How Can Community Colleges Afford to Offer Dual Enrollment College Courses to High School Students at a Discount?

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Abstract

Dual enrollment—in which students take college credit-bearing courses when still in high school—is becoming increasingly popular. Community college programs account for about 70% of the dual enrollment that more than one million high school students participate in each year nationwide. Yet dual enrollment can be a big financial burden for community colleges. In most parts of the country, community colleges receive less funding per dual enrollment student than they receive for their regular, non-dual-enrollment students. If community colleges are to continue to provide broad access to high-quality programs, they need to be able to sustain these programs. In this paper, we consider the economics of dual enrollment from the perspective of the community college. We illustrate how dual enrollment may not be financially sustainable in colleges and states where it is offered at a discount, but we also show how community colleges can structure their programs to be more efficient. To support our analysis, we describe case studies to show the conditions under which dual enrollment is affordable and efficient.

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Overview

Dual enrollment—taking college credit-bearing courses when still in high school—is very popular at community colleges, with over one million students enrolling each year. But dual enrollment requires community colleges to budget in a very different way, balancing new revenues with altered educational inputs. Potentially, offering these courses will not be financially sustainable: It costs colleges money to offer instruction and supports to dual enrollment students, and even if these costs are lower than for regular courses, the associated revenues may be even lower.

There is substantial variation in how dual enrollment (DE) is funded across and even within states. Funding strategies include enrollment-based subsidies, grants or contracts for DE services and inputs such as teacher training, performance-based funding for DE students who achieve certain milestones, and college tuition and fees charged to students or school districts. Ultimately, each college must independently determine what is the best way to meet the needs of dual enrollment students.

Our analysis in this paper is focused on colleges in many states that offer dual enrollment courses at a lower tuition rate than is paid by "regular" post-high school students. And while we acknowledge the variation in funding across colleges, we conduct the analysis using actual cost data from the Integrated Postsecondary Education Data System (IPEDS) for a "typical" college using national average cost data. Our purpose is to model the economics of DE in the general cases where tuition is discounted.

We examine the economics of three common modes of dual enrollment: (1) courses taught by college faculty on campus or online; (2) courses taught by college faculty at the high school; and (3) courses taught by qualified teachers at the high school. Next, we derive the financial calculations community colleges must make in terms of the costs of dual enrollment and the revenues per mode.

In a baseline scenario, there are net losses from each mode of dual enrollment in colleges that offer dual enrollment at a discount; other plausible scenarios also show net losses. For a "typical" community college we estimate that revenues cover only 72%–85% of the costs. If 10% of students at a college are enrolled in DE, this suggests that the net loss for the college is between 1.5% to 2.8% of its total budget.

We examine the conditions under which dual enrollment could be sustainable even for colleges that charge discounted tuition (or none at all). We find that colleges could break even if they are able to reap efficiency gains. We identify three types of efficiency gain:

- *Economies of scale:* With increases in DE enrollment, the average cost of implementing and providing DE falls.
- *Student success:* DE students have relatively high success rates, so in states that have performance funding and include DE students in their performance calculations, DE students bring in extra revenue.
- *Yield surplus:* DE can motivate more students to attend community college and pursue community college credentials after high school.

Under a range of plausible scenarios there are sufficient efficiency gains such that dual enrollment may be financially sustainable even for community colleges that offer DE at a discount. By expanding DE enrollments, having DE students progress quickly and successfully, and encouraging more DE students to enroll at their college after completing high school, community colleges can produce efficiency gains that better ensure financial sustainability.

To illustrate the variation in the economics of DE financing across states, we present three case studies based on interviews with senior personnel at three community colleges in three states where colleges offer DE at a discounted tuition. These case studies affirm the popularity of DE, the baseline financial pressures to provide DE, and the importance of efficiency gains in making DE economically feasible.

1. Introduction

Dual enrollment—taking college credit-bearing courses when still in K-12 schooling—is good for high school students. They get a head start on college coursework and some experience in being a college student. For the same reasons, parents like dual enrollment and so do policymakers. Hence, there is pressure to expand opportunities for high school students to take college courses. However, dual enrollment can be a big financial burden for community colleges. As we describe below, in many states and localities, community colleges receive less funding per DE student than they receive for "regular," non-DE students.

Community colleges are not the only institutions that provide dual enrollment programs—some public and private four-year institutions do as well—but community colleges offer the lion's share: About 70% of the more than one million students who participate each year in dual enrollment nationwide do so through community college programs. It is essential that community colleges are funded to sustain this level of enrollment and to ensure that dual enrollment offerings and supports are accessible and of high quality.[1] In this paper we look at the economics of dual enrollment from the perspective of the community college.[2] We illustrate how DE may not be financially sustainable in its current form, but we also show how community colleges can structure their programs to be more efficient. To support our analysis, we describe case studies to show the conditions under which dual enrollment is affordable and efficient.

2. The Economic Pressure of Dual Enrollment

For financial stability, community college revenues need to match their costs. We can assume a college serving traditional students approximately breaks even: Per-student revenues will cover per-student costs (over the long term). However, this assumption may not hold for all programs within a college, and it is especially unlikely to hold for dual

[1] By fall 2019, dual enrollment students accounted for 16% of headcount enrollment (up 10 percentage points from 2007). See Jenkins and Fink (2020) and Marken et al. (2013). At one college interview we conducted, the president described how DE had grown from almost zero in 2001 to represent over one third of total enrollments by 2022.

[2] Following state regulations, college leaders are committed to support all students who might benefit from a community college education. However, these commitments require resources.

enrollment programs at colleges that offer DE credits at a discount. In such cases, the pressure from dual enrollment can be expressed simply: Relative to the average break-even course, DE costs are too high and revenues are too low.

There are direct costs to implement DE systems at community colleges. These costs include coordination, set-up and maintenance of articulation agreements with districts and high schools, and extra (often separate) advising for high school students (e.g., to help them orient to campus and choose courses optimally). These direct costs are an addition to the costs of regular college operations.

