as this approach identifies the potential effects of a program (and programs cannot mandate students to participate in programmatic activities or to remain engaged in the program for its duration). As intent-to-treat does not consider whether a student is aware of or participates in a program, this approach provides a more conservative, lower bound estimate of program effects than an evaluation that considers only those who were known to receive or complete the intervention (that is, a "treatment-on-the-treated" approach).

Only a small share of students who are "exposed" to a program will actually engage with it. Goldrick-Rab et al. (2012) found that incomplete understandings of the need-based grant among both institutional administrators of the program and the students

who were randomly selected to receive it. Toutkoushian et al. (2015) observed that only about half of students who initially enrolled in Indiana's Twenty-first Century Scholars Program during middle school ("enrolled scholars") met all the criteria for receiving the scholarship ("affirmed scholars"). Hoxby and Turner (2013) found that only 40% of students assigned to receive personalized information about college application and admissions processes (the treatment) remembered receiving the materials (Hoxby & Turner, 2013). As such, effect sizes were considerably larger in analyses of "treatment-on-the-treated" than "intent-to-treat."

Future research should continue to consider differences in the effects of promise programs based on the specification of the comparison group. Future research should also consider the forces that influence the characteristics of individuals who become aware of, participate in, and complete the intervention. Particularly useful may be to consider how a program may effectively encourage program participation. In a randomized controlled trial, Mayer et al. (2015) found that rates of using tutoring and advising were higher for students who were required to use these services in order to receive the supplemental, performance-based scholarship than for other students. Using a difference-in-differences approach, Jackson (2010) found that offering a cash payment to teachers and students for each passing Advanced Placement (AP) test score increased AP course enrollment and exam-taking. The positive effects of the incentive program were larger for Blacks and Hispanics than for Whites. Supplemental analyses suggest that the program increased AP participation by improving school, teacher, and student norms and attitudes about AP, rather than by shifting resources from other activities (Jackson, 2010).

Few studies have examined whether a program may improve students' college-related outcomes even if students do not fully participate or receive the financial award. In one exception, Myers, Brown, and Pavel (2010) found that students who applied for and received the Washington State Achievers program's activities and college funding were more likely to enroll in a four-year college than both students who applied for and received the program activities but not the college funding and students who applied for but did not receive either the program activities or college funding. Four-year college enrollment rates were also higher for students who received program activities but no college funding than for students who received neither program activities nor college funding (Myers, Brown, & Pavel, 2010).

Future research should further explore whether and how a program may produce benefits for participants who are exposed to and/or participate in program activities but do not meet the criteria for receiving the financial award. As others (e.g., Bartik, Hershbein, & Lachowska, 2015) have also noted, future research should also consider the effects on college-related outcomes of receiving a pro-rated award or an award that covers less than the time to degree.

Changes in outcomes with program longevity and evolution

Future research should also consider how outcomes vary as a program matures. Research tends to examine effects for the first cohort of students that is eligible for a program (Andrews, DesJardins, Ranchhod, 2010) or outcomes only for students in the first few years of the program "treatment" (e.g., Ash, 2015). In a study of state-sponsored merit-based aid programs, Dynarski (2004) hypothesizes that the effects on college enrollment may be higher in early years, as students learn about the program, but may

decline over time especially if few students receive and retain the award. Using fixed effects regression and controlling for various state characteristics, Farrell and Kienzl (2009) found that, state-sponsored merit aid programs were associated with increases in overall and in-state enrollment when the programs were implemented, but that the positive effects plateaued in subsequent years.

More research is needed to identify the longer-term effects of promise programs on outcomes for different groups of students. More research is also needed on the longer-term effects of the programs on outcomes for other stakeholders including K-12 schools, colleges and universities, and communities.

How should promise programs be designed to improve attainment?

Available research tends to consider whether a program “works,” but not how or why. More research is required to identify the ideal design of a promise program. To identify whether particular program characteristics and components promote or limit outcomes for students, schools, or communities, researchers should consider such questions as:

- How do program characteristics affect the characteristics of participating students?
- Are there unintended consequences of particular program characteristics?
- How should programs be constructed to be financially sustainable and scalable?
- What are the roles of program and political leadership in the sustainability and success of promise programs?

