RESEARCH REPORT

Findings from the Mississippi Integrated Basic Education and Skills Training Program

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September 2022

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MISSISSIPPI INTEGRATED BASIC EDUCATION & SKILLS TRAINING

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Acknowledgments

This report was funded by the W. K. Kellogg Foundation. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission. The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at urban.org/fundingprinciples.

The authors acknowledge several people who contributed to and supported this research. First, our colleagues at the Mississippi Community College Board, Nikitna Barnes, Dr. Gloria Mwase, Dr. Angenette Dixon, Beth Little, and Kenneth Wheatley, have provided guidance throughout the study to help improve the design, data collection, and analysis and ensure the findings in our reports are relevant to key audiences. In addition, staff members at the National Strategic Planning and Analysis Research Center (NSPARC) matched administrative records for the treatment and comparison group and delivered individual-level administrative data to Urban collected across all 15 community colleges. Finally, we thank the Urban Institute staff who assisted with this report, including Alphonse Simon, who played an important role in site visit data collection, and Shayne Spaulding, who served as a senior advisor and reviewed the final report.

Introduction

The Mississippi Integrated Basic Education and Skills Training (MIBEST) initiative is a statewide workforce and economic development effort led by the Mississippi Community College Board (MCCB) and implemented in partnership with the state's 15 community colleges. MIBEST concurrently delivers career and technical education (CTE) and adult education, targeting residents without a high school credential, individuals with low incomes, and other nontraditional students.[1] The initiative was funded by the W. K. Kellogg Foundation (Kellogg Foundation), the Mississippi Workforce Enhancement Training Fund, the Women's Foundation of Mississippi, and other sources, including funds leveraged from the partnering colleges. The first phase of the MIBEST program took place between 2015 to 2019 and a second phase of MIBEST programming was funded in 2019. The program continues today, and funding mechanisms have evolved over time.[2] This evaluation report focuses on the impact of MIBEST between January 2016 to December 2019.

MIBEST is modeled after the Washington State Board for Community and Technical Colleges Integrated Basic Education Skills and Training program (I-BEST),[3] and is designed to train participants for high-demand occupations, enabling students to earn a high school credential while working toward certificates, degrees, and gainful employment. Team teaching, a key component of the I-BEST and MIBEST models, provides contextualized basic skills and technical instruction concurrently[4] so that MIBEST participants can receive adult education programming and remediation without first having to obtain a high school credential. MIBEST also provides participants with academic, financial, and personal support services, such as one-on-one college and career navigation; work readiness training; job search and placement services; and transportation, child care, and food assistance.

[1] Students who are historically considered "nontraditional" make up the majority of community college learners today, including low-income students, students of color, and first-generation college students. See "Who Are New Majority Learners?" Education Design Lab, accessed May 2022, https://eddesignlab.org/newmajoritylearners/.

[2] The Kellogg Foundation continues to support the MIBEST program at Hinds Community College, Mississippi Delta Community College, and Mississippi Gulf Coast Community College. Other colleges are leveraging local, state, and federal funds to support the program.

[3] "Integrated Basic Education Skills and Training (I-BEST)," Washington State Board for Community and Technical Colleges, last updated January 31, 2022, https://www.sbctc.edu/colleges-staff/programs-services/i-best.

[4] Concurrent delivery of basic skills and technical instruction is also sometimes referred to as "integrated career pathways."

The MIBEST mission is to increase the rate of students with low incomes and low basic skills entering and succeeding in postsecondary education programs that ultimately lead to self-sufficient family-sustaining wages. To fulfill this mission, the MIBEST initiative has two overarching goals:

1. Increase wages among individuals without a high school credential and other nontraditional students by improving educational outcomes and building career-focused skills
2. Scale the integrated career pathways approach statewide[5]

MIBEST Program Model and Theory of Change

Student Eligibility

To be eligible for MIBEST, students must be legal residents of Mississippi, at least 17 years of age, and either lack a high school diploma or HSE, such as the tests of general educational development (GED),[6] or have a high school credential but low academic skill levels at time of admission to the program. All MIBEST programs require a minimum sixth-grade level Test of Adult Basic Education (TABE) score; however, colleges are given the flexibility to increase the minimum score depending on the MIBEST career pathway.

Before program entry, most programs offering MIBEST pathways require interested individuals to meet with a navigator or adult education instructor to discuss the applicant's motivation, educational and employment goals, and barriers to success. MIBEST applicants also must provide academic and residency documentation. Required documents vary by program but could include a high school transcript and state-issued identification, as well as standard college applications, Pell Grant or financial aid applications, and a contract outlining expected student performance in the MIBEST program.

College Requirements

To receive MIBEST funding, colleges must implement several components, including but not limited to the following:

[5] "MIBEST," SkillUP, accessed August 10, 2022, https://skillupmississippi.com/mibest/.

[6] The State Office of Adult Education has four ways that students can achieve their HSE. Three are formal tests: the GED, High School Equivalency Test (better known as HiSET), and Test Assessing Secondary Completion (better known as TASC). The fourth is a competency-based option, implemented in November 2017.

- Hiring or repositioning staff for MIBEST, including a MIBEST project coordinator and a full-time MIBEST navigator
- Making policy changes to allow concurrent enrollment in adult education (AE) and college courses for students without a high school credential
- Integrating career pathway programs in at least two high-demand occupations that provide contextualized basic skills and technical instruction concurrently
- Using team teaching for at least 25 percent of MIBEST CTE classroom instruction time
- Implementing acceleration strategies to promote fast attainment of occupational credentials, such as online and hybrid learning or credit for prior learning
- Providing participants with "intrusive" or intentional and proactive advising and support services, such as tuition and transportation assistance
- Providing students with work-based learning opportunities, such as job shadowing and internships
- Including a minimum of 20 hours of work-readiness or life-skills training as part of MIBEST programming

MIBEST Funding and Expenditures

The Kellogg Foundation awarded the MCCB $6 million in 2015 to implement MIBEST in each of the 15 community colleges in the state. Most of those funds ($4.5 million) were allocated to the colleges and were matched by a $4.5 million grant from the state Workforce Enhancement Training Fund. The total $9 million in grant funding allocated to colleges was allocated equally, with each college receiving $600,000 to implement programs on their campuses. Colleges primarily spent their MIBEST funds to support staff salaries, student tuition, fees, and support services.

MIBEST funded, in whole or in part, the salaries of between two and ten staff members at each college. The most common staff position supported by MIBEST was the student navigator position, which provided wraparound support services and advising to students in the MIBEST program. At some colleges, MIBEST supported multiple navigator positions. Many colleges used MIBEST funds to support participant recruitment, outreach, and marketing activities. One college used MIBEST funds to subsidize internship work opportunities for students. Many colleges leveraged additional funding sources to support MIBEST. The most common services paid for with MIBEST funding included transportation support (e.g., gas cards); course materials and supplies; and licensing, exam, or testing

fees. Students also received a $200 incentive upon completion of a high school equivalency (HSE) during MIBEST programs, funded by the Kellogg Foundation grant or other sources. Most colleges also used MIBEST funds to cover student supplies, such as the purchase or rental of required books or equipment. Some colleges also used their MIBEST funds to provide meal assistance for students.

MIBEST Colleges and Pathways

The colleges that participated in MIBEST ranged in size from roughly 1,900 students at Coahoma Community College to approximately 12,500 students at Hinds Community College. This included single-campus community colleges serving rural students and multicampus colleges serving a relatively large number of urban students.

A key component of MIBEST involved the development of integrated career pathway programs (integrated basic skills and technical instruction) in at least two high-demand occupations at participating colleges. Occupations were selected using several criteria, including the number of job openings in the industry and whether the positions pay family-sustaining wages, as evidenced by labor market and wage data. As a result, MIBEST participants were enrolled in a variety of pathways, including health care, carpentry, commercial truck driving, and information technology.

MIBEST funds could be used to subsidize tuition costs in identified pathways. Many colleges specifically structured their grant funding allotment to cover tuition for the first six credit hours of coursework in the MIBEST pathway for students without a high school credential before leveraging other sources of funding, such as Pell grants using the Ability to Benefit provision,[7] to cover any outstanding costs.

Theory of Change

Exhibit 1 illustrates the theory of change for the MIBEST program, including inputs, program activities, short-term outcomes, and long-term outcomes that could affect MIBEST program implementation and impacts. The theory of change describes how the MIBEST program was designed to lead to specific outcomes for participating students, including increased attainment of certificates and degrees and

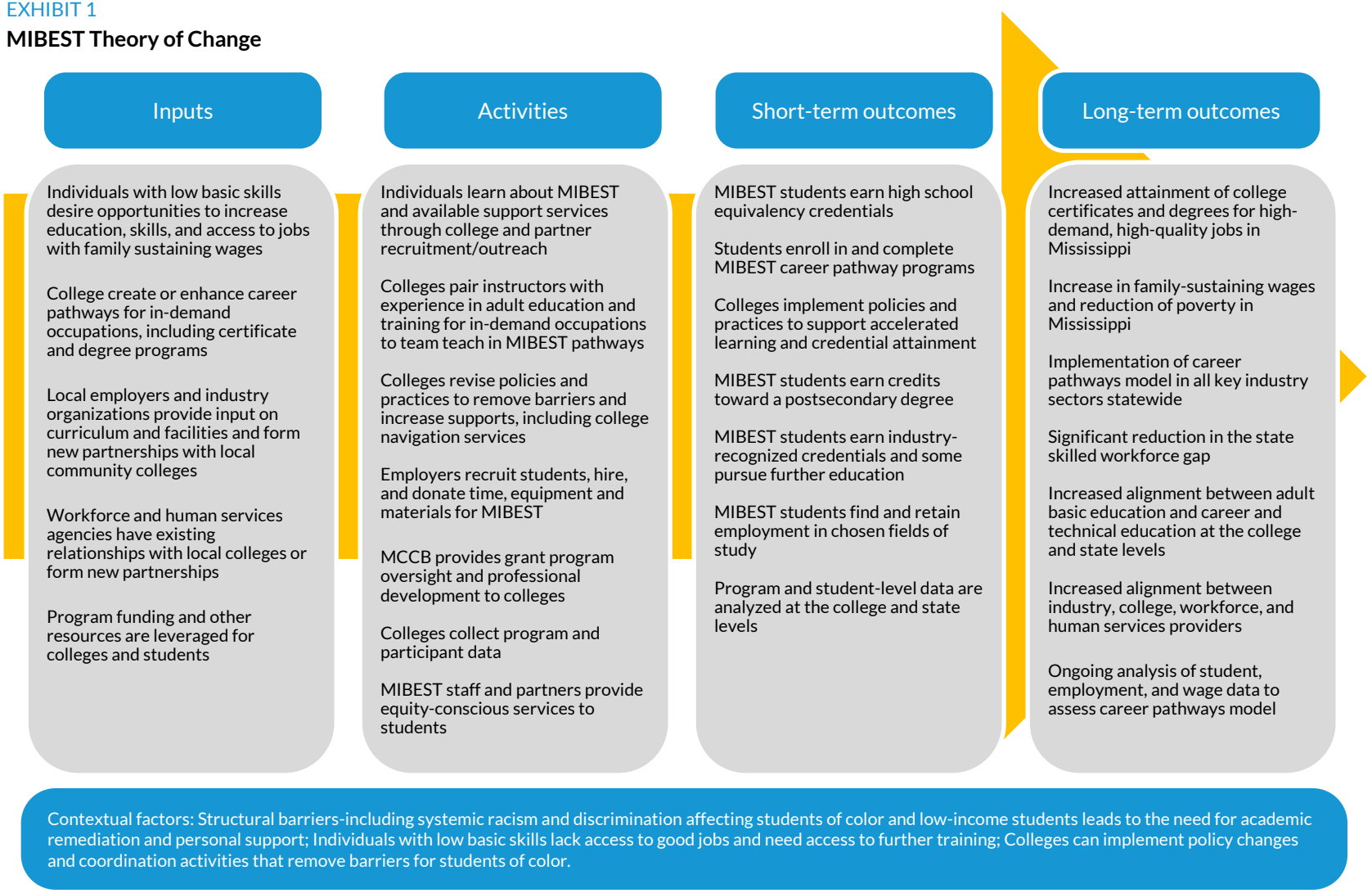
[7] For more information regarding the Ability to Benefit provision in the Higher Education Act, see "Federal Guidance Explains How the Ability to Benefit Provision Aligns with a Career Pathway," Center for Law and Social Policy, May 19, 2016, https://www.clasp.org/blog/federal-guidance-explains-how-ability-benefit-provision-aligns-career-pathway/.

employment in an in-demand occupation in Mississippi through the implementation of new and enhanced career pathways at participating community colleges.

Contextual factors driving change include the broader environment in which the MIBEST program was implemented. The target population served by MIBEST included students of color, low-income students, student parents, and other historically excluded groups, who are more likely to face barriers to success in higher education because of structural racism and labor market discrimination. These barriers materialize in the form of limited access to high-quality education and training, employment opportunities, and material hardship. As part of MIBEST, colleges revised policies and practices to remove access barriers for students of color and other underrepresented groups.