There are also costs for instruction in DE courses. These costs can be compared to those for regular college-level courses that, on average, should break even across the college. For each course, expenditure can be divided across three broad input categories: faculty pay, overhead (administration and infrastructure), and instructional support/materials. Spending on these categories depends on distinct features of each college (e.g., its location and the scale of its offerings). But it also depends on how DE courses are delivered in relation to the instructor (college faculty or qualified high school teacher), the site for the course (college campus or high school), the subject taught, and the instructional modality. These four factors may cause the costs of DE courses to diverge—upward or downward—from those of regular courses. If the divergence is upward, then DE courses will definitely cost more than regular courses. And even if the divergence is downward such that DE instruction is cheaper, the corresponding revenues may also be lower.

On the revenue side, community college operations are funded primarily from two sources: tuition and public subsidies. Nationally, tuition and fees cover approximately 30%–50% of costs (with significant variation by state and locality). Public funding (from states or local property taxes) also covers approximately 30%–50% of costs (again with significant variation by state and locality); this public funding may be enrollment driven or based on performance. Any remainder is covered by auxiliary funding and external grants. Over recent years, community colleges have increasingly relied on tuition charges, with some modest growth in incentive funding and grants, and less reliance on public subsidies.

For DE courses, revenue may be significantly lower than it is for regular courses. State and local policies may determine discount rates for DE courses, and these may vary by the location or instructor of the course. Revenue for DE courses can come directly from state appropriations, from transfers from K-12 schools/districts to colleges, and directly from tuition/fees charged to students and families. Irrespective of where the revenue is coming from, in many cases colleges offer DE students a discounted tuition compared to that charged to "regular" post-high school students; these colleges often forego 30%–50% of their usual tuition revenues. To offset this loss, colleges receive funds from K-12 schools/districts; but these funds may not fully cover costs (e.g., if the funds are for discounted tuition). Colleges may also obtain discretionary or performance funding specifically for DE courses. However, these offsetting funds may not sufficiently compensate for the large loss in tuition/fees.

To offer DE courses and support DE students, additional inputs are required, such as coordination and student advising, and these push up costs. At the same time, discounts on tuition push down revenues (with any falls in instructional costs leading to similar falls in revenue). Even as community colleges are committed to access and supporting all student groups, on this basic economic analysis dual enrollment may not look sustainable. DE students would have to be significantly cross-subsidized by regular college courses. The expected net loss from DE students may be significant per student and per college because of high DE enrollments.

3. The Economics of Dual Enrollment by Mode

For each individual college, the financial pressure of dual enrollment varies depending on how DE is organized and delivered.[3] At some colleges, costs may increase only slightly—with instructional costs being lower in some circumstances—and revenues may decrease only modestly. These colleges should be able to sustain DE without cross-subsidy from other college-level programs.

[3] This cost analysis is from the perspective of the community college. School district costs are not considered.

The financial calculation for each college depends on: (C1) resources required to implement DE; (C2) the modes of DE offered—these have different implications for costs; and (R) the revenue streams available per DE mode. Each cost and revenue component is described in detail below. These components are standardized to the resources for regular students (and so indicate the extent of cross-subsidy).

Nationally, across a typical community college system, the cost per college-level credit is approximately $300 (2019 data from IPEDS). This amount can be divided into instructional costs ($170), overheads ($90), and materials/equipment ($40). The revenue per college-level credit comes from: tuition/fees by almost one half ($140); public subsidies (enrollment or performance-driven) by just under one half ($120); and from grants and auxiliary funding for the remainder ($40). These cost and revenue estimates are standardized and simplified (with significant state/college variation), but they are helpful to compare against the resources needed to provide dual enrollment credits.

3.1 DE Implementation Costs

The full set of resources for implementation of DE—professional time plus overheads and materials—are itemized in Box 1.

Box 1
Resources to Implement Dual Enrollment

Personnel, overheads, and materials for:

1. Initiation and negotiation of articulation agreements with districts/schools.
2. Program/enrollment management.
3. Faculty evaluation and quality control.
4. Advising and supports for high school students.
5. IT and infrastructure.

One resource requirement is for college personnel to initiate and negotiate agreements (using memoranda of understanding [MOUs]) with districts/schools. Since colleges often develop such MOUs with multiple school districts, college administrators may spend a substantial amount of time keeping agreements up-to-date, though the cost is modest when amortized per DE student over several years. However, there are non-trivial

management and coordination costs each year. These include working with schools to recruit and register students and for program marketing and teacher evaluation. Potentially, advising for high school students may require additional resources beyond regular advising supports at community colleges because DE students are new to college, and the pathways they follow may be varied.[4] Many colleges hire specialized staff to coordinate DE programs and advise DE students. Finally, there are IT and infrastructure resources for DE programs. Some associated tasks (enrollment management and IT/infrastructure) may require similar amounts of resource as those for regular college-level courses.

As noted, the per-credit cost of initiating and managing articulation agreements is likely to be small when averaged across all students and amortized over several years. However, the other costs, particularly program coordination and student recruitment, registration, and advising, are annual and therefore add to the costs of college operations. Approximately, these implementation costs are estimated at +6% per credit.[5]

3.2 DE Instructional Cost per Mode

The main cost of dual enrollment is for instruction; this cost varies per mode. There are three main dual enrollment course modes (which we identify as DE_CF, DE_HSF, and DE_HST); each can be compared to regular college-level instruction.[6]

(1) DE_CF: *Students take courses on a community college campus and have college faculty instructors.*
The costs of DE_CF courses are close to those of regular college-level courses: They require faculty, overheads, and instructional materials in near-equivalent amounts. In some cases, colleges may be expected to pay for (or subsidize)

[4] Advising may be more expensive because it requires advisors to learn new rules (e.g., in relation to financial aid and program pathways) and to apply these rules appropriately to each school.
[5] Estimate uses IPEDs data based on faculty time for a full-time dean of dual enrollment, additional counselling staff (ratio 1:750), and (proportionate) overheads. For a similar calculation, see Reichardt & Christeson (2020, Table 10). Their estimates of administration costs are $25 per student/course (not credit) at the college and $91 per student/course at the district/school. Our estimate is based on a college enrollment count of 6,000 students.
[6] A fourth, less common mode is where the college course is co-taught synchronously online to students in high schools by a college faculty member with a non-credentialed high school teacher who serves as a teaching assistant.

learning materials for students (and for their transport to college).

(2) DE_HSF: *Students stay in high school and are taught by full-time college faculty instructors.*

The costs of DE_HSF courses are lower than those of regular college-level courses: Expenditures on college faculty are near-equivalent, but expenditures on institutional overheads and instructional materials are significantly lower. In some states and localities, colleges may be expected to pay for (or subsidize) learning materials for students.