Participation in promise programs

Additional research is required to understand the characteristics of students who participate in promise programs, and the ways that participation is influenced by program characteristics. Such research is essential for understanding whether promise programs are allocating funds and other resources to individuals who would enroll in and complete college even without the program.

Many programs provide a financial award only to students who transition directly from high school into college. As lower-income students tend to be more likely than higher-income students to delay college enrollment, research should consider the extent to which this provision has a disproportionate positive effect on the timing of enrollment for students from lower-income families (Harnisch & Lebioda, 2016).

Further research is also needed to understand the effects of programs on the type of college or university that a student attends, and the implications of these initial enrollment choices on degree completion. For instance, descriptive data suggest that, in its first year, the Tennessee Promise Program shifted some enrollment from the state’s public four-year institutions to the state’s community and technical colleges (Harnisch & Lebioda, 2016). More data and research are required to understand whether this and other programs also shift enrollment away from for-profit institutions and the extent to which students who initially enroll in a community or technical college complete an associate’s degree, transfer to a four-year institution, and/or complete a bachelor’s degree.

Research should also consider the extent to which “free community college” programs contribute to “undermatching” (defined as enrollment in an institution that is less academically selective than the institution a student could enroll in) as well as the

increasing stratification of the nation's higher education system (defined as the concentration of students from low-income families in less selective institutions and students from high-income families in the most selective institutions) (Harnisch & Lebioda, 2016). Such research must recognize the state context, given variation across states in rates of transfer from community colleges to four-year colleges and rates of bachelor's degree completion for those who start at a community college. The percentage of students who transferred with a certificate or associate's degree to a four-year college within six years of first enrolling in a community college (in fall 2007 cohort) ranged from less than 15% in West Virginia, Louisiana, Montana, and South Carolina to a high of 44% in New Jersey and 58% in Florida (Jenkins & Fink, 2016). Among community college students who transferred to a four-year institutions, the share that earned a bachelor's degree within six years of first enrolling at a community college ranged from 13% in South Dakota to 49% in Washington and Iowa (Jenkins & Fink, 2016).

Consistent with the assumption that enrollment decisions are more sensitive to reductions in college costs among students from lower-income than higher-income families (Heller, 1997), Andrews et al. (2010) found that the Kalamazoo Promise had different effects on college application behaviors of students from lower- than higher-income families. Quasi-experimental analyses also showed that the program reduced the probability of sending ACT test scores (a proxy for college applications) to the local community colleges (Andrews et al., 2010).

Unintended consequences of promise programs

Research should also consider the unintended consequences of particular program features. As discussed earlier in this manuscript, academic eligibility requirements may have negative unintended consequences student outcomes (Dynarski, 2004; Scott-Clayton, 2011).

Another program characteristic with potential negative unintended consequences for individuals from low-income families is long-term residency requirements. Miller-Adams (2006) found greater usage of the Kalamazoo Promise scholarship in "the newer, less dense, and more suburban-like townships that surround the city" than in the urban core (p. 2). In an ethnographic longitudinal study in two cities, DeLuca and colleagues illustrated the constraints on mobility for low-income African American families. For these families, mobility tends to be "reactive," "in response to an foreseen, often unpredictable event," rather than a proactively planned decision (DeLuca, Wood & Rosenblatt, 2011, p. 2). Programs that require longer periods of residency in the same district may disadvantage African American low-income families and other groups that tend to involuntarily relocate in response to "housing quality failures, landlord practices, neighborhood violence, and domestic conflict" (DeLuca, Wood, & Rosenblatt, 2011).

Although intended to encourage residency and promote community stability, tiered residency requirements may create inequity within schools (Dowd, 2008). Because of differential mobility rates, schools may include students who are eligible for differential levels of promise-program benefits, as well as some students who are ineligible for any benefit. Consequently, a program's residency requirements may contribute to gentrification and segregation, as families with greater financial resources are disproportionately likely to be eligible for program benefits (Dowd, 2008). One exploratory and descriptive study suggests that segregation by race and income in the

district's public elementary schools increased after the adoption of the Kalamazoo Promise program (Niemeyer, 2015). Additional research is required to understand how these changes compare with changes that occurred in communities without a promise program.