EXHIBIT 1

MIBEST Theory of Change



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Overview of the Evaluation

The Urban Institute began conducting a mixed-methods evaluation of MIBEST in 2017, focusing data collection and data analysis from January 2016 to December 2019. Primary evaluation activities included an implementation analysis to document the execution of programs and policies developed by the colleges for MIBEST, an outcomes analysis to assess MIBEST student achievement and earnings, an analysis to measure the impact of MIBEST on education and labor market outcomes, and a return on investment (ROI) analysis to provide useful insights on MIBEST program financing.

Research Questions

To understand the impact of the MIBEST program on participants and the success of the program in promoting racial equity, the study addressed the following research questions:

1. What approaches did colleges take in the design and implementation of MIBEST programs, including policy, practice, and cultural shifts to support MIBEST implementation?
2. What did students experience as part of their participation in the MIBEST program?
3. How did employers and partners contribute to and benefit from the MIBEST program?
4. Did MIBEST participation enhance educational and employment outcomes for participants relative to a comparison group of nonparticipants?
5. Did philanthropic, federal, and state funding investments in the MIBEST program lead to a positive ROI?
6. How has MIBEST increased access to college programs and employment for underserved populations, and in what ways did the program change perceptions about the education and workforce potential and prospects for underserved populations?

Study Design

To answer the study research questions, the evaluation team conducted site visit interviews, focus groups, and a survey with MIBEST participants, and analyzed administrative data including MIBEST program data, college data, unemployment insurance wage record data, and AE data. To understand MIBEST program implementation, two rounds of multiday site visit interviews were conducted with faculty and staff at the colleges in fall 2017 and spring 2019. The purpose of these site visit interviews was to collect the perspectives of various college staff on what was working well and what could be

improved regarding the MIBEST initiative. The first round took place in October and November of 2017, and the study team visited all 15 community colleges. During the second round in April 2019, the study team visited 7 of the 15 colleges, selected by MCCB as cases of particular interest for further investigation.[8] During both rounds of site visits, the team worked with MIBEST navigators to schedule 45- to-90-minute interviews with college faculty and staff including college leaders, MIBEST navigators, MIBEST coordinators, AE and CTE instructors, and employer partners. During these conversations, the study team gathered insights on program planning and design, team teaching, outreach and recruitment, student educational attainment and employment, sustainability, and program successes and challenges.

As part of the second round of site visits in April 2019, the study team conducted focus groups with a total of 42 current or former MIBEST students in addition to the interviews with college faculty and staff. The purpose of the focus groups was to collect MIBEST student perspectives on their experience in the MIBEST program. The study team worked with MIBEST navigators and coordinators at each college to recruit MIBEST students for the 90-minute focus group. Although the Kellogg Foundation team was interested in better understanding the impact of MIBEST program participation on all students, they wanted to ensure that the study team captured the perspective of students of color and single parents. Thus, recruitment conducted in partnership with college staff sought to identify this target population for the focus groups. During the focus group, the study team gathered insights on topics such as student supports, employment supports, employer connections and job prospects, and the overall MIBEST program experience.

The Urban Institute fielded the MIBEST 2018 student survey to gather student perspectives on their MIBEST experience, including which parts of MIBEST were working well and what needed to be improved. The survey focused on topics such as MIBEST enrollment, MIBEST activities and supports, employment, and student characteristics. The survey was fielded by the Urban team from March to May 2018 to all MIBEST students at all 15 colleges in the Mississippi community college system and reminder emails were sent throughout this period to increase response rates (final response rate of 47 percent).

For the outcomes and impact study, the evaluation also used individual-level administrative data collected across all 15 community colleges and from the state's AE programs. Administrative data were delivered by the National Strategic Planning and Analysis Research Center (NSPARC), an organization

[8] The study team visited the following seven colleges in 2019: Coahoma Community College, Hinds Community College, Itawamba Community College, Jones College, Mississippi Gulf Coast Community College, Northwest Mississippi Community College, and Southwest Mississippi Community College.

that manages the state's longitudinal data system. NSPARC matched all administrative records for the treatment group of MIBEST students from all semesters occurring between January 2016 and December 2019. NSPARC also matched administrative records for the state's AE students, which the Urban team used to select a matched comparison group of AE students that were similar to MIBEST students in measurable ways (including student test scores, demographics, and timing of college enrollment). The Urban team used that administrative data to estimate the impact of the MIBEST program by comparing the outcomes of the matched comparison group to the treatment group of MIBEST students. Analyses from a representative sample of these data are included in the findings in this report.

Findings

In this chapter, we present key findings from the implementation study, drawing on data collected during site visits and survey data collection. Outcomes and impacts of the MIBEST program observed in administrative data are then discussed. Next, we discuss findings from the ROI study, and we end with conclusions and key takeaways for the field.

College Policy, Practice, and Culture Change

Policy Change

Mississippi community colleges have separate departments or divisions that focus on noncredit workforce education and training, referred to as "Workforce" education. During site visit interviews, the biggest policy change colleges reported implementing was concurrent enrollment policy, which allowed students without an HSE to enroll in AE and for-credit CTE or noncredit Workforce classes concurrently. This change was required by MCCB for the successful implementation of MIBEST. For MIBEST, colleges could implement all for-credit CTE career pathways, or a combination of CTE and Workforce noncredit pathways.

Most colleges cited concurrent enrollment as a significant change from previous policies for adults without high school diplomas or equivalencies; only a few schools either already had a policy in place allowing admission without an HSE or only needed to adjust a related policy to allow concurrent enrollment for MIBEST students. Most college administrators and faculty working with AE and CTE or Workforce students were open to this policy change. Interview respondents shared that having MIBEST advocates at a high leadership level, such as the president, vice president, or dean, allowed for a smoother implementation of the statewide policy change. Trustees of the MCCB also approved a policy change that allowed for full-time equivalency (FTE) reimbursement for the colleges for students without a HSE in MIBEST. This means colleges could receive state funding for these students when they previously could not. Additional policy changes made in support of program implementation can be found in box 1.

BOX 1

College Policy Changes Made to Support the MIBEST Program

A variety of other policy changes were mentioned by staff during both rounds of site visits, including the following:

- Updating catalog and computer systems to facilitate concurrent enrollment
- Adjusting course schedules or offering more classes at different times for certain pathways
- Allowing students to take core classes, such as career readiness, while waiting for new MIBEST pathways to start
- Saving seats in popular pathways for MIBEST students

Source: Site visit interviews from 2017 and 2019.

Practice Change

Practice changes implemented by MIBEST colleges included professional development, trainings for team teachers, and support services, including college navigation support. Many college staff were introduced to new MIBEST practices, such as navigation and team teaching, by attending professional development conferences and other remote trainings. Statewide meetings facilitated by MCCB provided training as well as opportunities for MIBEST staff and instructors from across the colleges to meet and discuss best practices and challenges. During the site visits, college staff shared that they generally found the statewide meetings to be helpful and appreciated the opportunity to collaborate with staff at the other colleges. A few interviewees mentioned that they ended up attending the same introductory-level team teaching training multiple times and would have benefitted from more advanced training. Outside of statewide MIBEST meetings, at least one college mentioned the usefulness of attending the Coalition on Adult Basic Education annual conference, which had information related to integrated career pathways relevant for MIBEST.

Colleges sometimes used internal professional development tools for training MIBEST staff. One college leveraged their "new teacher academy" training to introduce AE instructors to team teaching. These sorts of leveraged trainings can be difficult to quantify, which we discuss in more detail in the subsequent ROI analysis. The study team learned during site visits that team teaching varied considerably in level of intensity across each site, even though the expectation was for all colleges to use team teaching for at least 25 percent of MIBEST classroom instruction time. Some colleges embedded team teachers into the classroom with a set percent of time technical and AE instruction

occurred each week, and other colleges thought the best way to foster collaboration between AE and technical instructors was a collaborative tutoring model rather than joint teaching. One MIBEST program director shared, "Putting an AE instructor in a CTE classroom [would have needed to be] funded by MIBEST [and that] would have been cost prohibitive. You can't have team teaching if you don't both know the course material."

All colleges had periodic internal staff meetings, which varied regarding who attended and how frequently they occurred but were cited by several site visit respondents as useful for keeping staff on the same page regarding MIBEST components and activities. Typically, colleges had regular MIBEST-only staff meetings, but some had periodic meetings supplemented by informal communication.

An important component of the MIBEST model involved providing students with academic, employment, and personal support services. The goal of these supports is to help students succeed by addressing corresponding barriers that might inhibit their academic and professional progress. MIBEST programs offered a range of supports, including navigation and assistance with personal or logistical barriers to completion, such as transportation and child care. Each college MIBEST program had a full-time student navigator on staff. During both rounds of site visits, college instructors, administrators, and students described navigators as the cornerstone of support services for MIBEST participants because of their role connecting students with available resources in the college, providing direct coaching or counseling services, and in some cases, tutoring. One staff member described how effective navigators would do "whatever it takes" to help students succeed.

I've changed tires. I've handed out tissues. [I] basically make sure that their needs are met. Sometimes [I] give that tough love.
—MIBEST navigator

Navigators determined student needs through initial interviews or formalized needs assessments, then developed strategies with students to determine how the students could succeed in MIBEST pathways and connect with services. For example, navigators at two colleges shared that they helped MIBEST students apply for benefits like cash or food assistance and assisted with documentation when students were applying for financial aid. Navigators largely communicated with students face to face

but also called, emailed, or texted as needed. Some met with students on a set daily or weekly schedule; others connected with students on an as-needed basis.

We [provide] emotional support because a lot of [students] have to deal with people who don't believe in them.
—MIBEST navigator

Navigator support also included employment support, such as job referrals, mock interviews, resume support, and in some cases academic support, such as academic planning and tutoring. Navigators often reached out to students who did not show up for class to troubleshoot attendance barriers and maintain accountability. They also sometimes sat in on MIBEST classes to be available for the students and to track their classroom experiences. Some administrators said that they would seek permanent funds to keep the navigators on staff, even after the end of the MIBEST grant, although administrators were not sure of the availability of continuous funding to support ongoing staffing plans, including navigator positions.

Cultural Change

In interviews, most college staff reported a cultural shift in the way AE students and other students without high school credentials are treated as a result of MIBEST. For many AE and Workforce students, MIBEST represented the first time they received student IDs that granted them full access to college facilities. It was the first time many MIBEST students felt like actual "college students." Multiple student interviewees expressed that being treated the same as the rest of the student body bolstered MIBEST students' self-esteem and motivation, though some colleges reported that MIBEST students were still hesitant to use core campus resources and liked to stick close to MIBEST staff and fellow students. One AE instructor explained that the MIBEST students had to adjust from being an AE student in which they participated in learning at their own pace to being a college student in which they had to be on time and meet attendance policies.

Many colleges reported that MIBEST helped break down silos and increased collaboration and cooperation across AE, Workforce, CTE, and other departments within the college. Several mentioned that before MIBEST, the various departments felt like they were competing for students, but they

understood that students and pathways are more successful if departments work together. Other noninstructional departments (such as administrative, admissions, financial aid, and counseling) collaborated with the AE, Workforce, and CTE departments to make MIBEST run smoothly. Many interviewees mentioned that AE directors played central roles in making collaboration a success at several colleges.

There has definitely been a breakdown of silos. Before, AE didn't talk to CTE, and workforce was on their own. AE, Workforce, and CTE—it's like one department now. And we have a great relationship with admissions and counseling.
—MIBEST project coordinator

I think that if people would merge their worlds of AE, Workforce, and CTE, the sky's the limit. It's the way to do it.
—College leader

Many colleges reported a shift in perceptions related to AE and Workforce students because of MIBEST. MIBEST staff and college leadership championing MIBEST programs reported discussing MIBEST at faculty meetings to allow staff to express concerns and ask questions. Some colleges reported that, before MIBEST, college staff (including administration, and CTE instructors) had biased or misguided opinions about students without a high school credential as being behaviorally problematic or less intelligent. Several CTE instructors who were doubtful about AE students' ability to succeed in college courses had a complete change of heart, sometimes asking for more MIBEST students to be sent their way and in at least two cases, sharing that MIBEST students outperformed some of the CTE students that came in with high school diplomas. One respondent attributed that to the freshness of basic skills from being dually enrolled in AE, and another attributed it to MIBEST students being more motivated and having more at stake.

[With MIBEST], we're including a whole group of people that were being excluded from the college before.
—CTE Instructor

Student Characteristics and Experience

Characteristics of students participating in the MIBEST program during the study period are described in table 1 using administrative program data provided by MCCB staff. The average age of a MIBEST student at program enrollment was 26. MIBEST participants were most likely to be white (49.6 percent) or Black (42.1 percent), and the program served a relatively equal mix of men and women. Most MIBEST participants did not have an HSE (90.9 percent) prior to program enrollment. Quarterly earnings, on average, for MIBEST students were low prior to enrollment, from a range of $1,196 to $1,342, depending on the quarter.