(3) DE_HST: *Students stay in high school and are taught by credentialed high school teachers who are certified by the college as adjunct instructors.*

The costs of DE_HST courses are much lower than those of regular college-level courses (or even close to zero): They require zero expenditures on college faculty and significantly lower expenditures on institutional overheads and learning materials.

Table 1 summarizes the costs of college-level and DE credits for each DE mode. The cost per college-level credit is $300.

- For DE_CF courses, those taught at the college by faculty, the typical cost per credit is $306. For these DE_CF credits, operational costs are marginally lower but DE implementation costs are sufficiently high such that the cost per credit is 2% above college-level credits.
- For DE_HSF courses, the cost per credit is $246. Although faculty costs are the same, overheads and materials are lower such that the cost is 82% of that per college-level credit. In effect, the cost saving from teaching DE students off-campus is mostly offset by the costs of implementing DE.
- For DE_HST courses, the cost per credit is $27: Only implementation costs and some administrative resources are

incurred. Thus, per credit these courses are less than 10% of the college-level cost per credit.

Table 1
Expected Cost per Credit

	College-Level Credits	Dual Enrollment Credits		
		DE_CF At College, College Faculty	**DE_HSF** At High School, College Faculty	**DE_HST** At High School, HS teacher
DE Implementation	--	$18	$18	$11
Faculty	$191	$181	$181	$11
Overheads	$76	$74	$22	$5
Materials	$33	$33	$25	$--
Cost per credit	*$300*	*$306*	*$246*	*$27*
% versus college-level	--	102%	82%	9%

Source. IPEDS data and information from Reichardt and Christeson (2020). *Notes.* DE modes: DE_CF: on-campus taught by college faculty; DE_HSF: at high school taught by college faculty; DE_HST: at high school taught by high school teacher. Overheads include facilities costs.

For DE_CF and DE_HSF, the instructional costs are nearly equivalent to those of regular college-level courses (DE_HST instructional costs are close to zero). There are several reasons why instructional costs might not be fully equivalent, and on balance these are likely to reduce the cost of DE. First, faculty employed to teach DE may be relatively less experienced, partly because DE courses tend to be introductory courses rather than upper level courses (which are taught by more senior faculty). These DE faculty are therefore likely to be lower paid than the average faculty member. Second, DE courses may be lower in cost because they are more likely to be liberal arts courses, and these courses require less resources than, for example, science or career-technical education (CTE) courses. (Humanities courses, for example, require approximately 20% fewer resources per credit compared to courses in CTE or the sciences). These differences arise both because faculty pay varies by subject and because some courses require more space or equipment for lab work or technical instruction. A final factor may

be the growth of online coursework.[7] The costs of online courses are typically (although not conclusively always) lower than the costs of face-to-face courses. If DE courses are disproportionately online, this may push the average cost downward. Currently, there is no clear evidence DE courses are more commonly offered online than other courses.

Based on available evidence, these cost differentials are quite modest (as shown in Table 1). For example, if DE_CF and DE_HSF are taught by more junior or adjunct faculty, this reduces the cost per credit by approximately 3%.[8] Also, the subject mix of DE courses is typically such that the cost per credit is reduced by an additional 2%.[9] The effect of online courses is uncertain, both in terms of prevalence and relative cost; therefore, no cost adjustment is made for DE courses.

For DE_HST, the instructional costs are close to zero: They are unlikely to be exactly zero, even as no college faculty are directly involved in teaching. Community college administrators or faculty review, monitor, or observe some of these classes as part of the agreement with the high school. (The cost of ensuring quality control at the high school level is included above as an implementation cost.) We assume that faculty are involved at a 5% level for these courses (adjusting for faculty seniority and subject mix).

Overall, as shown in Table 1, the average cost of DE depends on which mode of DE the community college offers. DE courses may cost more (by 2%) or less (by 18%–91%) than college-level courses. However, the critical factor for college budgets is how much lower costs are associated with lower revenues.

3.3 DE Revenue Sources per Mode

Various revenue sources are available for dual enrollment courses. These sources are tuition/fees, public funding (related to enrollment), transfers from districts or schools,

[7] During COVID, online instruction of DE students by college faculty increased, since in most colleges most classes were taught online. Online coursetaking by DE students may be expected to increase post-COVID. This may have big implications for how much revenue colleges are able to generate through DE.
[8] These reductions are small because they are relative to the average college-level course (many of which are also taught by contingent faculty). Specifically, the junior/contingent faculty instruction proportion is assumed to be 75% for DE versus 65% for college-level courses. With salaries for junior/contingent faculty at 75% of salaries for more senior faculty, the net result is 3% lower instructional costs.
[9] In Texas, for example, over 40% of DE courses are in English or history. For regular college-level courses, the rate is 30% (according to IPEDS). These subjects are estimated at 20% lower cost (Hemelt et al., 2021). However, most states do allow CTE courses to be taken as dual enrollment, and upper level courses are open only to students with the relevant prerequisites. Adjusting for the proportions of courses, this yields a 2% reduction.

discretionary grants or lump sum funding, and incentive/performance funding. The share of funding from each source depends on state/system regulations and funding formulas, the terms of each MOU with districts/schools, and the tuition/fee structure.

Given these alternative funding options, it is hard to generalize how DE is financed across the community college sector. Table 2 summarizes the DE revenue sources and indicates their general prevalence across state systems. Specific dollar amounts for each revenue source vary across states (Zinth, 2019).

Table 2
Revenue Sources for Dual Enrollment

Revenue Source	DE Practice	General Prevalence
Students/families	Discounted tuition at rate set by state agencies or local agreements with districts/schools	Many states/localities
	Charge for learning materials (e.g. books, computing access)	Some states
	College fees	Some states and colleges
State/local public funding	Enrollment-based subsidies for DE students	Most states
	Performance funding for DE students who achieve performance milestones	Some states
	Grants for DE inputs (e.g. teacher training)	Some states
District/school transfers	Transfer funding (for tuition/fees and learning materials), either by state law or local MOU agreement; usually discounted amount from tuition for regular students	Most states/schools

In many states, community colleges are restricted in how much each revenue source contributes to their budgets: They do have some negotiating power within the terms of each MOU, but mostly they must follow the regulatory framework set down by the state.[10] Also, colleges may have some flexibility over how much to charge in tuition/fees, but here too they must account for student demand and barriers to access.

