

Research Synthesis: Early College

Results From the Massachusetts Early College Resource Allocation and Expansion Feasibility Study

MAY 2023

The Massachusetts Early College Resource Allocation and Expansion Feasibility Study was funded by the Massachusetts Department of Elementary and Secondary Education (DESE) to inform efforts to expand access to Early College (EC) programs across the Commonwealth. Experts at the American Institutes for Research[®] (AIR[®]) set out to understand the cost components and funding mechanisms that can support or hinder the expansion of these programs.

The study was designed to inform three overall research topics:

- **Program typology.** How can EC programs be categorized to examine costs and funding?
- **Program costs and funding.** What are the costs and funding mechanisms for current EC programs?
- **Program implementation and scaling.** What cost and funding factors may influence the expansion of EC programs?

AIR supplemented existing program data about program costs by conducting interviews with a sample of representative EC programs and administered program surveys to all current EC programs to better understand program cost.

EC Program Typology

Massachusetts EC programs share a common purpose and goals, though programs vary in their design. The first component of the study was to create a typology to determine if and how these programs could be grouped to estimate costs with more efficiency. In partnership with DESE, AIR identified key design components of EC programs that vary and thus could impact resource allocation. Examples of these program components include program maturity, program size, number and sector of postsecondary partnerships, other DESE pathways programs offered, and instruction location and modality. The design components informed the development of a program typology used in the analysis and reporting of study findings.

EC Typology for Cost Analysis

Mature programs with large EC program enrollment and clustered program designation design (21 programs): More years in operation, multiple EC designations per district or high school, relatively large EC program enrollment, typically two institute of higher education (IHE) partners, offer relatively more DESE pathways programs, and situated in high schools with large shares of underrepresented minority and high-needs student populations

Mature programs with large EC program enrollment and single-designation design (11 programs): More years in operation, single EC designation per district or high school, typically one IHE partner, relatively large EC program enrollment, offer relatively more additional DESE pathways programs, and situated in high schools with medium shares of underrepresented minority and high-needs student populations

New programs with moderate EC program enrollment and clustered designation design (nine programs): Few years in operation, multiple EC designations per district or high school, typically one IHE partner, relatively moderate EC program enrollment, offer relatively more additional DESE pathways programs, and situated in high schools with medium shares of underrepresented minority and high-needs student populations

New programs with small EC program enrollment and single-designation design (five programs): Few years in operation, single EC designation per district or high school, typically one IHE partner, relatively small EC program enrollment, offer relatively fewer additional DESE pathways programs, and situated in high schools with small shares of underrepresented minority and high-needs student populations

Program Costs and Funding

The second component of the study focused on determining the resources allocated to six cost categories (administration, instruction, academic advising, nonacademic advising, college and career advising, and outreach and recruitment) and how programs are currently covering said costs.

Total Cost

Overall, across programs, the average cost per student served by the high school or district coordinating an EC program during the 2021–22 school year was \$1,879 (Exhibit 1), and the average cost per IHE was \$1,803 (Exhibit 2), totaling \$3,682 per student. Note that these figures represent the *additional costs* of providing an EC program, on top of business-as-usual instruction and operations. In examining high school and district EC program costs, it is apparent that the older, longstanding programs have lower per student costs than the relatively newer designated programs. Moreover, high schools and districts incur a lot of noninstructional costs, with administrative costs making up the greatest share (27%; \$511) of per student costs. The largest cost component for the IHE EC partners is instruction, at \$713 per student, accounting for 40% of their overall per student costs.

Exhibit 1. Average Costs per Student for High Schools and Districts

Cost category	Years designated				All programs
	1 year (n=4)	2 years (n=2)	3 years (n=6)	4 years (n=6)	
Administration	\$1,046	\$2,039	\$459	\$307	\$511
Instruction	\$524	\$1,488	\$441	\$378	\$470
Academic advising	\$1,639	\$416	\$199	\$299	\$388
Nonacademic advising	\$687	\$0	\$125	\$134	\$171
College and career advising	\$535	\$170	\$135	\$116	\$160
Outreach and recruitment	\$626	\$441	\$75	\$144	\$179
Total	\$5,057	\$4,554	\$1,434	\$1,378	\$1,879

Exhibit 2. Average Costs per Student for IHEs

Cost category	Years designated			All programs
	1–2 years (n=2)	3 years (n=8)	4 years (n=5)	
Administration	\$547	\$502	\$324	\$417
Instruction	\$615	\$646	\$786	\$713
Academic advising	\$291	\$369	\$76	\$208
College and career advising	\$83	\$374	\$175	\$232
Outreach and recruitment	\$201	\$484	\$70	\$233

Cost category	Years designated			All programs
	1–2 years (n=2)	3 years (n=8)	4 years (n=5)	
Total	\$1,737	\$2,375	\$1,431	\$1,803

Costs by EC Typology

When costs were examined through the lens of the typology developed for this study, new programs with small EC program enrollment were found to have a significantly higher per student average (Exhibit 3). More mature programs (Type A and B) spend less per student, with the largest reduction in administration costs for Type A programs. Differences in costs between program types could be due to high startup costs for new programs and the development of economies of scale as programs mature. Interestingly, the patterns across typologies for IHEs seem quite different, with larger, more mature programs incurring additional costs per student, primarily driven by instruction (Exhibit 4).