Financial sustainability and scalability

Future research should inform understanding of how to ensure the financial sustainability and scalability of promise programs. A substantial financial commitment is required to establish and sustain a promise program (Perna & Hadinger, 2012). Identifying a funding source that will expand with the program is critical, as the costs of a program will increase as more students learn of the program and meet eligibility criteria (McDonough et al., 2007). As Harnisch and Lebioda (2016) speculate, declines in state revenues and funding (as in an economic downturn), increases in tuition, increases in enrollment, and other changes could lead a state-sponsored "free tuition" program to "ration" available financial awards in order to meet demand. Programs that are funded by lotteries are also vulnerable when lottery revenues are insufficient to fund financial awards for all eligible students (Perna & Finney, 2014). In response to lottery shortfalls, in 2015 the Arkansas legislature reduced the size of the Arkansas Academic Challenge Scholarship provided to freshmen attending two- and four-year institutions from \$2,000 to \$1,000, while increasing by \$1,000 the scholarship provided to sophomores (Associated Press, 2015). Suggesting the volatility of lottery funds, the Arkansas Academic Challenge Scholarship was projected to "pay \$97.6 million in scholarships in fiscal year 2016, down from a high of \$133.1 million in 2013" (Associated Press, 2015).

Programs may receive financial support from a number of different sources including state appropriations or lotteries, city and county governments, school districts, colleges and universities, civic and philanthropic organizations, and private corporate and/or individual donors. Drawing on a review of prior research and theory, Strickland (2009) argued that existing conceptual frameworks do not adequately describe the "new paradigm for scholarship support" represented by the Kalamazoo Promise program (p. 29). The program "provides assistance for the individual, but places the responsibility for success on the community" (p. 29). "The anonymous donors are seemingly motivated by bettering the community, but do not want the recognition, engagement or stewardship that contemporary or historic donors expected" (p. 29). The program "also calls into question the private benefit aspect of giving because the donors are anonymous" (p. 32).

Further research should examine the forces that contribute to a "successful" private funding model. Especially important is considering transferability of the model to other communities. "A willing pool of donors" may not be "readily available in all locations," raising questions about the scalability of the prevailing model for funding local, place-based scholarships (Andrews, 2013, p. 21). Akron, Ohio and Davenport, Iowa are among the cities that have attempted but abandoned efforts to establish a citywide program because of fundraising demands (Miller-Adams, 2009).

Future research should also consider who is paying the costs of a program, and who is benefiting from the program. Using public dollars or lottery funds is a regressive approach if those who pay the taxes or purchase the lottery tickets are less likely to meet the criteria to qualify for the program (Dowd, 2008). Hammond, Indiana's promise

program is funded with public revenues received from taxes on casinos, but only children of homeowners are eligible for program benefits (Perna & Hadinger, 2012).

One potential funding model that may be transferable to other locations is the Michigan Promise Program, created by the state legislature via Public Acts 549 and 550 in 2008. The legislation requires designated public-private place-based partnerships (i.e., “Promise Zones”) to raise funds to cover tuition and mandatory fees for graduating seniors for the first two years of the program, but permits programs to receive state funding captured via a state tax on growth in the district in subsequent years (Perna & Hadinger, 2012).

Program and political leadership

Future research should also consider the role of leadership in establishing and sustaining a program. Local leadership may play a critical role (Dougherty & Lempa, 2008). In their case study analyses comparing citywide approaches to college access and success in Philadelphia and Miami, Dougherty and Lempa point to the importance of the Philadelphia mayor articulating the goal of raising college attainment for Philadelphia youth. Yet reliance on local government leadership for a citywide approach not only depends on the characteristics of particular leaders but also raises questions about sustainability of efforts beyond a current leader’s tenure. Sustaining a citywide approach over time may require the involvement of non-governmental leadership (Perna & Hadinger, 2012). Even with the Mayor’s leadership, involvement from the school district, “a strong network of nonprofit providers and local program models,” and attention to college enrollment and degree completion by local colleges and universities, Philadelphia continues to experience challenges to its “system of college access and success” (Dougherty & Lempa, 2008, p. 10). The “system” continues to be characterized by “lack of clarity regarding who is served by the multiple programs” and “fragmentation of service delivery” (Dougherty & Lempa, 2008, p. 10).

Future research should also develop greater understanding of the role and operation of a program within a particular place. In an exploratory case study of the elements of place-based instruction in an elementary school in Appalachia, Sugg (2015) pointed to the importance of school leadership (i.e., the school principal) in engaging teachers and community partners. In an exploratory study of a developing Promise Neighborhood initiative, Geller and colleagues (2014) highlight the mistrust that may be present between residents and schools in a low-income, underserved community and recommends that community-based reform initiatives include activities, programs, and partnerships that build trust among residents and between residents, school staff, and other community stakeholders.