[10] For some colleges, the MOUs codify state regulations; for others, tuition/fee structures are negotiated.

Based on interviews and a recent Education Commission of the States database (Jamieson et al., 2022), the primary contributors to DE revenues (along with the number of states) are:[11]

- No state policy on funding (7 states)
- State funding alone (17 states)
- State + school districts (4 states)
- State + school districts + postsecondary institutions (1 state)
- School districts (3 states)
- School districts + postsecondary institutions (1 state)
- Students (5 states)
- Students + state (2 states)
- Students + state + school districts (1 state)
- Students + school districts (5 states)
- Students + school districts + postsecondary institutions (3 states)
- Student + state + school districts + postsecondary institutions (1 state)

In summary, DE tuition is free (subject to conditions) to students through public funding in 26 states. However, there is no public funding in 12 states (so students and families bear the full cost of tuition and instructional materials). In 12 other states, students and families pay some of the costs, with the rest coming from public sources. In 12 states, the state government makes direct funding contributions (beyond ADA and PS enrollment subsidy). School districts are the main funders in 3 states and contribute at least some funding in 16 other states. In 18 states, limits are placed on tuition and/or fees that colleges can charge (although some colleges may discount tuition so they do not reach the limit). Finally, at least 7 states require some public funding of instructional materials.

[11] Variation in student pricing is extensive. For example, Massachusetts permits $25 in fees but does not permit tuition pricing. Variation in district transfers is also extensive. California, Mississippi, and Wisconsin transfer 100% of the average per-pupil K-12 amount; most states (e.g., Ohio) transfer 70%–90%, but some (e.g., Rhode Island) transfer only 50%.

To illustrate how DE costs and revenues compare in different contexts or states, a set of different budgetary scenarios are described in the next section. We focus on cases where colleges offer DE students discounted tuition.

4. Dual Enrollment Budget Scenarios

Evidence from Table 1 and information on DE revenues from Table 2 can be combined to estimate the net surplus (loss) from DE courses. Net surplus is calculated per DE mode; it is then reported for a composite DE program where 45% of courses are on campus with faculty, 10% are at high school with faculty, and 45% are at high school with a qualified high school instructor.

We are especially interested in the common cases where community colleges discount tuition for DE students. Net surplus is calculated for three revenue scenarios. These scenarios are based on progressive discounting of student tuition/fees by 25%, 50%, and 100% (zero tuition/fees).

Table 3 shows the cost, revenue, and net loss per credit for three scenarios of discounted dual enrollment. Each scenario shows how changes in costs and revenues yield net losses from DE.

Scenario 1 is for a college where dual enrollment is discounted by 25% of regular tuition/fees.[12] For each DE mode, costs are as per Table 1 but revenues are significantly lower. For courses taught in colleges by college faculty, the net loss is $42 per credit, or 14% of cost; for courses taught at high schools by college faculty, the net loss is $27 per credit (11% of cost); and for courses taught at high schools by credentialed teachers, the loss is $11 per credit (40% of cost). As a summary measure, the final column of Table 3 shows the composite loss per credit if a college offers all three types of DE (see Table 3 notes). If the college offers this mix of DE, the net loss amounts to 15% per DE credit.

[12] A 25% discount on tuition/fees does not reduce total revenues by 25% as tuition/fees is not the only revenue source.

Table 3
Loss per DE Credit Under Three Dual Enrollment Scenarios

	Dual Enrollment Mode			Composite DE*
	DE_CF	DE_HSF	DE_HST	
Scenario 1. 25% tuition discount				
Cost per credit	$306	$246	$27	$174
Revenue per credit	$264	$219	$16	$148
Surplus (R-C) per credit	-$42	-$27	-$11	-$27
Surplus as % costs	-14%	-11%	-40%	-15%
Scenario 2. 50% tuition discount				
Cost per credit	$306	$246	$27	$174
Revenue per credit	$228	$183	$11	$126
Surplus (R-C) per credit	-$79	-$63	-$16	-$49
Surplus as % costs	-26%	-26%	-59%	-28%
Scenario 3. 100% tuition discount				
Cost per credit	$306	$246	$27	$174
Revenue per credit	$155	$110	$11	$86
Surplus (R - C) per credit	-$151	-$135	-$16	-$82
Surplus as % costs	-49%	-55%	-59%	-51%

Source. 2020 data from IPEDS. *Notes.* DE modes: DE_CF: on-campus taught by college faculty; DE_HSF: at high school taught by college faculty; DE_HST: at high school taught by high school teacher. Dollars rounded to nearest dollar.

*Composite DE program based on these DE weights: 45% DE_CF, 10% DE_HSF, and 45% DE_HST.

Table 3 also shows the financial consequences from progressively greater discounting. In Scenario 2, the discount on tuition/fees is 50%. For courses taught in colleges by faculty, the net loss is $79 per credit, or 26% of cost; for courses taught at high schools by faculty, the net loss is $63 per credit (26% of cost); and for courses taught at high schools by credentialed teachers, the loss is $16 per credit (59% of cost). Overall, for the composite DE program, a 50% discount on tuition would equate to a loss of 28% per credit. In Scenario 3, the college waives tuition/fees entirely (either to encourage enrollment or because of state policy mandates). For this scenario, there are also significant net losses per credit for each DE type. The overall effect for a composite program would be a loss of 51% per DE credit (assuming no alternative revenue sources are substituted in).

The scenarios shown in Table 3 are illustrative: In each case they show net loss from DE courses in cases where colleges offer DE courses at a discount. Approximately,

if 10% of a college's credits are dual enrollment, the annual budget shortfall will be 1.5%–2.8% of total operating costs (with 25%–50% tuition discount).[13]

There are many possible dual enrollment scenarios, reflecting the three types of DE and the variety of funding options. Nevertheless, in cases where colleges discount tuition for DE students, which is common in many states, there are losses from dual enrollment; and the losses are likely to be greatest for courses offered on campus by college faculty. However, as described in the next section, there are conditions under which DE is financially sustainable.