TABLE 1
Characteristics of MIBEST Participants

Characteristic	MIBEST participants
Race and ethnicity (%)	
Black	42.1
White	49.6
Latinx	2.1
Multiple	1.8
Native American	1.5
Asian	0.4
Pacific islander	0.2
Not reported	2.6
Gender (%)	
Female	53.6
Male	46.4
Average age at enrollment (years)	26.1
Educational attainment (%)	
No high school diploma or GED	90.9
GED or other HSE	5.0
High school diploma	3.8
College degree	0.2
Predicted probability of enrolling in college	32.6
Earnings history ($)	
Average earnings, first quarter before enrollment	1,296
Average earnings, second quarter before enrollment	1,218
Average earnings, third quarter before enrollment	1,339

Characteristic	MIBEST participants
Average earnings, fourth quarter before enrollment	1,342
Average earnings, fifth quarter before enrollment	1,330
Average earnings, sixth quarter before enrollment	1,196
Average earnings, seventh quarter before enrollment	1,215
Average earnings, eight quarter before enrollment	1,199
Sample size	1,633

Source: Authors analysis of MIBEST data.
Notes: GED = test of general education development; HSE = high school equivalency; MIBEST = Mississippi Integrated Basic Education and Skills Training; TABE = Test of Adult Basic Education. The study team received administrative data for 1,847 MIBEST students served between January 2016 and December 2019 and data in table 1 is restricted to the representative sample of 1,633 MIBEST students used for the outcomes and impact analysis.

During the site visits, college staff shared that many students lived in rural locations, with most campuses in small cities or towns. Staff interviewed during site visits felt that overall, MIBEST participants were a relatively equal mix of men and women, but that the prevalence of men or women varied within particular career pathways. For example, pathways that are stereotypically male dominated, such as welding, attracted a higher percentage of male students, and health care pathways, such as certified nursing assistant, enrolled more women.

The 2018 student survey shows that many MIBEST students balanced work and school responsibilities while completing the program (see box 2).

BOX 2

MIBEST 2018 Student Survey Insights

In the 2018 student survey administered to MIBEST participants:

- 56 percent of students who responded to the survey indicated that they had worked within the last month.
- 42 percent of respondents indicated that they were working full time, or 30 or more hours per week.
- Among MIBEST student survey respondents who indicated they were not currently employed, 64 percent attributed not working to their school responsibilities, with limited existing job openings to apply for as the next most cited reason (14 percent).

Source: MIBEST 2018 student survey (*N* = 211 students)

Many MIBEST students faced personal barriers to entering, persisting, and succeeding in college courses. Navigators, project coordinators, AE staff, and instructors working closely with MIBEST

students often described them as more socioeconomically disadvantaged than the general college population. Staff working closely with MIBEST students or providing support services described a higher incidence of home-life challenges or barriers than the general student body.

They've experienced quitting a lot, failure a lot. I push them. I want them to achieve their greatness. They may be first-time college students; no one in their family may have gone, so they may not have the support. Someone has to be the support for them. I try to do that as best I can.
—MIBEST navigator

Student Support Services Provided for MIBEST Participants

Staff at most colleges indicated child care and transportation were the two biggest areas of need and some of the most difficult barriers to overcome. MIBEST staff at 14 of the 15 colleges during the 2017 site visit described transportation as a key challenge. During the 2019 site visit, MIBEST staff reported that transportation and child care issues remained the biggest barriers not fully mitigated by the program. Specifically, they reported that ongoing challenges included a lack of public transportation infrastructure, low levels of car ownership, rural areas with long distances to college campuses, and limited child care availability. The colleges' approaches to these services varied widely. Although all colleges provided some form of transportation support, most colleges struggled to ensure reliable and consistent transportation for all MIBEST participants. Some colleges paid directly for child care, but only a few had centers on campus. Although one college mentioned that they could not provide child care support on campus because of liability concerns, others indicated it was primarily because of resource constraints. Many colleges reported that they referred MIBEST students to partners to help with funding or provision of care for children. A few colleges mentioned that students obtain informal child care through friends or family members.

For transportation assistance, the most common support provided through MIBEST were prepaid gas cards, which many colleges reported giving either to all students or as an incentive for course or certificate completion. A few of the colleges located in more urban areas also provided students with bus passes. However, because many MIBEST colleges are in rural areas, few options existed for transportation for students without reliable cars. A few of the colleges had transportation partners (e.g.,

van services), but all of the colleges with a transportation partner noted that there were limitations in the timing or range of those services.

Other pressing needs mentioned by college staff included basic income for living expenses, housing, and food security. At least one college mentioned that supports to address the following barriers were needed but not currently available for students: reliable means of communication (i.e., keeping students' phones connected), outstanding bills, criminal records, domestic violence issues, homelessness, and ACT career readiness. During the site visits, mental health support emerged as a pressing concern at some of the colleges. Colleges addressed these concerns by referring students to counselors or clinics on campus and providing low-cost mental health treatment, including prescriptions for students suffering from anxiety, depression, or other ailments. Counseling services were also identified as an important need across colleges.

MIBEST programs reported helping with financial barriers to a limited degree. Most programs also provided emergency funding, either directly out of MIBEST funds or through a partner, like the local workforce board. Students and staff from at least two colleges also reported leveraging scholarships from the Information Technology and AE departments on campus to support MIBEST students in their education and training. Car maintenance and repair costs were the most common reasons cited for emergency assistance.

Nearly all colleges provided some form of tutoring for students, either by MIBEST staff or through the colleges' student learning or success centers. Colleges also supported licensure and certification test fees, books, equipment, and other supplies and academic supports.

Navigators made referrals to various college and community resources. Agencies that administer public assistance programs were common referral partners, and most navigators reported helping students navigate applications for access to or retention of public assistance benefits. Among MIBEST student survey respondents in 2018, 56 percent indicated they or someone in their household was currently covered by Medicaid or Medicare, and 37 percent of respondents indicated receipt of food stamp benefits through the Supplemental Nutrition Assistance Program (SNAP).

Despite a high level of SNAP recipients, several colleges noted that food insecurity remained a serious barrier for some students. Some of the colleges reported providing meal plans or meal tickets for all MIBEST students, and a few additional colleges provided food assistance to students as needed. A few staff members also mentioned helping students work around criminal records, with three colleges reporting that they assisted with expungement.

In the 2018 student survey, over 80 percent of students reported being "very satisfied" with academic supports, employment supports, and support for personal issues and access to public assistance. Ninety percent of students responding to the survey indicated that they were very satisfied with supports to address financial issues. This perspective was reiterated in student focus groups with MIBEST participants, with one student sharing, "There was no service I needed that the program didn't provide."

MIBEST Student Perspective on Program Participation

Students in focus groups reiterated that overall, they were very happy with the supports available to them as part of the MIBEST program. During a few of the focus groups, participants stated additional support for gas cards and transportation assistance would have been helpful. One student reported that funding for car maintenance and repairs, medical assistance, child care assistance, and policies that allowed for greater flexibility to take courses at night or at a location closer to their residence would be beneficial. One student shared, "I wish I knew about [the MIBEST program] sooner, and I wish the campus at my house offered the program."

One of the ways that students in focus groups shared they felt personally supported was by being offered leniency from staff for extenuating or unpredictable circumstances when absences were needed to deal with life issues. According to focus group participants, being extended this understanding by college staff was atypical of prior experiences they had in high school or college.

I told [my instructor] I couldn't go to class because I didn't have a babysitter. I wouldn't have been able to graduate because I was about to pass the number of missed classes, and [staff] helped me out.
—Focus group participant

During focus groups, students also reflected on the requirements of the MIBEST program and on their overall experience. All MIBEST pathways included career readiness training, AE coursework, and technical training. As part of career readiness training, all MIBEST students were required to complete a SmartStart training course, which focused on employability skills. Those courses covered interview skills, resume and cover letter development, and employability skills, such as time management. During

a focus group with students at one college, a participant described how resume development was the most helpful career readiness skill provided by the program.

A lot of people didn't know anything about [the resume development process], or anything and…they prepare us [with] more options for the future.
—Focus group participant

A student in another focus group shared how the employability skills gained through the program were used when applying for jobs: "On my application for jobs, I put I was in the MIBEST program, and I put teachers as references to show that I went through career readiness. [The employer] can see that I put in effort and had the resources and help I needed." Some students expressed that even with these supports, it was hard to find work, or they needed additional help from MIBEST staff to find jobs. Focus group participants described how technical instructors played a vital role in connecting students to employment opportunities, and several students stated they felt that instructors were personally invested in their success and well-being.

Overall, many student survey participants felt that their college had surpassed their expectations implementing the MIBEST program, stating that their primary needs were met and that they were unsure of other resources the college could have provided to help them succeed.

[MIBEST] is giving me a career path to get me started.
—Focus group participant

The MIBEST program has helped so many people that are wanting to better themselves for a better future and without it I don't think [people] could do it. The staff at MIBEST is truly the best in any field of education…they go way out of their own way to help someone in need and push them to better themselves. The [staff] are all amazing people, and my life has been truly changed for the better after working with them.
—MIBEST 2018 student survey participant

Partner and Employer Roles in MIBEST

MIBEST Program Partnerships

The public workforce system and other local community-based organizations played an important role as a source of support services to supplement the services provided to MIBEST students on campus. Workforce and job search services are provided by Workforce Investment Network (WIN) Job Centers, the name for American Job Centers in Mississippi. WIN Jobs Centers were providers of support services in many cases, including case management, transportation services, child care reimbursement, and housing assistance. Many WIN Jobs Center staff noted the availability of these services to MIBEST students. During MIBEST student focus groups with students at two colleges, students mentioned that they had been referred to the WIN Job Center for academic support, including tutoring, and personal supports needed to complete the program.

At the workforce center, they still offer support to me. They make sure I'm completing [my assignments], and they say they'll stick with me.
—Focus group participant

Another student at a different college echoed this sentiment, stating, "That whole center is full of people that you can just walk down to, and they'll give help." Coordinating with the workforce system also yielded new partnerships and opportunities to leverage funding to support MIBEST students. For example, one college reported that their WIN Jobs Center had facilitated a new partnership with a military representative interested in recruiting MIBEST students. The importance of a partnership with the WIN center to provide employment support was echoed by a college staff member, who described partnering with the center to provide work experience and job placement for students through the Gateway Youth Program, which provides individualized counseling to youth designed to help them achieve their short- and long-term career goals. Another college partnered with the local workforce board to allocate up to $500 per MIBEST student for emergency barrier remediation. These Workforce Innovation and Opportunity Act funds were available on a more ad hoc basis, with staff considering and approving them case by case.

Other partners, such as community-based organizations and social service agencies, often filled in support services gaps by providing free or reduced-price services to MIBEST students. We heard from a representative at one MIBEST program that staff had worked with a local child care center to obtain reduced rates for students. At another college, a local bank provided instruction for MIBEST students on budgeting, opening a bank account, and filing taxes. A partner at a third college provided support services to SNAP recipients, which encompassed many of the MIBEST participants at that college. This SNAP services partner saw their role as both referring recruits to MIBEST (i.e., encouraging eligible SNAP recipients to apply) and attracting new SNAP clients from the MIBEST program. In some cases, organizations outside MIBEST provided emergency funds.

Many colleges indicated that they engaged community-based partnerships as recruitment sources for MIBEST. One college worked closely with a local Native American tribe's social services agency for recruitment. The tribe followed up with students' progress and maintained close contact with the MIBEST navigator throughout their participation in the program. The tribe had a preexisting relationship with the college before MIBEST, but its relationship has strengthened considerably since the start of the program, according to MIBEST staff.

So many folks were just excluded before MIBEST.
—MIBEST staff

Another college partnered with a community-based organization that recruited participants from the community and may have improved the likelihood of success for MIBEST participants by providing wraparound services and transportation for them. For example, staff at one college described an on-campus program called Single Stop, a national nonprofit that is located on all of the colleges' affiliate campuses, which provided students with additional supports for transportation, counseling, free legal services, assistance with eligibility forms for the Temporary Assistance for Needy Families program and SNAP, child care vouchers, and tax assistance. Another college described partnering with social service agencies and community-based partners, including local hotels, churches, and other organizations, to meet the basic needs of students, including housing, support for rent and bill payments, and to address food insecurity. Navigators often mentioned that they drew on personal relationships and connections in the community to match organizations' available assistance with students that needed services.

The study team heard during both rounds of site visits that at a few colleges, support services were also provided through partnerships with and referrals to the Mississippi Department of Rehabilitation Services, the Mississippi Department of Human Services, and the Mississippi Department of Employment Security.

Employer Partners

Employer partners served two primary functions for the MIBEST programs: as advisors on curricula and as employers of MIBEST graduates. Employers also made presentations, offered facility tours, and donated materials and equipment. All colleges indicated that employer partners served on advisory committees, which met with varying frequency, depending on the college. These industry advisory committees were typically already established before the MIBEST program, although preexisting employer advisors were asked to provide feedback on the MIBEST pathway curricula specifically. One employer partner characterized the request for this advice on the pathways curricula as college staff requesting, "You tell us what to do to prepare our students to get your jobs."

During both rounds of site visits, employers highlighted the importance of two types of skills taught through MIBEST. First, MIBEST was essential for delivering employability skills, and second, MIBEST taught what one employer called "basic training in general industrial work and maintenance." No employers interviewed mentioned the importance of the AE component of MIBEST training, potentially because of a limited understanding of the integrated team teaching components of the program. Employers did understand that individuals with low basic skills were targeted by the MIBEST program, but they thought of MIBEST as principally an occupational training program.