Such research should explore the strategies and practices that build the trust between residents and schools and other institutions that is required for meaningful engagement in the place-based initiative (Geller, 2014). Such research is required to understand whether the “place” component of a promise program is merely a mechanism for delimiting eligibility for a particular financial award, or whether it can or should reflect a broader set of strategies and approaches.

Another potentially fruitful line of research would consider the forces that contribute to the diffusion of the promise program model. In an exploration of the diffusion of the Kalamazoo Program model, Miller-Adams (2009) concludes that the

primary approach has been emulation. But, the emulation has been imperfect, as reflected in the great variation in the characteristics of place-based scholarship programs in different communities (Miller-Adams, 2009).

Are the effects of promise programs limited to individual student participants?

Some observers (e.g., Dowd, 2008; Miller-Adams, 2006) speculate that place-based scholarships may have limited impact on the quality of the public K-12 education low-income youth need to enroll and academically succeed in college (Dowd, 2008) and the racial/ethnic and income segregation of an urban center (Dowd, 2008; Miller-Adams, 2006). Additional research is required to understand the effects of promise programs on stakeholders beyond student participants. Of particular interest is the effects of the programs on K-12 schools, colleges and universities, communities, and employers. Researchers should consider such questions as:

- What are the effects of promise programs on K-12 schools?
- What are the effects of promise programs on colleges and universities?
- What are effects of promise programs on communities?
- Do the benefits of the programs exceed the costs?

Effects on K-12 schools

Research should consider the extent to which programs influence outcomes and characteristics of the K-12 schools that participants attend. Descriptive analyses suggest that the Kalamazoo Promise is associated with increases in enrollment in the designated school district, as well as improvements in student achievement (Bartik, Eberts, & Huang, 2010). Additional research is needed to identify the effects of promise programs on schools controlling for other potential causes of any change.

Research should also consider the ways that a program may influence other aspects of a K-12 school. Using a difference-in-differences approach, Bartik and Lachowska (2013) found that, among high school students, the Kalamazoo Promise program reduced the number of days in suspension and increased the number of credits earned.

Future studies should explore how and why a program may influence a school's "college-going culture," as well as the availability of academically rigorous courses. Promise programs may include academic performance requirements, but typically do not include mechanisms for improving the availability of academically rigorous courses within K-12 schools or creating other structural changes. Programs may incentivize students to meet academic achievement thresholds, but typically include few incentives for schools to create structural change (Iriti, Bickel & Kaufman, 2012). Without being academically prepared for college-level work, program recipients may be derailed in their progress to degree completion by the need to complete developmental or remedial coursework.

Research should explore how to construct a program so as to intentionally incentivize improvements in the academic preparation in the K-12 schools that recipients attend, recognizing the constraints on the availability of resources at these schools. The Washington State Achievers program attempted to both encourage curricular reform in high schools that serve high shares of low-income students as well as provide students

with the financial resources required to attend college. A 10-year initiative of the Gates Foundation, the program appears to have increased participation in academically rigorous courses including Advanced Placement during high school, but did not eliminate the need for remedial coursework when students entered college (Institute for Higher Education Policy, 2010).

Few funds may be available for schools or neighborhoods to address the many forces that often restrict college access and success, both within and beyond the public schools that students attend (Perna & Hadinger, 2012). As Miller-Adams (2006, p. 6) acknowledges:

The barriers faced by many of the [Kalamazoo Public School] district's students extend well beyond the purview of the schools to include issues such as a lack of parental support, an absence of neighborhood role models, or the punishing effects of poverty. Support services such as nutrition programs, mental health care, and mentoring are crucial, but despite a considerable outpouring of volunteer energy and a large network of social service agencies, the mission of organizing these services is a formidable one.

Effects on colleges and universities

Promise programs may have a range of consequences for colleges and universities. Of particular interest are potential consequences of a program for the ability of a higher education institution to serve all students with available resources, the provision of remedial or developmental education, transfer pathways, and pricing policies.