5. Efficient Dual Enrollment

Community colleges need not view DE as a financial burden. Looked at from a broader perspective, DE can make economic sense. Fundamentally, costs need to be lower and or revenues higher. This is possible and, perhaps surprisingly, it is more likely to be achieved if colleges expand their DE enrollments rather than contract them. A broader perspective takes account of three important features of dual enrollment: Economies of scale; more efficient student progression/completion; and a higher "yield" of students. As well, DE builds political support for community colleges; this goodwill may help secure additional public funding. Collectively, these features allow for plausible scenarios in which dual enrollment is a break-even proposition for the college.[14]

5.1 Efficiency Gains From DE Expansion

One important reason why efficiency increases as dual enrollment expands is because of economies of scale. Enrolling more DE students is likely to reduce average

[13] This calculation assumes that the college enrolls DE students in the composite proportions: 45% DE_CF, 10% DE_HSF, and 45% DE_HST. This total loss percentage is close to that reported by one of the colleges in our study: DE at the college accounted for 17% of students but only 15% of revenue. We emphasize that DE students are a minority of all students at a college: Substantial losses per DE student do not mean substantial losses in overall college budgets.

[14] There are other advantages of dual enrollment. Also, community colleges have some bargaining power because there is competition across the high schools (public and charter) for students. Schools that offer dual enrollment have a competitive advantage and so are eager to work with community colleges. DE is also flexible. For example, colleges can devise sliding scales fee structures for DE courses. Some states (e.g., South Dakota) already expect students to pay tuition/fees. In four states, the student cost is not set in state policy. And most states allow for students to pay excess costs. College may have the opportunity to charge private school and home-school students.

costs. First, the resources for DE implementation (Box 1) are spread across more students. Second, many colleges have substantial fixed costs (e.g., for buildings, infrastructure, and personnel contracts). As the scale of enrollments increases, average fixed costs per student fall. These economies of scale are felt at the college level (as FTE enrollments increase) and within each course (as class sizes increase or enrollment management becomes more precise). For community colleges with excess capacity or those for which enrollments from post-high school students are declining, these economies of scale may be substantial. A further saving might occur if more DE courses can be offered with flexible modalities, such as online formats. Broadly, if colleges can expand enrollments in line with their existing capacity and fixed costs, there are many ways in which average costs should fall.

A second efficiency gain arises from students' success in DE. Students perform well in DE courses; this includes students who attend low-resource K-12 schools (when given the right supports). DE students typically avoid remediation, have higher college GPAs, and progress further than the traditional enrollees.[15] When students do well, colleges are more efficient (with less needed remedial resources or academic advising or less faculty burnout, for example).[16] Directly, when DE students do well, performance funding increases. Performance funding formulas, which are common across states, reward student success. DE students therefore generate more revenue for the college (relative to the average student) in states where state funding of colleges depends on performance.

A third efficiency gain comes from an increase in "yield surplus": the extra revenue and efficiency gains when DE students are newly motivated to enroll at community college after they complete high school. There is evidence that DE can encourage students to subsequently enroll at the college: DE can therefore increase the yield from local high schools. In a recent study of low-achieving high school students in

[15] DE affects colleges' future revenues and efficiency. Students gain beneficial effects on college enrollment, remediation, GPA and award completion (Grubb et al., 2017; Hemelt et al., 2020; Henneberger et al., 2022; Lee et al., 2022). Minoritized/disadvantaged students may benefit more (An, 2013a, 2013b; Kremer, 2022), although they enroll at lower rates (Xu et al., 2021). However, it is unclear if the location of DE mediates outcomes (Alsup & Depenhart, 2020 Hu & Chan, 2021; see also What Works Clearinghouse, 2014).

[16] Dual enrollment in remedial courses is not allowed in 21 states (and only 4 states explicitly allow dual enrollment remedial courses).

Texas, Lee and Villarreal (2022) estimate that their college enrollment rate increased by 20 percentage points (and their college completion rates were also higher). As noted above, there is sizeable evidence on how well DE students perform; it is likely that these students will enroll for longer.

Increasing yield surplus is a way to expand enrollment and increase efficiency. For each college, the size of the yield surplus will depend on a number of factors. Not all high school DE students will enroll at community colleges: Many may go to four-year colleges, and some (although generally not many) may not enroll at all. Some of the DE students would have intended to enroll at community college anyway; these students have now secured a tuition discount by enrolling preemptively. Nevertheless, the yield surplus is likely to be positive, particularly if DE programs are designed with the goal of broadening access to college for students who might not otherwise have attended any college.

5.2 Dual Enrollment: Break-Even Scenario

Efficiency gains from DE expansion can be included in the budget model. The values for each efficiency gain will vary across states, so the goal here is to determine the conditions under which the college breaks even financially. At break-even, colleges would be financially able to offer an important and popular opportunity to high school students without undue financial burden.

The break-even scenario requires assumptions about each efficiency gain. With 10% of students in DE, the baseline scenario shows that average costs are 1.5%–2.8% below average revenues. (To reiterate, these percentages are across an entire college budget, of which 90% of students are regular, non-DE students.)

First, we assume the college scale increases because DE expands from 10% to 20% of all students. This expansion equates to an increase in total enrollment of 8%.[17] Using evidence on stochastic cost functions from Titus et al. (2021), we estimate that an 8% increase in total enrollment reduces average costs by 1.1%.

[17] With 100 students originally, 10 were DE and 90 were "college-level." For DE to be 20% of total enrollments, 108 students are needed: 18 DE and 90 college-level (18/90 = 0.2).

Second, we assume that all DE students generate 10% more in performance funding relative to the average student.[18] With 20% of students in DE and performance funding equal to 10% of total revenue, this equates to an average revenue increase of 0.6%.

Finally, we assume that yield surplus is 20%: Each student who enrolls in DE for one credit subsequently enrolls for 0.2 credits after high school (or one in five DE students is newly motivated to enroll in community college for one course).[19] The economic value of yield surplus is derived from the economies of scale and student success effects: These future students make the scale of the college bigger, and, where applicable, these future students attract more performance funding.[20] Using the same parameters as above, we calculate that average cost falls by 0.3% (from economies of scale) and average revenue increases by 0.2% as a result of yield surplus.

Table 4 summarizes the results at the level of the college. Without efficiency gains, the typical college would face losses of 2.2% of its budget if 10% of its students were in discounted DE (row 1). A college expanding to 20% of its students being DE is likely to reap significant efficiency gains. Even under very conservative assumptions, costs would fall and revenues would increase to fully offset the 2.2% budget loss.