Basic concepts are what we are looking for. You're not going to learn the job until you get on the job.
—Employer partner

Employers generally considered the MIBEST program to be a success in providing appropriate training, but a few employers suggested to the evaluation team that more specific or advanced training might be useful to include in the pathways. In 2017, employer partners at two different colleges raised the prospect of more specific training but acknowledged that such training might not be in high demand

by other area employers. During both rounds of site visits, at least one employer voiced a preference for additional customized training. Another employer satisfied its more specific training needs by seeking out customized training options from the college in addition to its MIBEST program.

All colleges were required to provide work-based learning opportunities for each MIBEST pathway, potentially including internships or apprenticeships. As of the 2017 site visit, many colleges were still in the process of developing these work-based learning opportunities at the time of the site visit interviews. One college successfully established internship opportunities by partnering with the facilities department of the college, using MIBEST students for heating, ventilation, and air conditioning and auto collision work with the college's maintenance crews. The facilities staff that worked with MIBEST student interns suggested that the students had the opportunity to do more hands-on work through their internship than was possible in the classroom and that they were more reliable than the traditional work-study students. A work-based learning coordinator at another college's program sought out internship opportunities with local companies for MIBEST students. An employer partner at that college suggested adding an apprenticeship program to MIBEST to improve the experience for students, although no apprenticeship program had been developed at that point.

Compared with the first round of site visits, during the second round of visits, the study team did not find strong evidence that colleges had made big strides in the development of work-based learning programming specific to the MIBEST program. Two colleges indicated that they were still developing their internship and apprenticeship programs as of 2019. During the 2017 visit, one project coordinator identified important college-level barriers to work-based learning opportunities, independent of the challenges posed by establishing employer partnerships. For example, CTE students at that college are eligible for internships after their third semesters, but after completing 15 credit hours, most participants are no longer enrolled in MIBEST. As part of the second round of site visits, another college commented that time and scheduling restrictions also pose a barrier; one of their employer partners provides job shadowing, but "it's hard with classes five days a week." During the 2019 visit, one staff member shared that there were also industry-level barriers to providing students with work-based learning opportunities. "A lot of [employers] don't want students working in their facility due to liability reasons."

Across both rounds of site visits, employers mentioned coming to the MIBEST college and presenting to the class, either on the industry in general or on their company specifically. These visits were often paired with a luncheon and either a formal or mock job interview with MIBEST students. In 2017, the evaluation team visited the colleges during or shortly after "MIBEST Week," when several employer presentations were scheduled. In addition to presentations and interviews, many employers

invited MIBEST students to tour their facilities. One manufacturer reported hiring a MIBEST student because of facility tours.

In 2019, many interviewees said that MIBEST employer partners had hired MIBEST participants. Many college staff members stated that employer partnerships were developed via instructor contacts and that retention of MIBEST participants following their hire is high. Teachers and employers develop relationships because of serving on advisory boards together and from instructors' prior experience in the industry and knowledge of MIBEST students, which can help with getting interested students noticed for job opportunities.

If you want to know who will be a good employee, call the teacher.
—Employer partner

Although employers' primary role was advising on pathway content and hiring MIBEST participants, roughly half were also involved in donating supplies and equipment. Student navigators, instructors, and project coordinators often took the initiative in requesting donations. One college navigator shared during a site visit interview, "I'm not scared to ask anybody for anything. I'm pretty intrusive and understanding when they tell me no."

Many employers had preexisting relationships with the colleges, and these relationships led to the most substantial MIBEST employer partnerships in the first year of the study. In some cases, MIBEST provided the colleges with an opportunity to establish new partnerships. One manufacturing company established its partnership because of MIBEST. Representatives from the company spoke to MIBEST classes, provided facility tours, and hired a MIBEST student. Much like employers with a longer partnership history, this manufacturer anticipates sustaining its relationship with the college after the end of MIBEST and has already worked with the college to develop customized training opportunities outside of the MIBEST program.

Partnering with the college opened up a good line of communication between the world of academia and manufacturing, there has always been a gap between academies and the work world. A lot of things from college and real world weren't the same. When we can talk to [the college], it bridges the gap.
—Employer partner

At one college, an employer partner brought the CTE instructor to their facility to teach him how to use equipment that MIBEST students would be using if they were hired. A CTE instructor at another college suggested that an instructor's role was to sometimes act as a buffer between employers and students. Employers would try to hire away strong students, the instructor noted, to the point that, "I have to beat off employers sometimes because they get to the point of saying, 'This guy is working really well, why doesn't he just quit school and come full time?'"

Employers partnering with one college noted their respect for the impact that MIBEST has on students and the "second chance" it provides. Partnerships with the MIBEST program helped employers understand and remedy MIBEST students' barriers to employment. For example, two employers associated with one college waived their usual work experience hiring requirement for MIBEST students. For these participants, one employer partner suggested that MIBEST "is a life-changing event" that generates a sense of loyalty to the company once individuals are hired out of the program.

Implications of the Implementation Study

There are several key takeaways from the data collected in the site visits and survey research related to MIBEST program implementation that span the areas of college policy, practice, culture, student experiences and perspectives, and partnerships:

- MIBEST allowed students without an HSE to enroll in college, a policy change required by MCCB that staff described as the most consequential shift.
- As part of the MIBEST program model, colleges implemented several changes or additions to their practices, including team teaching, providing comprehensive counseling services to students through one or more student navigator positions per college, and offering professional development supports for MIBEST staff.

- MIBEST navigators played a central role in the program model, and several college leaders cited them as among the most important resources for students. They provided tutoring, connected students with resources, and gave coaching and counseling. College leaders reported that they wished for more certainty on whether sustained funding for navigators would be available.
- Local community partners helped provide a stopgap for support services that could not be directly provided by MIBEST colleges, including workforce development agency partners and other community-based organizations.
- College staff said that MIBEST helped increase collaboration and cooperation across college AE, workforce development, and CTE departments. Staff experiences working with MIBEST students helped shift perceptions about what students without a high school credential could accomplish in higher education.
- Students said they felt like the MIBEST program had helped them along their career path and that they were exposed to opportunities they would not have otherwise had. Students also expressed satisfaction with MIBEST staff and services.
- In MIBEST, the availability of work-based learning activities via employer partnerships was affected by constraints within each industry, occupation, and worksite.
- Employer engagement succeeded most when preexisting relationships with the college were leveraged, and the most common type of engagement was an advisory committee.
- Employers valued the career readiness skills and basic technical training provided to students by MIBEST.

Outcomes and Impacts of the MIBEST Program

In addition to analyzing site visit and survey data to understand the implementation of the MIBEST program, the study team used administrative data, including MIBEST program data, Unemployment Insurance wage record data, and AE data, to understand education and earnings impacts on students that participated in MIBEST and to calculate the ROI from philanthropic and government partners on student earnings returns. We find that overall, MIBEST programs raise participant earnings a year after the participant's quarter of enrollment, although differences are observed by race, gender, and field of study. Women and Black MIBEST students experience program impacts later than men and white students. In the aggregate, we also find a positive ROI. Findings are drawn from a representative sample

of MIBEST participants using propensity score matching (PSM) analysis on a matched comparison group of AE students.

Description of the MIBEST and AE Comparison Group Samples

Table 2 describes the characteristics of MIBEST participants and the comparison group of AE students before matching. The MIBEST sample is restricted to the 1,633 MIBEST students in the appropriate period with sufficient data available to be included in the PSM analysis. Even without matching, MIBEST students are relatively similar to the full sample of AE students. About the same share of MIBEST students are female as AE students (53.6 percent compared with 54.8 percent), and the average age is similar (26.1 for MIBEST students and 26.9 for AE students). The large majority of both groups had no high school diploma or GED (90.9 percent of MIBEST students and 90.7 percent of AE students). MIBEST students are somewhat less likely to be Black (42.1 percent compared with 48.8 percent) and more likely to be white (49.6 percent compared with 45.3 percent) than AE students. Only six percent of MIBEST participants identify as another race or ethnicity compared with 5.9 percent of AE students.

TABLE 2

Characteristics of MIBEST Participants and AE Students

Characteristics	MIBEST participants	AE students
Race and ethnicity (%)		
Black	42.1	48.8
White	49.6	45.3
Latinx	2.1	3.1
Multiple	1.8	1.5
Native American	1.5	0.7
Asian	0.4	0.5
Pacific islander	0.2	0.1
Not reported	2.6	0.0
Gender (%)		
Female	53.6	54.8
Male	46.4	45.2
Average age at enrollment (years)	**26.1**	26.9
Educational attainment (%)		
No high school diploma or GED	90.9	90.7
GED or other HSE	5.0	6.4
High school diploma	3.8	1.8
College degree	0.2	1.1
Predicted probability of enrolling in college	32.6	14.1
Earnings history ($)		
Average earnings, first quarter before enrollment	1,296	1,593
Average earnings, second quarter before enrollment	1,218	1,593
Average earnings, third quarter before enrollment	1,339	1,580

Characteristics	MIBEST participants	AE students
Average earnings, fourth quarter before enrollment	1,342	1,514
Average earnings, fifth quarter before enrollment	1,330	1,495
Average earnings, sixth quarter before enrollment	1,196	1,425
Average earnings, seventh quarter before enrollment	1,215	1,384
Average earnings, eighth quarter before enrollment	1,199	1,324
Test scores		
Average TABE language score (for non-missing scores)	547.6	520.9
Percent missing TABE language score (%)	46.5	13.3
Average TABE math score (for non-missing scores)	528.1	505.6
Percent missing TABE math score (%)	45.5	6.2
Average TABE reading score (for non-missing scores)	560.9	531.4
Percent missing TABE reading score (%)	44.8	4.5
Sample size	1,633	16,486

Source: Authors' analysis of MIBEST data.

Note: AE = adult education; GED = test of general education development; HSE = high school equivalency; MIBEST = Mississippi Integrated Basic Education and Skills Training; TABE = Test of Adult Basic Education.

MIBEST participants and AE students had more substantial differences in their earnings histories and TABE test scores than in their demographic backgrounds. In the eight quarters prior to enrollment, AE students had higher quarterly earnings than MIBEST students. Depending on the quarter, AE students' earnings ranged from $1,324 to $1,593 compared with a range of $1,196 to $1,342 for MIBEST participants. Although AE students earned more than MIBEST students in every quarter prior to enrollment, on average, quarterly earnings for both groups were still low.

Not all MIBEST and AE students had recorded TABE scores, and MIBEST students were much less likely to have a TABE score than AE students. For the impact analysis, we matched MIBEST students to AE students using both an indicator for whether a test score was missing and the test score itself in the cases where a test score was not missing. This ensured that students who were missing TABE scores were matched based on other characteristics besides test scores. Between 44 and 47 percent of MIBEST students did not have a recorded test score, depending on the test subject. When test scores were recorded, average test scores for MIBEST students were higher than for AE students.

Table 3 describes the differences between MIBEST and AE students in their educational and earnings outcomes during the study period. Because MIBEST student characteristics are different from AE students (table 2), differences in outcomes may not be entirely attributable to the impact of MIBEST itself. However, MIBEST student outcomes are important to document to understand their experiences during and after the program.

MIBEST students earned more postsecondary credits and more credentials than students in AE. The average MIBEST student earned 16.33 credits, compared with the 1.99 credits earned by the average AE student. On average, MIBEST students therefore reached and exceeded the 12-credit hour "tipping point" identified in the research literature on community colleges as a college engagement threshold that substantially improves subsequent labor market performance (Prince and Jenkins 2005; Prince 2008). The average MIBEST student earned 0.30 postsecondary credentials, of which 0.17 were vocational certificates, 0.09 were technical certificates, 0.04 were Associates of Applied Science (AAS) degrees, and 0.01 were Associates of Arts (AA) degrees. Another way of expressing these educational outcomes is to say that the 1,633 MIBEST students earned a total of 490 postsecondary credentials.[9]

TABLE 3

Outcomes of MIBEST Participants and AE Students

	MIBEST participants	AE students
Educational outcomes		
Average number of credits earned	16.33	1.99
Average number of postsecondary credentials earned	0.30	0.02
Average number of vocational certificates earned (< 1-year certificates)	0.17	0.01
Average number of technical certificates earned (> 1-year certificates)	0.09	0.00
Average number of AAS degrees earned	0.04	0.00
Average number of AA degrees earned	0.01	0.01
Earnings outcomes ($)		
Average earnings, first quarter after enrollment	1,295	1,692
Average earnings, second quarter after enrollment	1,535	1,846
Average earnings, third quarter after enrollment	1,864	1,971
Average earnings, fourth quarter after enrollment	2,059	2,074
Average earnings, fifth quarter after enrollment	2,333	2,190
Average earnings, sixth quarter after enrollment	2,376	2,233
Average earnings, seventh quarter after enrollment	2,450	2,310
Average earnings, eighth quarter after enrollment	2,637	2,339
Average earnings, ninth quarter after enrollment	2,795	2,396
Sample size	1,633	16,486

Source: Authors' analysis of MIBEST data.

Note: AA = Associates of Arts; AAS = Associates of Applied Science; AE = adult education; MIBEST = Mississippi Integrated Basic Education and Skills Training.

In the first four quarters after enrollment, MIBEST students had somewhat lower quarterly earnings than AE students, ranging from $1,295 in the first quarter after enrollment to $2,059 in the fourth quarter after enrollment. Beginning in the fifth quarter after enrollment and for every quarter

[9] It is not appropriate to interpret the average number of credentials in table 3 as a percentage of students who earned the credential because it is possible for a student to earn more than one credential.

after, MIBEST students earned more per quarter, on average, than AE students. In the ninth quarter after enrollment (the last quarter observed for this study), MIBEST students earned almost $400 more than AE students, on average.