Exhibit 3. Average Costs per Student for High Schools and Districts, by EC Typology

Cost category	EC typology			
	Type A Larger, mature programs with clustered design (n=8)	Type B Larger, mature programs with single-designation design (n=4)	Type C Smaller, new programs with clustered design (n=3)	Type D Smaller, new programs with single-designation design (n=3)
Administration	\$313	\$583	\$1,877	\$781
Instruction	\$333	\$700	\$1,480	\$48
Academic advising	\$263	\$262	\$666	\$1,896
Nonacademic advising	\$89	\$313	\$393	\$463
College and career advising	\$120	\$137	\$367	\$432
Outreach and recruitment	\$111	\$155	\$330	\$882
Total	\$1,229	\$2,150	\$5,113	\$4,502

Exhibit 4. Average Costs per Student for IHEs, by EC Typology

Cost category	EC typology		
	Type A Larger, mature programs with clustered design (n=7)	Type B Larger, mature programs with single-designation design (n=6)	Type C Smaller, new programs with clustered design (n=2)
Administration	\$384	\$404	\$547
Instruction	\$968	\$575	\$615
Academic advising	\$312	\$120	\$291
College and career advising	\$483	\$110	\$83
Outreach and recruitment	\$384	\$144	\$201
Total	\$2,531	\$1,353	\$1,737

Costs by IHE Sector

Overall, 2-year and 4-year IHEs spend substantially different amounts on students in EC programs, with community colleges incurring per-student costs that are almost half those of their 4-year counterparts (Exhibit 5). Almost all of this difference is personnel driven, with administrators and faculty making substantially more at 4-year universities than 2-year community colleges.

Exhibit 5. Average Costs per Student by IHE Sector

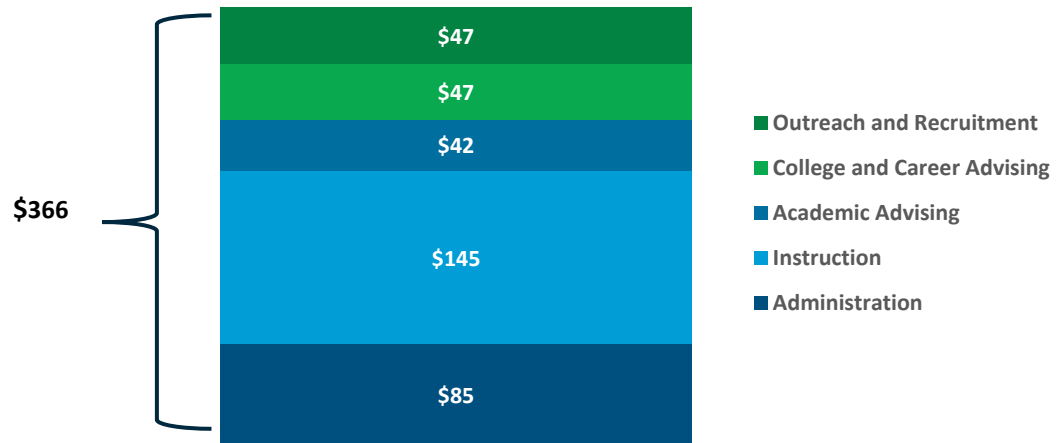
Cost category	IHE sector	
	2-year (n=9)	4-year (n=7)
Administration	\$288	\$899
Instruction	\$585	\$1,150
Academic advising	\$197	\$213
College and career advising	\$185	\$448
Outreach and recruitment	\$235	\$203
Total	\$1,490	\$2,913

Costs per Credit Hour

Because colleges and universities are required to submit credit hours for reimbursement, we are able to access and analyze credit-hour information for those courses taught through an IHE partner to convey costs. In Exhibit 6, we provide a breakdown of college costs per credit hour for all IHEs in our sample. In short, a credit hour cost \$366 on

average during the 2021–22 school year. The bulk of these costs were instruction (\$145 per credit hour), with administration as the second highest cost, at \$85 per credit hour. Academic advising, college and career advising, and outreach and recruitment each cost similar amounts, totaling about 37% of the costs. This average credit hour cost is well above the current reimbursement rate.