Different assumptions will of course yield different results. However, the calculations in Table 4 illustrate that: (1) it is readily possible for DE to pay for itself; (2) there are several cost and revenue efficiency gains that can offset budget shortfalls; and (3) under more optimistic—but plausible—scenarios about student success and yield surplus effects, DE can increase the college surplus.

[18] This estimate is plausible, given the statements of our interviewees (see below), and is most likely conservative. It is possible that the new DE students will not perform as well as current DE students. However, there are many schools that still do not participate in DE programs; their students may have the same capacities as students in schools that do participate.

[19] This estimate is conservatively below that of Lee and Villarreal (2022). Yield surplus based on estimates from Reichardt and Christeson (2020) are also greater than those applied here.

[20] In effect, yield surplus magnifies the efficiency gains from economies of scale and student success. Moreover, this calculation ignores the security value from having a future pool of community college students.

Table 4
Break-Even Scenario for Community College With 20% of Students in Dual Enrollment

	Impact on Average Cost and Average Revenue	Percent of Total College Budget
Baseline scenario (10% DE) [a]	Net loss (Average cost > Average revenue)	-2.2%
Efficiency gains with 20% DE		
Economies of scale [b]	Average cost falls	1.1%
Student success [c]	Average revenue increases	0.6%
Yield surplus [d]	Average cost falls	0.3%
Yield surplus [d]	Average revenue increases	0.2%
	Aggregate effect	*+2.2%*

Notes. Model assumes that the college enrolls DE students in the composite proportions: 45% DE_CF, 10% DE_HSF, and 45% DE_HST. Percentages rounded to 1 decimal place.
[a] Loss average of 25%–50% tuition discount (Table 3).
[b] Titus et al. (2021), lower bound.
[c] Student success estimates from interviews.
[d] Lee and Villarreal (2022), lower bound.

Looking at each mode of DE, we can identify efficiency gains per mode. The efficiency gains from expanding DE to 20% of all students are shown in Table 5. The top panel shows the cost per credit for college-level courses, DE courses, and composite DE programming. The middle panel shows the revenue per credit. The bottom panel shows the net surplus (revenue minus cost). Overall, Table 5 shows how—by reducing costs and maintaining revenues—dual enrollment can break even financially.

With economies of scale, instructional costs (faculty and overheads) are lower for each mode of DE relative to college-level courses. Extra performance funding and the yield surplus boost revenues. The revenue panel of Table 5 shows that revenue for each DE mode is now closer to that of college-level courses. Whereas revenue per credit for college-level courses is $300, the revenue for DE is $267, $215, or $22, respectively.

Table 5
Break-Even Scenario for Dual Enrollment by Mode

	College-Level	Dual Enrollment Mode			Composite DE*
		DE_CF	DE_HSF	DE_HST	
Costs					
DE Implementation	$--	$18	$18	$9	$15
Faculty [a]	$191	$163	$165	$10	$95
Overheads [a]	$76	$52	$9	$2	$24
Materials [a]	$33	$32	$33	$--	$18
Cost per credit	*$300*	*$267*	*$225*	*$21*	*$152*
Revenues					
Tuition/fees	$145	$90	$90	$--	$50
Public subsidy	$135	$135	$90	$9	$74
Performance funding [b]	$20	$30	$26	$10	$21
Yield surplus [c]	$--	$12	$9	$3	$8
Revenue per credit	*$300*	*$267*	*$215*	*$22*	*$152*
Net Surplus (R - C)	**$0**	**$0**	**-$10**	**$1**	**$0**
Surplus as % costs	**0%**	**0%**	**-4%**	**3%**	**0%**

Notes. DE modes: DE_CF: on-campus taught by college faculty; DE_HSF: at high school taught by college faculty; DE_HST: at high school taught by high school teacher. Composite DE based on these DE weights: 45% DE_CF, 10% DE_HSF, and 45% DE_HST. Superscripts identify efficiency gains: [a] Economies of scale; [b] student success; [c] additional enrollment. By construction, net surplus is zero across Composite DE. Numbers rounded to nearest dollar.

These efficiency gains yield approximate break-even results for each mode of DE (as shown in the final two rows of Table 5). Thus, under a range of plausible assumptions, the cost of DE (adjusting for economies of scale) is equal to the revenue from DE (including extra performance funding and yield surplus). However, Table 5 shows that the modes are not equally efficient: DE taught by college faculty at high schools is the least efficient mode (with a small loss of 4%).

Overall, the economic burden community colleges face from providing DE can be offset. This offset depends on the mix of DE modes, economies of scale, performance funding formulas, and the yield surplus. The following case studies show how colleges can balance these factors.

6. Case Studies of Dual Enrollment

We conducted interviews with senior personnel at three community colleges, one each in Florida, Ohio, and Texas, three states where dual enrollment is offered at a discount. These interviews provide context for the local decisions that community colleges must make about the economics of DE. Each case study has the same structure. To begin, key issues with respect to DE costs and revenues are reviewed; then the potential for efficiency gains is considered. Finally, the consequences for the optimal mode of DE are discussed.

The interviewees affirm the popularity of DE, the baseline financial pressures on community colleges, and the importance of efficiency gains to support DE programs. Each interviewee emphasized the political benefits of DE either when negotiating with state legislatures for public funding or securing revenue from property or general tax levies (where applicable). Importantly, each interviewee noted that funding formulas and rates were mostly unchanged over several years. With inflation (and pandemic disruptions), the effect has been to reduce funding per student both for college-level and DE courses. When costs increase and revenues decline college-wide, it becomes more challenging to invest in dual enrollment for all students.

6.1 Case Study 1: A Florida College

Funding of Dual Enrollment in Florida

School districts and postsecondary institutions negotiate payment of tuition, fees, textbooks, and other course materials for courses through annual MOUs. Florida schools are required to pay for courses taken by students during the school year. (This past year, the Florida legislature provided some funding for students to take dual enrollment courses in the summer.) State policy specifies a standard rate of $71.98 per credit hour for in-state residents. Lower rates are sometimes negotiated when a dual enrollment course is offered at the school district by college faculty. And when dual enrollment courses are offered at the high school by a school district staff member, the school district is not required by state policy to make any payments to the college. Colleges are prohibited from charging for dual enrollment students the $31 in fees charged for non-dual enrollment in-state students, which means that colleges are offering dual enrollment courses at a discount of 30% of the tuition and fees charged to post-high school enrollees.