Some of these differences in outcomes may be attributable to the benefit of the MIBEST program, but some of the differences may also be attributable to systematic differences in characteristics between MIBEST students and other AE students that have nothing to do with the program. For example, MIBEST students have higher average TABE scores than AE students and modestly higher educational attainment (table 2). In the next section, we use the regression-adjusted PSM technique to hold these differences constant and estimate the impact of MIBEST on participants.

MIBEST Impact Estimate Methods

To estimate the impact of the MIBEST program on participants, we implemented a quasi-experimental technique, PSM, which statistically matches program participants to a comparison group of similar individuals who did not participate in the program. The comparison group provides an estimate of what MIBEST participants would have experienced in the absence of the MIBEST program. For this analysis, the comparison group is composed of AE students in Mississippi who attended the same AE programs during the same periods as MIBEST students. MIBEST students and non-MIBEST AE students are different from each other in their demographic characteristics, employment histories, and test scores (table 2). The purpose of the PSM technique is to select the subset of AE students that form the most similar and therefore most appropriate comparison group to the MIBEST students.

The "propensity score" in the PSM technique is the predicted probability of receiving treatment (in this case, participation in the MIBEST program) as a statistical function of observed baseline characteristics, such as demographics, test scores, and prior employment history. The PSM technique mimics a random assignment experiment by either selecting matching AE students or by assigning weights to AE students who have similar predicted probabilities of treatment as the treatment group so that the baseline characteristics of the AE student comparison group match the treatment group of MIBEST participants.[10] In some cases, treatment and comparison groups are not identically matched even after the PSM technique is applied. In this case, it is standard practice to estimate impacts with the

[10] For this study, we match individuals in the comparison group to MIBEST participants who have the closest propensity score, allowing individuals in the comparison group to match to multiple MIBEST participants, if appropriate. An alternative approach is to use the inverse probability of treatment to weight the entire comparison group sample. In large samples, these methods produce comparable results.

matched comparison group in a multivariate regression that controls for all matching variables. All impact estimates presented here are produced using this regression-adjusted approach.

The difference in average outcomes between the MIBEST participants and the matched AE comparison group provides the best estimate for the impact of MIBEST on participants, or the change in participant outcomes that can be attributed to the MIBEST program. Program impacts are not the same as program outcomes. Some MIBEST participants would have earned college credits and credentials in the absence of the MIBEST program, and these credits and credentials are not included in the impact estimate. Program impact estimates are a measure of the added value of MIBEST.

MIBEST Impacts on Participants

The value of education and training, particularly occupational skills training in non-degree credential programs, varies widely by field of study. To understand how the impacts of MIBEST varied across fields of study, we implemented the regression-adjusted PSM technique for broad fields of study included in the MIBEST initiative. Broader fields of study were used to ensure that there was a sufficient sample size to detect impacts (table 4). Ideally, we would have estimated impacts for fields of study MIBEST students pursued in non-credit-bearing programs as well, but too few of these students participated.

Sufficient data were available to estimate the impact of MIBEST on 1,633 participants (table 4). We first discuss the impact of MIBEST on this full sample of participants before turning to subgroups that are of special interest. In addition to the full sample of MIBEST students, we also provide impact estimates for students in different occupational skills programs, including health professions and related clinical sciences (277 MIBEST students); mechanic and repair technologies (167 MIBEST students); precision production (359 MIBEST students); business, management, marketing, and related support services (324 MIBEST students); and noncredit programs (375 MIBEST students). Because most AE students do not attend college, we do not report sample sizes for AE students in these subgroups.

TABLE 4

Sample Size for MIBEST Subgroups

	Sample size
All MIBEST students	1,633
Health professions and related clinical sciences (CIP code 51)	277
Mechanic and repair technologies (CIP code 47)	167
Precision production (CIP code 48)	359
Business, management, marketing, and related support services (CIP code 52)	324
All other credit-bearing programs	131
Noncredit programs	375

Source: Authors' analysis of MIBEST data.

Note: CIP = classification of instructional programs; MIBEST = Mississippi Integrated Basic Education and Skills Training.

MIBEST participation increased both the number of credits and the number of credentials earned by all participants. MIBEST participants earned 13.09 more college credits and earned 0.24 more postsecondary credentials as a direct result of the program. For every four MIBEST participants, one participant earned a postsecondary credential that they would not have earned without the MIBEST program. In total, MIBEST resulted in 388 more postsecondary credentials awarded than would have been awarded in the absence of the program.[11] The impact of MIBEST was strongest on vocational certificates. A MIBEST participant is estimated to earn 0.15 more vocational certificates than they would have earned in the absence of the program (a total of 252 more vocational certificates as a direct result of MIBEST).[12] MIBEST participants are estimated to earn 0.06 more technical certificates as a result of the program, a total of 103 more technical certificates as a direct result of MIBEST.[13] The impact of MIBEST on earning AAS degrees was smaller but statistically significant. Participants earned 0.02 more AAS degrees as a result of MIBEST, or a total of 32 more AAS degrees.[14]

Figure 1 provides the earnings impacts of MIBEST for the full sample of MIBEST students, regardless of what college they trained at or their field of study. Earnings data include zero income quarters and earnings from quarters where students were not employed the full quarter. In the first and second quarter after the start of their program, MIBEST participants earned less than the comparison group. This dip is sometimes referred to as a participant's "foregone earnings" and is typical in

[11] The total impact is estimated by multiplying the 0.24 impact estimate on credentials by the impact sample of 1,633 MIBEST participants used in this analysis.

[12] In Mississippi, vocational certificates are postsecondary certificates that take less than one year to complete.

[13] In Mississippi, technical certificates are postsecondary credentials that take a year or more to earn.

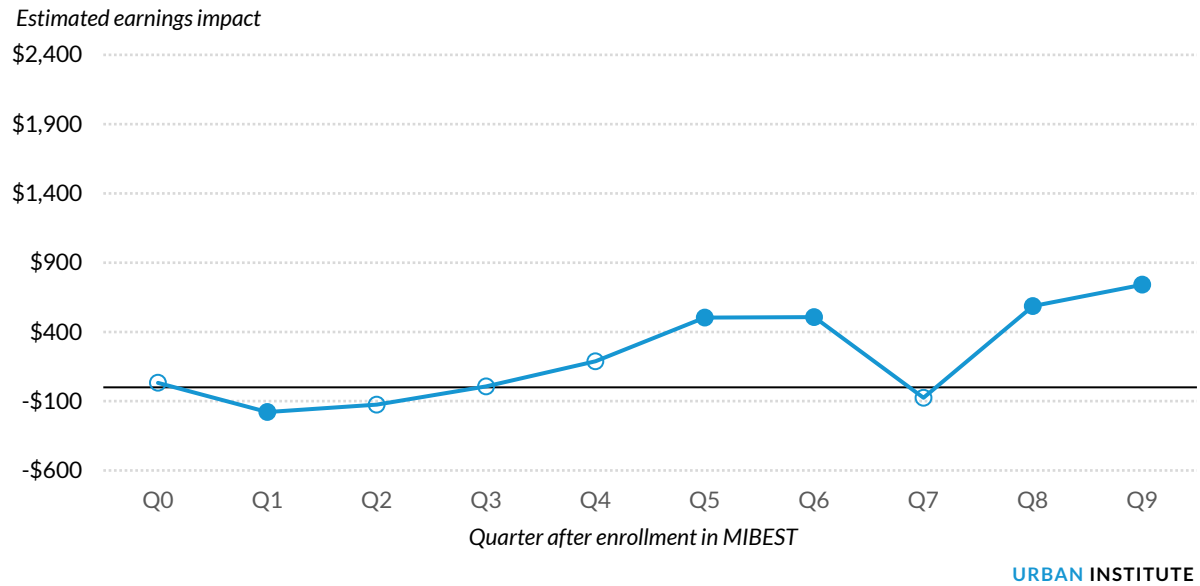
[14] These individual credential impacts add up to 387 additional credentials rather than 388 because the separate regression adjustment for the individual credential impacts slightly shifts the individual treatment effects from the regression estimate for the total count of all credentials.

evaluations of training programs because participants are less likely to be employed during their training (Ashenfelter, 1978). However, after the first year, MIBEST students earn more than the AE students in the comparison group. Between the fifth and ninth quarter after entering the program, MIBEST students typically earn between $500 and $750 more than the comparison group, or $2,000 to $3,000 annually. The exception is the seventh quarter after program entry, when there was no statistically significant difference between the earnings of MIBEST participants and the AE comparison group. These earnings gains are modest but persistent and indicate improved connections to employment for participants.

We do not present earnings impact estimates after the ninth quarter postenrollment because after that, less than 75 percent of the MIBEST participants are still observed in the earnings data. As fewer MIBEST students are observed, we are confident that the impact estimates reflect the experiences of all program participants.

FIGURE 1

Impact Estimates for all MIBEST Students



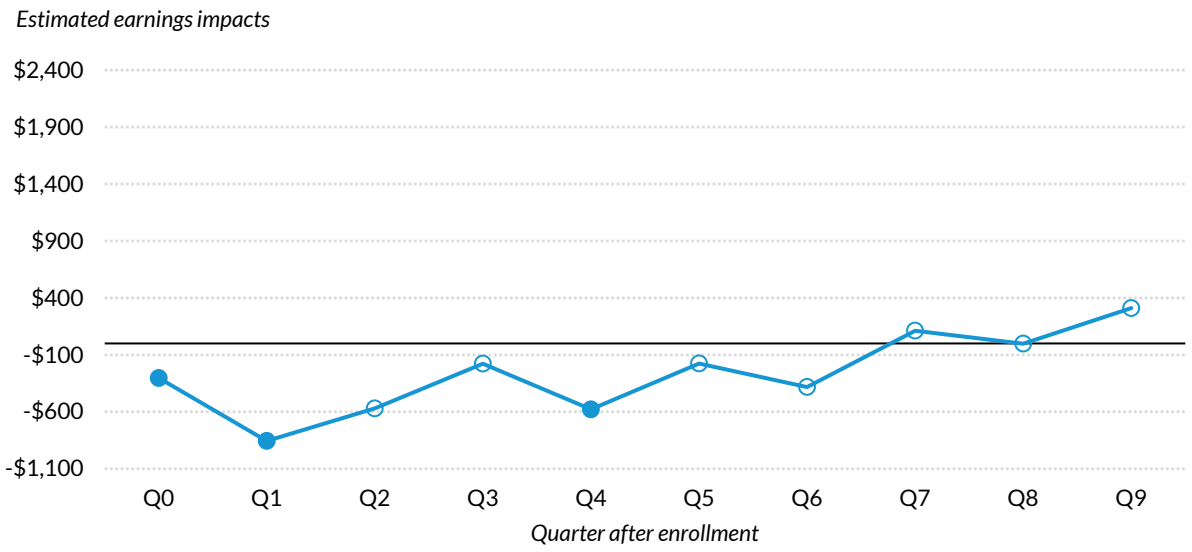
Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

Unlike MIBEST students as a whole, students enrolled in health care programs did not experience positive employment and earnings impacts as a result of the MIBEST program (figure 2). In the quarter of enrollment and the first and fourth quarters after enrollment, these students experienced

statistically significant reduced earnings relative to the comparison group, possibly reflecting their reduced employment during class. No impacts were statistically significant after the fourth quarter of enrollment. MIBEST is not unique in having minimal positive earnings impacts associated with occupational training in health care. Weak earnings impacts for health care training are attributed to the fact that these programs typically prepare participants for nursing assistant jobs and other low-wage jobs with high turnover and limited opportunities for advancement (Loprest and Sick 2018). Although the health care workforce is essential to the economy and to public health, broader structural problems in the workforce limit the opportunities for workers without a two- or four-year degree (McDermott and Goger 2020).