By increasing enrollment in community colleges, “free community college tuition” programs may tax the capacity of these institutions to provide sufficient support services to all students (Harnisch & Lebioda, 2016). Programs that encourage enrollment in community colleges may increase the demand at these institutions for developmental or remedial coursework. On the other hand, if the programs encourage students to become better academically prepared for college during high school, then the programs may reduce the need for developmental education.

In addition to changing the net price that students pay at different colleges and universities (Cornwell et al., 2006), promise programs may also incentivize colleges and universities to raise their prices in order to capture the maximum financial award. Efforts to disentangle the effects of a state-sponsored merit-aid program on institutional pricing may be complicated by other changes, including changes in state appropriations (Thomas, 2014).

Several studies consider the effects of the Georgia HOPE Scholarship on institutional costs of attendance, including tuition, room and board, and institutional aid (Dynarski, 2000; Long, 2002). In a difference-in-differences analysis, Delaney and Hememway (2016) explored the effects of local, place-based scholarship programs on various pricing decisions of public two-year and four-year institutions. Their analyses suggest that the effects of promise programs on institutional in- and out-of-state tuition and fees and institutional grant aid vary based on the type of institution at which students may use the scholarship award. Also using a difference-in-differences approach, Calcagno and Alfonso (2007) found no indication that Florida community colleges raised their prices following the establishment of the Bright Futures program, a merit-based

state-sponsored scholarship program that provides financial awards to attend in-state public four-year colleges and universities. Community colleges responded differently with regard to their institutional aid, with some increasing the per student institutional financial award and others reducing it.

Programs may also influence the distribution of students among institutions within and across states. Using difference-in-differences analysis, Calagno and Alfonso (2007) found that the Florida Bright Futures program resulted in a decline in enrollments at community colleges located in close geographic proximity to public four-year institutions. Also using difference-in-differences, Zhang and colleagues (2013) found that the Florida Bright Futures program was associated with an increase in enrollment at the state's public two-year and four-year institutions, and no change in enrollment at the state's private institutions. They speculate that the program increased enrollment at the state's public two-year institutions because of capacity constraints at the public four-year institutions and/or the positive effects on enrollment of part-time students. They call for additional research to further understand the effects of the program on the sorting of students (Zhang, Hu & Sensenig, 2013).

Effects on communities

Also important are the potential long-term benefits of a promise program for a community. Particularly important may be the “intangible benefits” associated with enhancing “a community’s identity as an education-rich region and home to knowledge-intensive industry” (Miller-Adams, 2009, p. 31). Additional research is required to more fully understand the short-, medium-, and long-term effects of a program on the well-being of communities. Some research measures community-level changes of a program by examining changes in enrollment in designated schools (e.g., Hershbein, 2013) or residency in a designated community (Gonzalez et al., 2011). One exploratory study suggests that the Pittsburgh Promise Program was among the factors parents of school-age children considered in their decision to relocate to the district, and that the availability of the program may have been particularly influential for parents with lower levels of educational attainment (Gonzalez et al., 2011). Descriptive data from another exploratory study suggest that the adoption of the Kalamazoo Promise helped both to attract new students and reduce the out-migration of existing students from the Kalamazoo School District (Hershbein, 2013).

A few studies have examined the effects of promise program on both K-12 public school enrollment and housing prices. Using a difference-in-differences approach and data from 21 place-based scholarship programs, LeGower and Walsh (2014) found that both K-12 public school enrollment and housing prices increased following the announcement of a program. The magnitude of the effects varied based on program characteristics, with larger effects on enrollment for programs that provided students with scholarships that can be used at a greater number of higher education institutions. Programs with academic merit requirements were associated with greater increases in enrollment for White than non-White students. Housing price increases in at least two cities (Pittsburgh and Denver) were greatest in the neighborhoods that have schools with higher test scores (LeGower & Walsh, 2014).

Also using a difference-in-differences approach, Bifulco et al. (2016) found that public school enrollments increased in both Syracuse and Buffalo public schools

following the introduction of their respective Say Yes to Education programs compared to schools in neighboring suburban communities and other cities without the program (e.g., Rochester). The Say Yes to Education program also appeared to be associated with an increase in housing prices in Syracuse but not in Buffalo. Differences in the effects of the two programs likely reflect differences in program characteristics (e.g., more generous scholarship awards in the Syracuse than Buffalo program) and the context (e.g., characteristics of local private K-12 schools). While the Syracuse program may have pulled some new residents from the suburbs and other communities to the city, the Buffalo program appears to have encouraged current residents to shift their children's K-12 enrollment from private (Catholic) to public K-12 schools (Bifulco et al., 2016).