College F is a community college in Florida with a fall enrollment of over 14,000 students in a range of academic, occupational, and technical programs.

College F has experienced "frenzied" student demand for DE. Many students have enrolled in whatever DE courses are available, and as often as they can. Statewide, community colleges such as College F are under pressure to offer more DE regardless of the economic viability of these courses.

For College F, implementation costs have been higher than anticipated. Coordination of programming with K-12 districts has been costly because the college has hired staff to serve as liaisons with particular high schools; they partner with schools to recruit and enroll students and troubleshoot issues as they arise.

Instructional costs are an important driver of DE for College F. In the past, faculty were motivated to teach DE in high schools. In recent years, they reverted to teaching DE on-campus, mainly because of a belief that a college classroom on campus is more conducive to learning college-level material than a high school classroom.

In terms of revenue, College F (and all community colleges in the state) are obligated to offer a significant discount on tuition for DE students. On average, tuition/fee revenue for DE courses is 70% of what it would be for non-dual-enrollment students. (Although the colleges are allowed to charge tuition, they are not allowed to charge fees.) However, DE students are included in the count for the FTE-based enrollment state subsidy, and performance funding is available.

College F does take advantage of the efficiency gains from DE. Economies of scale are possible for College F: With declining enrollment, these economies may be substantial and move the colleges closer to financial break-even. However, future economies of scale may be modest: Identifying new DE students requires significant resources for outreach (first to the schools and then to students and families).[21]

Efficiency gains from student success may be significant for College F. Performance funding gains are reflected in additional payments for students who receive an "A" or receive an associate degree with a 3.0 GPA (and the state also funds the Dual Enrollment Scholarship Program). DE students do well at College F, so per-student revenues increase. In terms of yield surplus, College F believes that more students are induced to enroll after participating in DE. But precise numbers are not available.

[21] Also, some DE students may need transportation to the college, increasing the cost of enrollment.

At College F, like many community colleges in Florida, 80% of DE is taught on college campuses by faculty, which is a relatively costly mode of DE (as shown in Tables 1 and 3). Because of this, and the fact that the college has assigned staff to coordinate programs with colleges and significantly discounted tuition, College F faces significant financial challenges in ensuring that DE is financially sustainable. However, given the level of efficiency gains College F can reap—particularly via economies of scale—it is possible for its DE programming to break even. That said, state colleges in Florida have not been unable to raise tuition for years. The per-student state enrollment subsidy has increased since 2011 (when enrollment started to drop) but has not kept up with costs. Hence, Florida colleges face a situation similar to those in some other states where overall funding from tuition and state subsidies is inadequate to cover costs and inflation for its programs overall.

6.2 Case Study 2: An Ohio College

Funding of Dual Enrollment in Ohio

The state's dual enrollment program, College Credit Plus (CCP), provides dual enrollment coursework at no cost to students and families. School districts and postsecondary institutions negotiate tuition and fee rates based on ceiling and floor parameters set forth in state policy. The ceiling and floor rates differ based on the location and instructor affiliation of CCP courses. For AY 2022, the following were the negotiated rates : (1) The ceiling rate was set at $166.55 per credit hour; colleges and universities may charge this rate for on-college-campus and online courses; (2) the mid-level rate was set at $83.28 per college credit (50% of ceiling rate); colleges and universities may charge this rate for courses taught at the high school by college faculty; and the floor rate was set at $41.64 per credit hour (25% of ceiling rate); colleges and universities may charge this rate for courses taught at the high school by approved secondary faculty. The Ohio Department of Education (ODE) acts as an intermediary between the school district and institutions of higher education and provides direct payments to colleges for all enrolled CCP students based on the negotiated rates.

College O is a community college in Ohio with over 9,500 enrollees across academic and vocational programs, offering certificates, two-year, and some four-year degrees.

For Community College O, DE is approximately one fifth of total enrollment. Many local high school students participate; and some students enroll intensively, completing an associate degree while still in high school.

College O has found that implementation costs are marginal. The administrative tasks to negotiate initial agreements may be significant, but most of the college's agreements are long-standing; and renewing the agreements year-to-year has been relatively straightforward.

To offer DE programs, high school teachers needed to be trained and credentialed as adjunct college faculty. These costs are also marginal due to the long-standing history of the DE program at the college and relationships in the community.

For College O, public reimbursement subsidies are subject to a discount by mode based on the annual per-pupil foundation aid amount, which is approximately $200 per credit (pro-rated based on a student taking 30 college credits per year). However, this amount is discounted depending on the DE mode. For courses delivered on the college campus, the reimbursement rate is 83% of this foundation aid amount ($160); for courses delivered at the high school taught by college faculty, the reimbursement rate is 42% ($80); and, for courses delivered at the high school by high school teachers, the rate is 20% ($40).

These public reimbursement rates are low: Few students take 30 credits per year; also, these rates have changed by less than 1% in five years. The rates can be compared to those in Table 5. The reimbursement rates are close for courses delivered on campus by faculty ($160 versus $135 in Table 5) and for courses delivered at high school by faculty ($80 versus $90); and sufficient (or even generous) for courses delivered at high school by teachers ($40 versus $9).[22]

College O can draw on local taxes as another revenue source. (This is not typical across the state; most Ohio community colleges rely solely on state funding.) The local tax base is important for DE at College O: It lets the college have a balanced funding approach to DE, with near-equal funding from the state, tuition/fees, and local government.

DE at College O is organized to take advantage of efficiency gains. Increasing enrollments in DE generate economies of scale, especially as regular enrollment is falling. College leaders recognize that successful DE students yield additional revenue

[22] Although College O has some flexibility to negotiate over these rates, it recognizes that high schools face the same inflationary pressures; and nearby community colleges might offer more generous rates.

from the statewide funding formula (which rewards performance). Finally, yield surplus is evident: The conversion rate of DE students into future post-high school enrollees is estimated at 25%: DE enrollment now means more college-level enrollment (and revenue) later.