FIGURE 2

Impact Estimates for MIBEST Students in Health Professions and Related Clinical Sciences



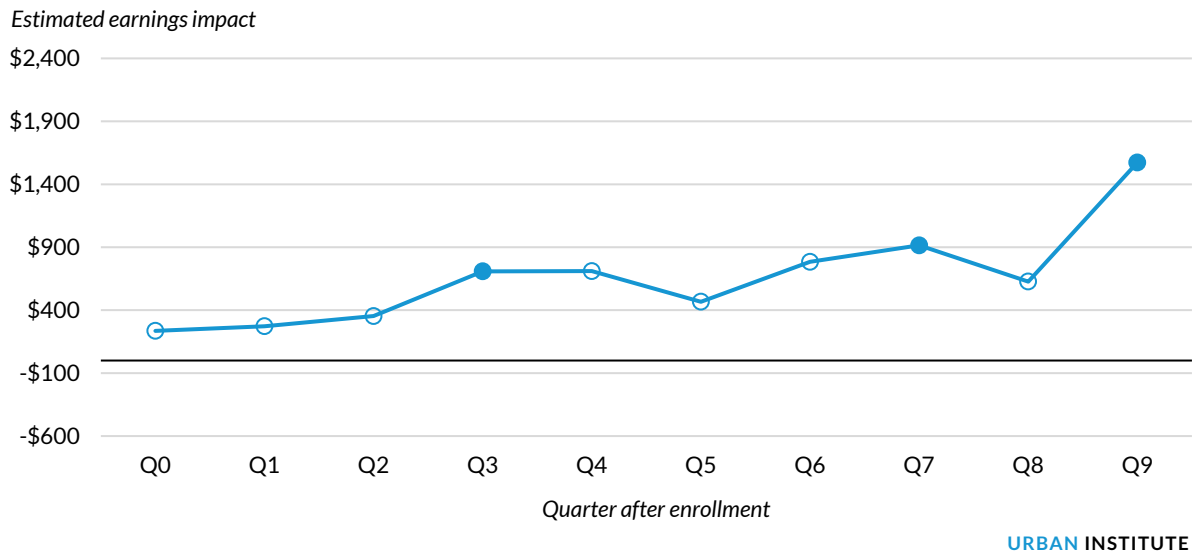
Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

MIBEST students training for mechanic and repair occupations experienced more positive earnings impacts than participants in health care fields. Students in these programs saw positive, statistically significant earnings impacts in the third, seventh, and ninth quarters after enrollment, ranging from between $700 and $1,600 increases in earnings, with the strongest impacts in the ninth quarter after enrollment (figure 3). Students studying in mechanic and repair programs never experienced negative

earnings impacts after enrollment. This may reflect more effective training in these fields, or it could reflect better job prospects in the labor market (or both).

FIGURE 3

Impact Estimates for MIBEST Students in Mechanic and Repair Technologies



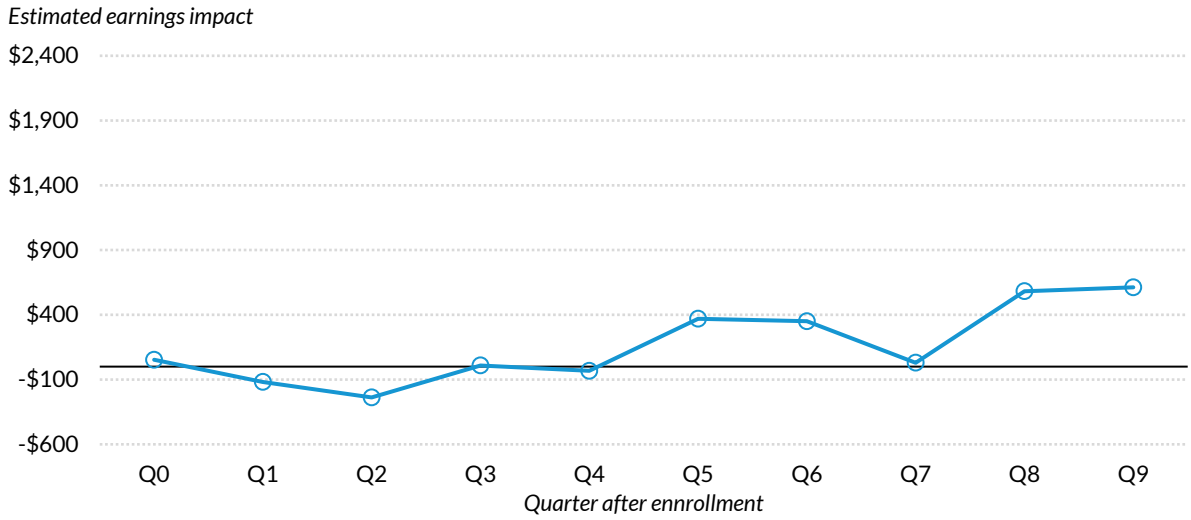
Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

MIBEST students in precision production programs, in contrast, experienced no statistically significant earnings impacts (figure 4). Although MIBEST students in precision production programs had negative impacts in the first, second, and fourth quarter after enrollment (similar to health care students), these were not statistically significant. Similarly, positive impacts in later quarters were not statistically significant for precision production students.

MIBEST students studying business and related services (figure 5) had statistically significant negative earnings impacts in the first and second quarters after employment, but their earnings impacts were statistically insignificant in the third through eighth quarters after enrollment. These business students did experience a positive earnings impact in the ninth quarter after enrollment of over $900. MIBEST business students' positive ninth-quarter earnings impact was the culmination of a year-long trend in growing estimated quarterly earnings impacts, but these positive impacts were not statistically significant until the ninth quarter (figure 1).

FIGURE 4

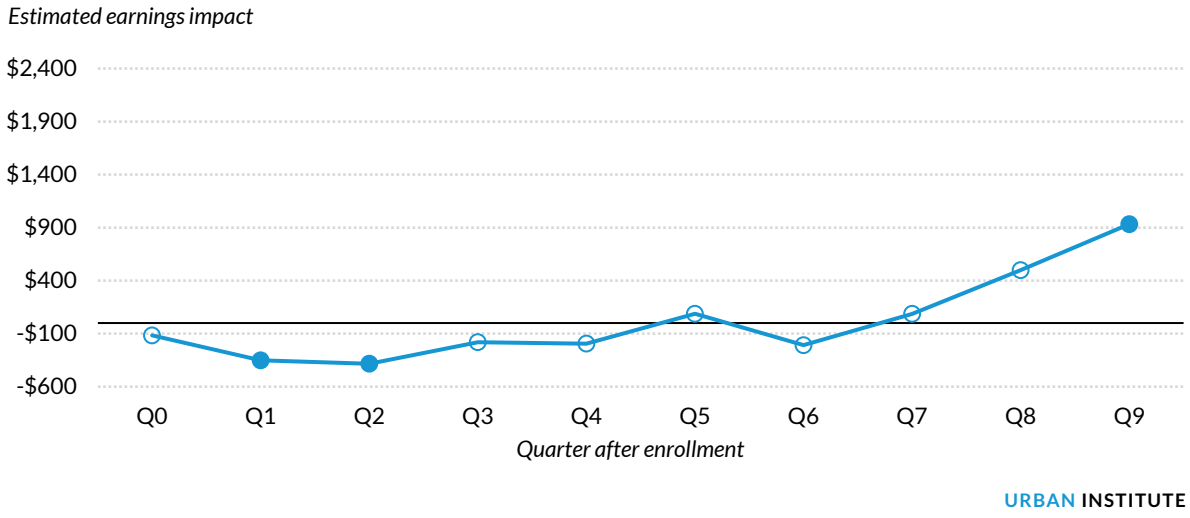
Impact Estimates for MIBEST Students in Precision Production



Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

FIGURE 5

Impact Estimates for MIBEST Students in Business, Management, Marketing, and Related Support Services

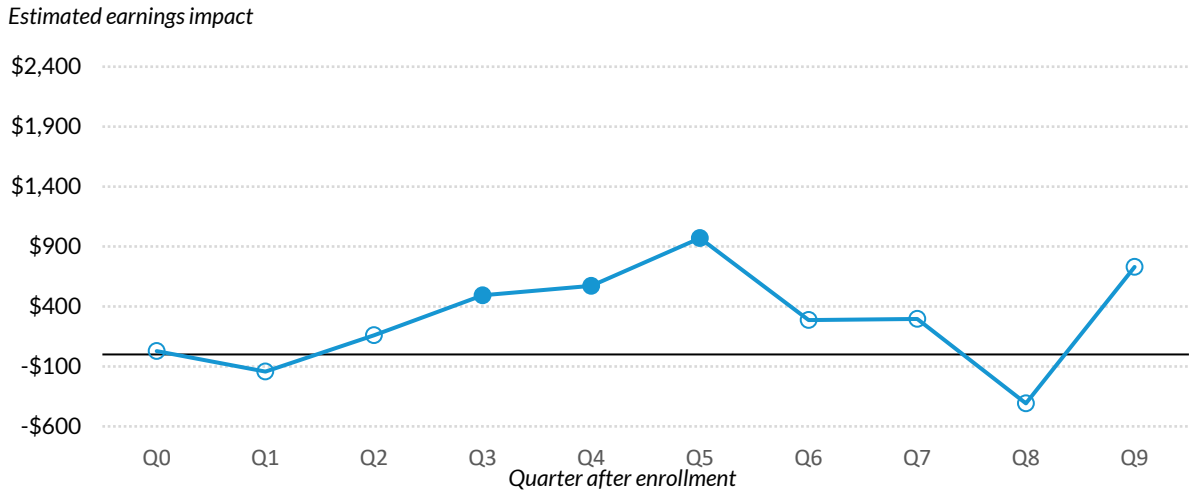


Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

MIBEST students in non-credit-bearing programs experienced three statistically significant post-enrollment quarters of positive earnings impacts. Unlike students in credit-bearing programs, these MIBEST students experienced positive impacts earlier, in the third, fourth, and fifth quarter after enrollment. These early earnings impacts may reflect the typically shorter-term nature of non-credit pathways that prepare participants for jobs more quickly than longer credit-bearing certificate and degree programs. However, non-credit student benefits do not persist in later quarters like benefits persisted for students in mechanic and repair or business programs (both of which had statistically significant impacts in the ninth quarter after enrollment).

FIGURE 6

Impact Estimates for MIBEST Students in Noncredit Programs



Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

MIBEST Impacts by Race and Gender

Education and training programs that integrate occupational and basic skills training may have differential impacts on participants of different races and ethnicities or genders. Variation in impacts could have a variety of causes. These communities may face different barriers to participation and completion, or they could have different educational preparation, training opportunities, and labor market contexts depending on where they live in the state. Members of marginalized communities

could face discriminatory treatment in their programs or in the jobs they enter after completion. It is therefore important to understand how program impacts vary by race and ethnicity, and by gender.

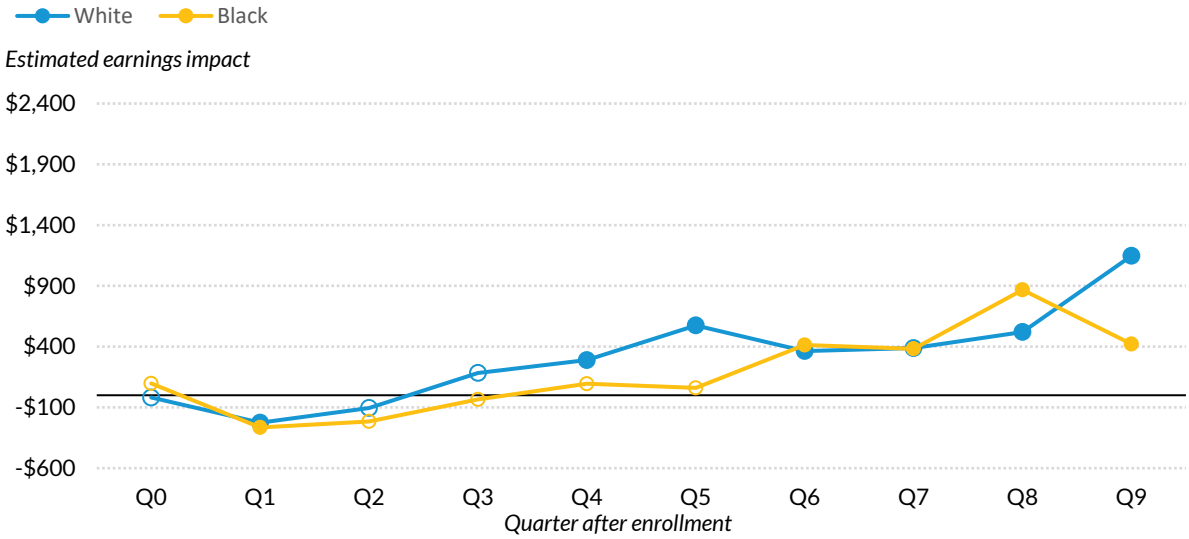
Unfortunately, reporting impacts by race is still relatively uncommon in the literature on training. Camardelle and collegues (2022) reviewed 80 evaluations of training programs and found that only 27 track the race and ethnicity of participants and only six report outcomes by race and ethnicity. Evaluations of occupational skills training programs like MIBEST need to assess impacts experienced by different participants to effectively support providers in their efforts to advance racial equity.

Most MIBEST participants identified as either Black or white (table 2). Over 8 percent of participants identified as another race or ethnicity, but too few participated in supporting a separate impact analysis. Impact estimates for Black and white participants are provided in figure 7. Black MIBEST students generally follow the same estimated earnings impact patterns as white MIBEST students, with statistically significant negative impacts in the first quarter after enrollment and steadily growing impact estimates after that. Black MIBEST students take two more quarters to experience positive earnings impacts than white students, with the first quarter of statistically significant positive impacts in the sixth quarter after enrollment rather than the fourth. These results suggest that although Black students may experience delayed benefits from MIBEST compared with white students, the long-term benefits of the program are comparable for both groups. Black MIBEST students may have experienced delayed impacts for a number of reasons, including participation in longer programs, structural factors, such as exclusion from educational opportunity, weaker local labor markets and labor market discrimination, or greater difficulties getting hired than white MIBEST students.

Estimated earnings impacts by gender are provided in figure 8. More MIBEST students are women than men (53.6 percent compared with 46.4 percent; table 2), and these women experience consistently lower earnings impacts than men in the program. In the first quarter after enrollment, women experience a statistically significant reduction in earnings attributable to MIBEST, and men do not. More importantly, women do not experience a statistically significant positive impact associated with MIBEST until the eighth quarter after enrollment, and men begin to experience positive, statistically significant earnings impacts beginning in the third quarter after enrollment.