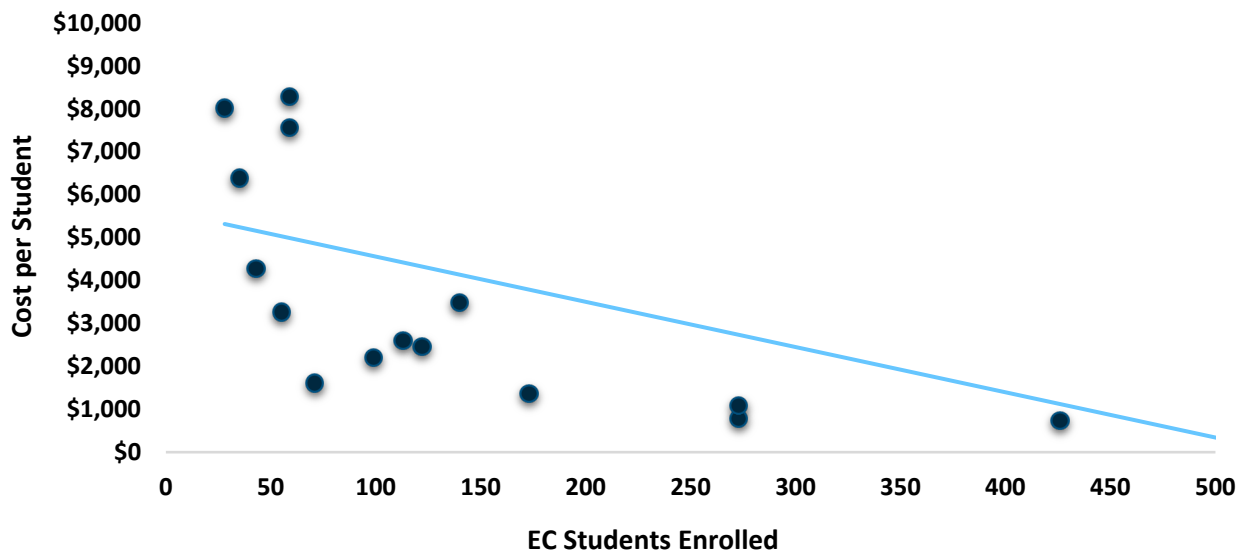
Exhibit 6. Average Costs per Credit Hour for IHEs



Costs by Student Enrollment

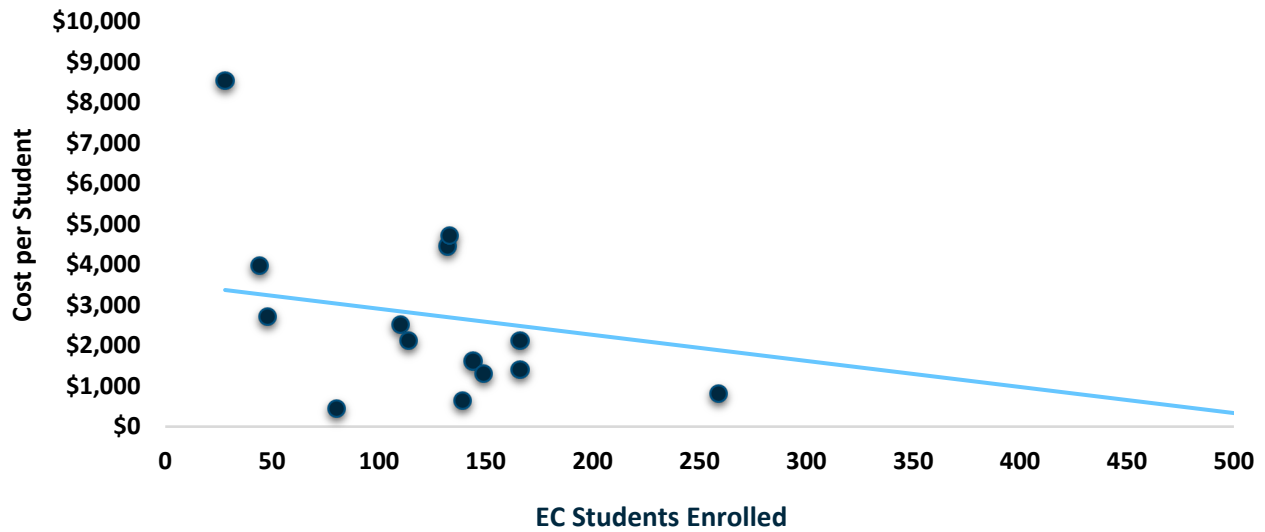
The trend observed in the data suggests that as the program enrollment increases, the cost per student decreases for high schools and districts (Exhibit 7), as well as IHEs (Exhibit 8). These findings suggest that larger programs may have access to economies of scale, decreasing the cost per student as the program grows.

Exhibit 7. Cost per Student and Number of Students Enrolled for High Schools and Districts



Note. Programs with fewer than 15 students are removed from the exhibit to ease interpretation and protect privacy. Including those programs does not alter the broad interpretation of the graph.

Exhibit 8. Cost per Student and Number of Students Enrolled for IHEs



Program Implementation and Scaling

The third component of the study focused on identifying cost factors that may inform or influence plans for the expansion of EC programs. Interview respondents cited cost factors as impacting implementation and expansion plans was **staffing**—especially as it relates to supporting the administrative components of EC, having adequate staffing to better serve priority student groups (e.g., English learners, students with disabilities), and implementing more robust outreach and recruitment strategies. Respondents also commented on the challenges **student scheduling** presents, given the complexities of having to integrate schedules across high schools and sometimes multiple IHE partners. **Student transportation** costs were another key cost factor impacting expansion as programs coordinate how to get students to their IHEs safely.