By increasing higher education attainment, programs may also improve economic development and other community-level outcomes. Future research should consider whether promise programs enable a community to attract businesses and jobs that recruit and retain college-educated workers, thus contributing to a virtuous circle of continuing improvement (Miller-Adams, 2006; Perna & Hadinger, 2012). Also of interest are the effects of a program on "brain drain." Many promise programs are intended to encourage individuals to live in a particular area and remain in the area after completing their education (Andrews, 2013). Although few studies have considered the longer-term effects of local place-based scholarship programs, some have considered the effects of state-sponsored merit-based aid programs on "brain drain" and other longer-term outcomes. In their examination of the effects of 21 state-sponsored scholarship programs, Hawley and Rork (2013) found that the effects of the programs on in- and out-migration of college freshmen and college-educated adults (including parents of scholarship recipients) were not fully demonstrated until three to 10 years after program implementation.

A few studies have considered whether recipients return to the community that granted the scholarship after receiving a college degree, and how the likelihood of return varies based on program characteristics (including any explicit requirements or incentives to return). Harrington, Munoz, Curs, and Ehlert (2015) considered whether a \$2,000 per year state-administered merit aid program increases the likelihood that the state's "best and brightest" remain in the state. Using regression discontinuity analyses for the population of Missouri ACT test-takers who graduated from high school between 1999 and 2002 and data from the Missouri Department of Labor and Industrial Relations, Harrington et al. (2015) found that the "Bright Flight" program had a small positive effect on the likelihood of being employed in the state eight years after students' scheduled high school graduation. The authors note that their analyses may underestimate the positive effect of the program on reducing brain drain, as the analyses do not consider graduate school enrollment.

Using data from the Census and American Community Survey to examine the effects of the merit-based scholarship programs adopted by 25 states between 1991 and 2004, Sjoquist and Winters (2014) found that these programs are generally associated with greater likelihood that a college attendee will reside in their birth state at age 24 to 30. These effects persist even with multiple tests for robustness and selection. Sjoquist and Winters (2014) caution that the effects vary across states, based on characteristics of the merit aid program and a state's pre-program rate of retaining college-educated adults.

Additional research would also improve understanding of whether and how a promise program may change a community's perceptions of the quality of available K-12 education. Using content analysis, Miller-Adams and Fiore (2013) compared changes over time in the coverage of education issues in the leading newspapers in Kalamazoo (a community with a promise program) and Grand Rapids (a community without a program). Over the study period, both the number of articles pertaining to education and the percentage of articles with positive perspectives increased in the Kalamazoo newspaper but not in Grand Rapids (Miller-Adams & Fiore, 2013).

Benefits relative to costs

Also critical to the sustainability of a program is its cost-benefit ratio and cost effectiveness. Additional research is required to understand whether the benefits of program to all stakeholders exceed the total direct and indirect costs. Also important is considering whether the net benefits of a program are greater than the net benefits that could be achieved with alternative uses of the funds (including need-based financial aid, Harnisch & Lebioda, 2016).

In one examination of cost-effectiveness, Mayer et al. (2015) concluded that the performance-based scholarship programs that they examined “produced more graduates for a cost [after five years of follow-up] that is very similar to the cost of graduates in the control group” (p. 36). The supplemental, performance-based scholarships that they examined “cost additional money” especially in the first year (p. 38). But, the cost per degree declined as students progressed to graduation. Costs per degree were approximately equivalent in the control and treatment groups after five years of follow-up (Mayer et al., 2015, p. 38).

Concluding Note

Promise programs have the potential to increase higher education attainment, especially for students from groups that are historically underrepresented in higher education and living in communities with relatively low educational attainment rates. Few studies have examined how promise programs should be structured to best promote higher education attainment. Drawing on available research and theory, the paper identifies seven programmatic features that promote attainment for targeted students. Additional research is required to develop a more complete understanding of the optimal approaches for increasing attainment for particular groups of students, living in particular places. Future research should consider whether program effects vary based on characteristics of the program and population served, the intended and unintended consequences of particular program features, and the effects of promise programs not only for students but also K-12 schools, colleges and universities, and communities.

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