FIGURE 7

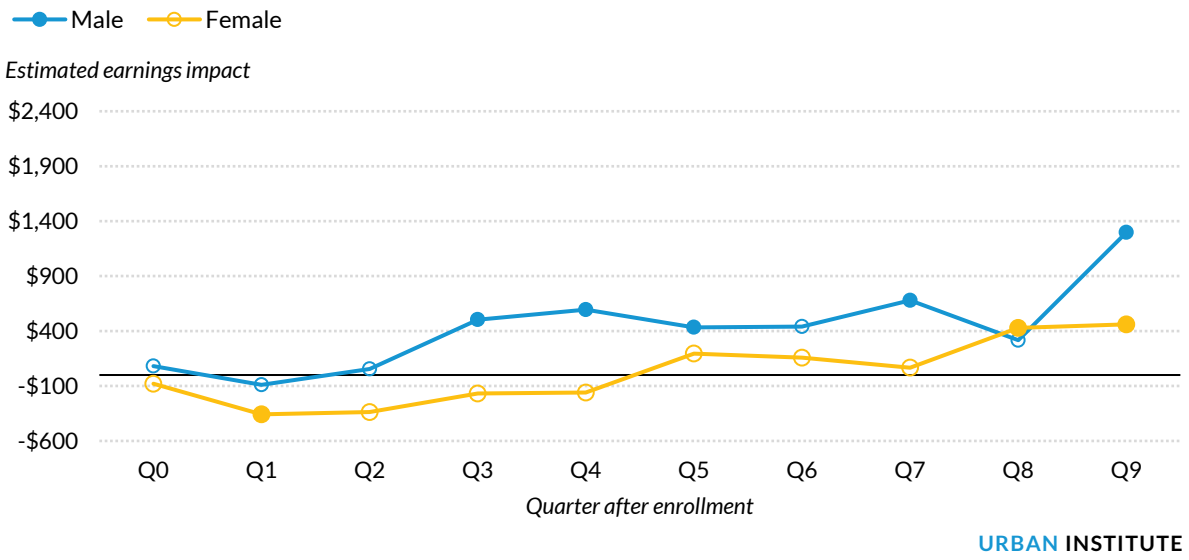
Impact Estimates for MIBEST Students by Race



Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

FIGURE 8

Impact Estimates for MIBEST Students by Gender



Source: Authors' estimates from MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; PSM = propensity score matching. Each data point is estimated in a separate regression-adjusted PSM model. Filled circles indicate a statistically significant earnings impact. Empty circles indicate a statistically insignificant earnings impact.

Implications of the Impact Study

The MIBEST impact estimates highlight the substantial variation in the effects of different types of occupational skills training programs among students. These impact findings have several key implications for designing and implementing programs that combine basic and occupational skills training:

- Overall, MIBEST programs raise participant earnings a year after the participant's quarter of enrollment. MIBEST participant quarterly earnings are between $500 and $750 higher than they would have been during the second year after program enrollment.
- Foregone earnings, or negative earnings impacts during program participation, are common for MIBEST students and represent an important cost of the program for participants. Support services, stipends, or work-based learning opportunities could help to mitigate the earnings losses associated with foregone earnings during the program.
- Health care training is the least likely to raise participant earnings, with no statistically significant positive impact on earnings in the first nine quarters after enrollment. MIBEST students in mechanic and repair technology programs and in noncredit programs are the most likely to experience positive earnings impacts. For MIBEST students in noncredit programs, these impacts occur in the third, fourth, and fifth quarters after enrollment and do not persist long term.
- Women and Black MIBEST students experience program impacts later than men and white students. Black MIBEST student impacts catch up to white student impacts by the sixth quarter after enrollment. Women's impacts are consistently lower than men's, with the single exception of the eighth quarter after enrollment, when women experience larger earnings impacts.

ROI of the MIBEST Program

Our ROI analysis compares estimates of MIBEST's impact on students' increased long-term earnings to estimates of the total amount invested in the MIBEST program by philanthropy and the federal and state government. Our impact estimates cover nine postenrollment quarters, so to estimate the full economic return, we project the average per-student earnings impact into the future. We estimate that MIBEST had a positive ROI, with an ROI of 102 percent. Every $1 invested in MIBEST by public and philanthropic partners generated $2.02 dollars in estimated student earnings returns.

Investments in MIBEST

We categorize funding and spending on MIBEST into direct and indirect investments. Direct investments are sources of funding or spending that can be attributed entirely to the MIBEST program. We estimate the total direct investments in MIBEST from both philanthropic and government sources (state or federal) and show spending levels at the state and college level. Some of these direct investments funded the program, and others were government spending in support of MIBEST students that were induced by students' participation in MIBEST but not because of direct program funding (e.g., Pell Grant awards).

We also note where colleges reported leveraged funds or resources, though these indirect funding sources are not included in the ROI analysis itself for reasons discussed below. Because of a lack of data, we do not estimate opportunity costs to institutions or nonmonetary and in-kind costs (such as classroom space). We also do not know what other funds colleges may have spent on MIBEST beyond the state and government investment, and we do not know how much students themselves may have spent to participate in the program. Because of these limitations, we frame this analysis as accounting for *investments* rather than comprehensively accounting for *costs*.

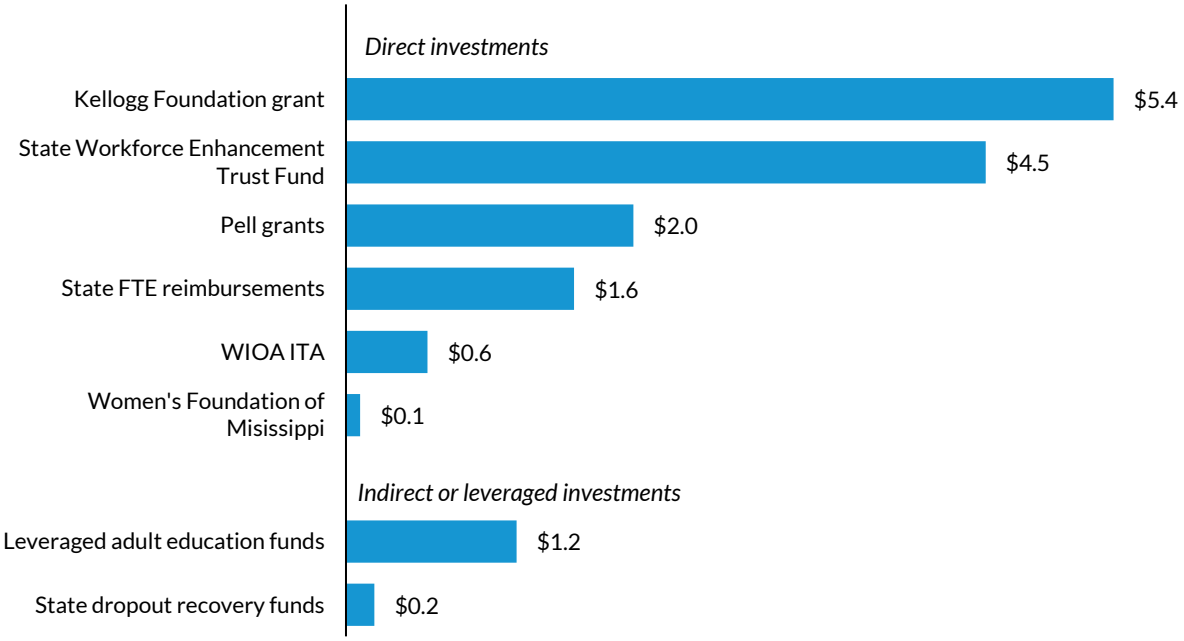
Figure 9 shows the amounts and sources of direct and indirect MIBEST investments. The Kellogg Foundation's $6.0 million philanthropic investment in MIBEST was the largest source of program funds. Of that, $4.5 million was dispersed to the colleges, with grants of $100,000 per college per year. The remaining $1.5 million supported state administrative and evaluation costs. The state reported spending almost $0.9 million on administrative costs, which are included in our analysis.[15] We do not include evaluation costs in the ROI analysis.

[15] State-level administrative costs were broken out into four categories along with the percentage of the $0.9 million in cost they represented: personnel (48 percent), contractual (23 percent), capacity building (22 percent), and administrative (8 percent).

FIGURE 9

Sources and Amounts of Indirect and Direct Investments in MIBEST

In millions



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Source: Mississippi Community College Board.

Notes: ITA = individual training accounts; MIBEST = Mississippi Integrated Basic Education and Skills Training; ROI = return on investment; FTE = full-time equivalency; WIOA = Workforce Innovation and Opportunity Act. "Direct investments" are included in our ROI analysis because they are entirely attributable to MIBEST or directly funded the program. "Indirect or leveraged investments" are not included in our ROI analysis because they were extensively used for non-MIBEST individuals, and we do not know what portion of the money is attributable to MIBEST. Kellogg Foundation grant funds are composed of $4.5 million in funding to colleges for the MIBEST program and $0.9 million in administrative costs. An additional $0.6 million in Kellogg Foundation funds for state evaluation costs are not shown.

The state of Mississippi contributed $4.5 million from the State Workforce Enhancement Training Fund, which matched the Kellogg Foundation's funds and was one of the primary investments in MIBEST. Other sources of direct funding support for MIBEST include $100,000 from the Women's Foundation of Mississippi.[16]

Mississippi provides community colleges with reimbursement funds based on student enrollment in credit-bearing programs, as represented by FTE. Colleges calculate and submit their FTE reimbursement requests for the state, which were tracked for MIBEST students and are included in our ROI analysis. The total dollar amount of reimbursements by college varied from $2,200 to $627,000, for

[16] It is unknown how those funds were distributed among colleges.

up to 93 student FTEs in an academic year. Variation was because of differences across MIBEST programs, including if they were credit-bearing, their length, and the FTE reimbursement rates by academic area. Cumulatively, colleges leveraged $1.6 million in state FTE reimbursement funds for MIBEST students.[17]

We also include other government spending that supported MIBEST students during their education, beyond what would have happened in the absence of the program. Although not direct program investments, these sources of government spending can be directly attributed to MIBEST. The first type of student-based government spending includes Pell Grant awards, which most MIBEST students in credit-bearing programs qualified for and which they received at a higher rate than the comparison group. To estimate how much additional federal spending on Pell awards was incurred by MIBEST students, we calculate the impact of MIBEST on the probability of Pell receipt using the same procedure reported in the impact study section of the evaluation. We find a statistically significant impact on the rate of Pell Grant receipt of 26.25 percentage points for MIBEST students, relative to the comparison group. We then multiply the estimate by the number of students in MIBEST and the average 2017–18 Pell award amount in Mississippi of $4,716.[18] Using this method, we estimate that the federal government spent an additional $2.02 million on Pell awards for MIBEST students.

We also estimate additional government spending on Workforce Innovation and Opportunity Act individual training accounts (ITAs) using a similar method. Some eligible students used ITA funds to help pay for their MIBEST education or training. We use student-level data on ITA receipt rates and amounts to calculate the impact of program participation on ITA receipt amount for MIBEST students relative to the comparison group. Using this method, we estimate a per-student impact of $351.18, which amounts to $0.57 million in added federal spending on ITA receipt for MIBEST students.

These total direct investments and spending in the MIBEST program totaled $14.2 million from philanthropic and government sources. That dollar amount is the basis for the investment side of the ROI equation. The total investment in the MIBEST program consisted of $5.5 million in direct philanthropic investments, $4.5 million in direct state investment, $2.02 million in Pell award spending, $1.9 million in state FTE reimbursements, and $0.57 million in Workforce Innovation and Opportunity Act ITA spending. Based on 1,633 MIBEST students, the per-student investment was $8,695.

[17] Results from the impact analysis estimate an extra 13.09 credit hours per MIBEST student, which corresponds to a similar total number of credit hours and cost as the $1.6 million we report here.

[18] "Student Financial Aid 2019–20 Provisional Data," US Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, October 14, 2021, https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2021105.

INVESTMENTS LEVERAGED BY THE COLLEGES

In addition to the sources we account for formally and include in our ROI analysis, we acknowledge that colleges leveraged their own ecosystems of funding streams and partners to support MIBEST. These leveraged funds were reported informally by MIBEST program staff, and in many cases, it was not clear what portion went to support MIBEST. Therefore, they are not included in our ROI analysis. These sources include state and federal adult education funding, which may have been leveraged to support the MIBEST program. Mississippi provides each community college with $200,000 annually in dropout recovery funds meant to help Mississippi residents obtain HSE through adult basic education. A portion of those funds may have been leveraged to assist MIBEST students, but we do not know how much. Some other sources of leveraged funds that colleges may have used in varying (unknown) amounts for MIBEST include Carl D. Perkins funds, other small target philanthropic grants, employer contributions, funds from the Department of Labor, local workforce and economic development funds, SNAP funds, college foundation funds, and miscellaneous private funds.[19] Because the amounts of those funds are unknown, they are not included in our ROI analysis.

COLLEGE SPENDING CATEGORIES

As summarized in figure 10, colleges reported spending their MIBEST philanthropic and state funds in three major categories: personnel (including fringe benefits), student supports (including tuition), and other.[20] When included in the MIBEST ROI, these categories are not distinguished, but a separate consideration of each category helps explain how colleges used the grant and public funds to operate the program. The largest expenditure was on college teaching and academic advising personnel at $4.9 million, or 64 percent, of direct college spending. That was followed by student supports (including tuition) at $2.1 million (28 percent) and other expenditures at $0.6 million (8 percent).

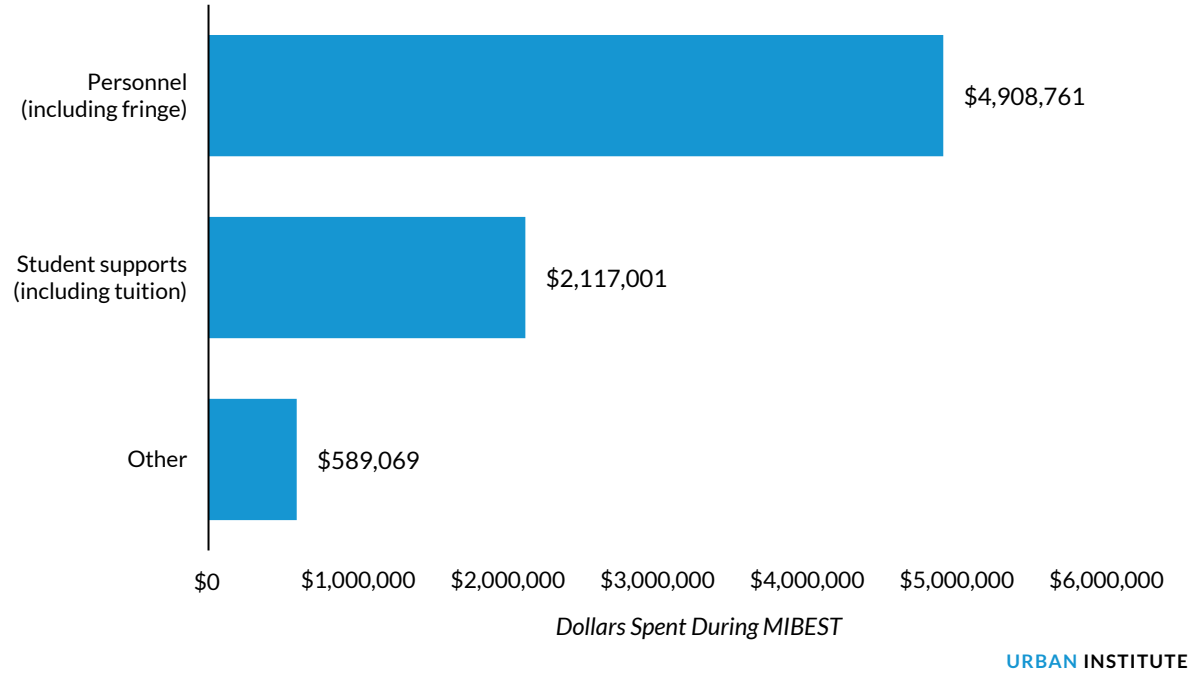
The fact that personnel was the largest spending category reflects the importance of administrative and classroom staff to the successful implementation of the MIBEST program. These figures do not include funds leveraged from other sources, in-kind contributions or supports, or uncompensated staff time.

[19] The Urban Institute designed and attempted to field a survey to colleges to capture college costs and investments, but low response rates and competing state and college reporting priorities resulted in incomplete data that could not be used in this analysis.

[20] Figure 10 shows spending categories for $7.6 million of the $9.0 million in Kellogg Foundation grant funds and state funds. The remaining $1.4 million was rolled over and spent in program extension years, for which we do not have a similar categorical breakdown.

FIGURE 10

Spending Categories of MIBEST Colleges Using Primary Grant Investment Funds



Source: Mississippi Community College Board.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training. The $7.6 million in spending shown here does not represent the full funding amounts of $9.0 million, some of which were rolled over to program extension years.

The Returns of MIBEST

We use the impact on student earnings in the nine quarters after MIBEST enrollment to project future earnings differences for MIBEST students beyond the ninth quarter after enrollment. This earnings impact, including both the estimated impact and the projection, spans 20 years (71 quarters beyond the estimated nine quarters). We estimate a positive statistically significant earnings impact in the fifth, sixth, eighth, and ninth quarters after enrollment for MIBEST students, relative to a matched comparison group. What is unknown is how persistent these earnings impacts are after the ninth quarter. There are no grounds for assuming that the benefits of MIBEST end abruptly after the ninth quarter, but presumably the value of the basic and occupational skills taught in the MIBEST program depreciate over time. Estimates of the depreciation of skills vary widely depending on the type of education and training under consideration (Dinerstein et al. 2020).

For the ROI analysis, we assume that the earnings impacts depreciate (or decay) over time, which is consistent with prior studies and models (Dinerstein et al. 2020). If the benefit of MIBEST depreciates, this means the comparison group is projected to eventually earn approximately the same as the MIBEST

group, although until that point, the MIBEST group will accrue more earnings and correspondingly will have a higher lifetime earnings total. The projection takes the earnings impact averaged across the eighth and ninth quarters of $663 and assumes a "decay rate" of 10 percent per quarter along with a 5 percent discount rate of future earnings to account for the time-value of money. We take a conservative approach to selecting a decay rate because we do not know if the impact will increase, remain steady, or decline. The I-BEST and Accelerating Opportunities programs have similar program design philosophies to MIBEST, but evaluations of those programs observed inconsistent or no earnings impact (Anderson et al. 2017; Martinson et al. 2021). There have been no long-running impact estimates of similar program models on which to base a decay rate selection, so we select a relatively high decay rate to ensure that the ROI analysis is not driven by overly optimistic projections of the staying power of MIBEST impacts.

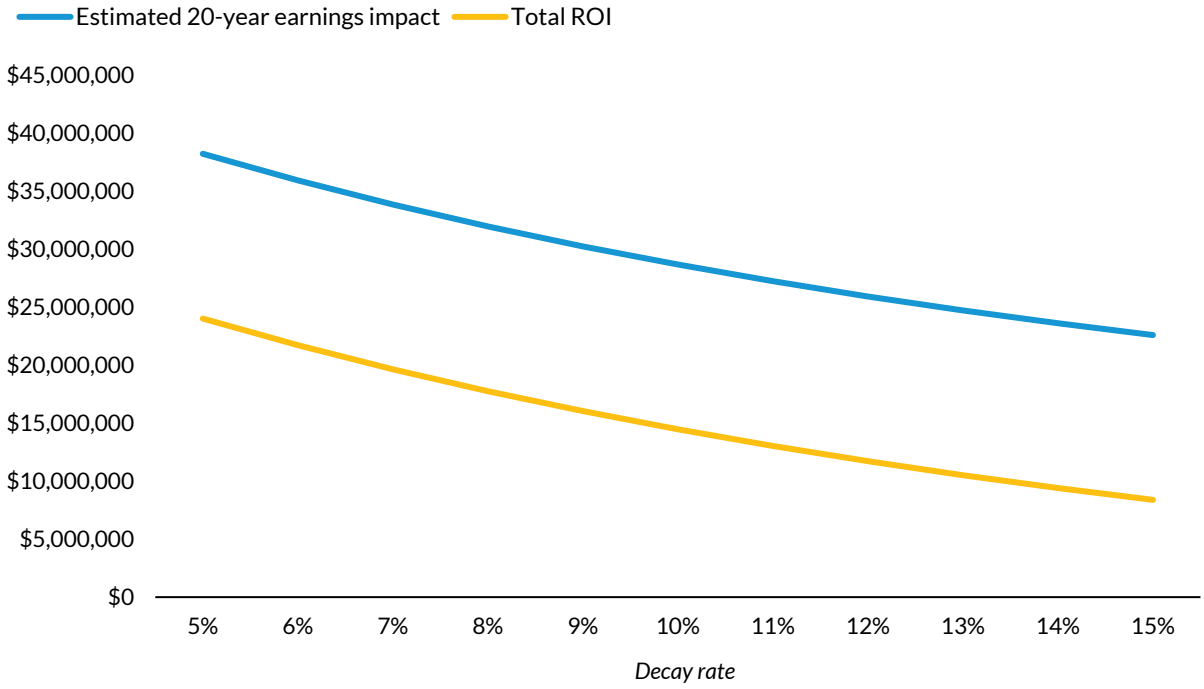
The following relationship shows how the decay rate (k) is applied to estimate the net earnings impacts in each quarter following the eighth and ninth, which are averaged:

$$W_t = W_0 e^{kt}$$

W_t is the net earnings impact to be estimated in quarter t, W_0 is the base period net earnings impact from the eighth and ninth quarters after MIBEST enrollment, and k is the decay rate. Figure 11 shows estimated and projected quarterly earnings impacts for MIBEST using this approach to demonstrate how the choice of decay rate affects the results of our analysis.

FIGURE 11

Sensitivity Analysis of Choice of Decay Rate on MIBEST 20-Year Earnings Estimates and Total ROI



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Source: Authors' analysis of MIBEST program data.
Notes: MIBEST = Mississippi Integrated Basic Education and Skills Training; ROI = return on investment. Estimates also include a 5 percent discount rate, so a choice of a 10 percent decay rate equates to a 15 percent monthly decrease in earnings impacts.

We assume that all the investments occur at the time of the program and all returns accrue over 20 years. We do not estimate changes to public benefits and taxes or intangible effects, such as local changes in attitudes toward college-going. In a society-level analysis, taxes and public benefits are transfers between residents and government, so they are net zero; intangible benefits are harder to quantify accurately.

The ROI of MIBEST

We calculate the total ROI in dollars for MIBEST and the ROI ratio. The per-student investment is the total MIBEST investment ($14.2 million) divided by the number of students enrolled in the program (1,633). This gives a per-student average investment of $8,695. The actual dollars invested in each student varied by college, program, field of study, participants' needs, and how long each student participated in the program. The per-student returns are the sums of the observed impacts in quarters 1

through 9 (after MIBEST enrollment) and the sums of quarters 10 through 80, which are projected. That sum equates to $17,549 per student in 20-year earnings returns.

The total estimated return is summed across all students, totaling $28.7 million. Therefore, the MIBEST program returns exceeded the total investments by $14.5 million. The formula we used to calculate the ROI is as follows:

$$ROI = \frac{return - investment}{investment}$$

The investments in MIBEST were less than the returns, meaning the overall ROI ratio is positive.

Implications of the ROI Study

The ROI ratio is 1.02, or 102 percent. For every $1.00 invested in MIBEST, we find a return of $2.02 in lifetime student earnings. Importantly, we do not account for many indirect and leveraged costs. However, under the above assumptions, the ROI of MIBEST is positive unless hidden costs cumulatively exceed $14.5 million. A sensitivity analysis of decay rate choices (figure 11) shows that the ROI remains positive with harsher choices of decay rate. However, we do not have investments or spending broken out by field of study, and although earnings impacts were generally positive across MIBEST fields of study, some were more positive than others. It is possible that for the fields of study with lower impacts, they may have had a negative ROI, depending on the specific implementation. Similarly, it is possible that some colleges had a positive ROI and others had a negative ROI, depending on the specific college-level investments and returns. Finally, some cohorts or program years may have had higher ROI values than others. In aggregate, the estimated student earnings return exceeded the investments in MIBEST.

Conclusion

This evaluation assessed the implementation of MIBEST and program outcomes, including academic and earnings impacts and the program's ROI between January 2016 and December 2019. Overall, we find positive impacts of participation in the MIBEST program as measured by completion of credits, credential attainment, and earnings impacts. Findings vary by field of study, race and ethnicity, and gender. Earnings impacts are initially negative while students are enrolled in the MIBEST program but improve one year after enrollment. During the second year after enrollment, student quarterly earnings were between $500 and $750 higher than they would have been without MIBEST. We find a positive ROI, meaning the estimated growth in student earnings exceeded the philanthropic and government investments in MIBEST.

Our finding that women and Black MIBEST students experience positive program impacts later than men and white students warrants further attention by the MIBEST program and related training programs to identify the causes of these disparities and to address them through policy changes and interventions that close equity gaps. We may see these differences because of occupational sorting in which men or women are overrepresented in certain fields. For example, female students tend to be more represented in health care, a field in which students did not experience positive employment and earnings impacts in MIBEST. Future research of related training programs could also track and report on disaggregated data, including data on race and ethnicity, gender, and other student characteristics important for understanding student outcomes, such as parenting status.

Although we are limited in our ability to draw conclusions about long-term impacts of program participation beyond the study period, our findings suggest that MIBEST successfully provided a path to higher education attainment and earnings for some students in Mississippi without a high school credential. Insights from the implementation study indicate student navigators and other student support services may have been a key factor in MIBEST students' success. Partnership with community, workforce organizations, and sometimes employers, was crucial in providing those supports. Future research into similar programs could quantify the level of support services provided to students and their associated impacts, which may lead to insights into the importance of specific supports for the success of underserved and historically excluded groups, including low-income students and students of color. Additionally, participation in MIBEST may have strengthened employer engagement relationships with colleges, and opportunities exist to explore additional avenues for embedding work-based learning, such as apprenticeship opportunities, into I-BEST programs.

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