College O mostly offers two modes of DE. One half of DE courses are taught in the high school by teachers; just under one half are taught on the college campus by college faculty (with the remaining DE a hybrid where faculty teach online with a teaching assistant in the high school classroom).[23]

Overall, the college believes DE is a net positive financially, especially given the fixed costs in a context of declining enrollment, efficiency gains, the success of DE students, and the benefits of a positive local perception, which encourages local tax support. Again, as for the other colleges, a big concern is the lack of compensation for inflation: Costs have increased dramatically, but the public subsidy rates have not over the last few years.

6.3 Case Study 3: A Texas College

Funding of Dual Enrollment in Texas

In Texas, funding for what is called dual credit is widely varied, preventing a clear model for cost-sharing among families, school districts, and colleges. Generally, students are required to pay for tuition, books, and fees related to dual credit unless a negotiated rate is agreed to between school districts and postsecondary institutions. An unpublished CCRC analysis of MOUs between Texas community colleges and partner school districts found that many MOUs identify school districts as responsible for covering the costs of dual credit courses and that these costs are offset by tuition discounting whereby colleges collect only a fraction of regular tuition and fees for dual credit coursework (e.g., school districts commonly specify that they will waive student fees).

College T is a community college in Texas with over 24,000 enrollees across multiple campus sites in the local urban and surrounding areas.

DE implementation costs for College T were higher than the college expected. College T has MOUs with 10+ partner school districts covering 40+ high schools. These agreements required a new dean of dual enrollment overseeing a team of more than 10

[23] The absence of the third mode—DE at the high school taught by college faculty—may reflect the funding incentives based on foundation aid.

advising staff. The college–district MOUs are standard contracts (so negotiation costs are minimized). However, there are separate agreements for private schools and home-schooling students (who must attend on-campus DE).

Instructional costs for DE were also higher than anticipated at College T. The college had to expend significant resources in recruiting and training high school teachers who had valid credentials. Also, all credentialed high school teachers must participate in professional development programs; these programs must be reviewed by college faculty.[24]

For revenues, College T does receive state enrollment subsidies, but these cover less than half of instructional costs. The college receives no tuition/fees regardless of mode (these are waived by the college); based on the college's reported budget, this is equivalent to a 25% discount for students. For dual enrollment at the high school taught by college faculty, revenue from the district is $100 per student (substantially less than the revenue if the course were on-campus). Therefore, the college—along with others across the state—faces a significant gap between instruction costs and revenues. On average, public subsidies are only one third of the cost per credit.

For additional revenues, College T is able to draw on local tax funding. In fact, property taxes represent 45% of revenues for College T. For areas with property taxes (flat or pro-rated), DE can be easier to support. First, the property taxes are a fixed amount of funding that can be applied to DE students who enroll. Second, the property taxes can be increased if there is public support for funding community colleges. Expanding the pool of enrollees into high school significantly expands public support for community colleges. However, many colleges within this state are located in areas either where there are no property taxes or where the local tax base is small.

Other revenue sources are also available for College T to fund DE. These other revenues include: core funding of over $1 million per annum, funding from a local nonprofit foundation (to cover the cost for high school teachers to earn graduate credentials), and district payments for books and instructional materials for all DE students.

[24] Relative to college-level courses, instructional costs are nearly equivalent for DE_CF, 65% for DE_HSF, and close to zero for DE_HST.

College T is able to exploit efficiency gains. Enrollment trends have been sufficiently stable, such that economies of scale are not a key driver of DE efficiency gains. Student success does represent an important efficiency gain: Although performance funding is only 10% of the size of state enrollment subsidies, the college's DE students do generate above-average performance funding. Finally, yield surplus is also recognized by the president of College T as important: As a result of participating in DE, many more students are expected to subsequently enroll in the college. As an approximation, the overall postsecondary enrollment of prior-DE students is estimated at 80%, with many of the new students being from low-income families who might not otherwise have attended college after high school.

College T specializes in one primary mode of DE: The vast majority of DE (over 90%) is at high school and taught by the teachers. This specialization reflects both the preferences of the students/schools and the deficit in tuition revenues.[25]

Overall, College T accounting figures indicate that DE is (at best) a neutral revenue stream; given the tuition discounts and how budgets are reported, DE appears to be operating at a loss. However, the president of College F takes a strategic view that the benefits of DE outweigh the costs. First, most of the DE programming is off-site and so is financially low-risk for the college. Second, there is some positive enrollment subsidy (even if it is not enough to cover average costs). Third, there are efficiency gains via student success and yield surplus. Finally, as an extra, unquantifiable element, there is political and community goodwill from providing DE. The goodwill boosts the status and financial stability of the college, which is particularly important for an institution that relies on substantial local property tax funding.

Lastly, the biggest financial challenge is that the state public enrollment subsidy is too low for all courses. This enrollment subsidy has not been adjusted for inflation in almost ten years. For colleges with limited or tax bases for local funding, this inertia imposes significant financial pressures (as well as entrenched inequities across the state's colleges). This challenge is not specific to DE, but it does mean colleges have fewer resources to respond to new opportunities.

[25] This mode of DE is most preferred for colleges that do not face economies of scale.

6.4 Templates for Efficient DE

Each college faces its own financial pressures from DE. Prediction of the dollar amounts for each college is therefore beyond the scope of this analysis. However, the framework applied above—costs, revenues, and efficiency gains—does offer a template for mapping the pressures of DE.

Table 6 shows the template applied to the three case study colleges. Notably, these three colleges vary in the mode of DE they choose to offer. The template shows how the financial pressures vary as well.

With respect to costs, each college faced higher than expected implementation costs (because of specialized staff hired to coordinate with schools in recruiting, registering, and advising students). Two colleges faced higher instructional costs. All three colleges expected savings from economies of scale (in two cases, very significantly).

Table 6
Template for Efficient Dual Enrollment

	Case Study Colleges		
	Florida	**Ohio**	**Texas**
	80% DE_CF	45% DE_CF, 45% DE_HST	90% DE_HST
Costs			
Implementation	+	+	+
Instruction		+	+
Materials	+		
Economies of scale	-	- -	- -
Revenues			
Tuition/fees (discount)	- - (30%)	- (graduated)	- (25%)
Public subsidy	+	+	+
Performance funding	+	+	+
Yield surplus	+	+	+

Notes. Case study interviews. DE modes: DE_CF: on-campus taught by college faculty; DE_HSF: at high school taught by college faculty; DE_HST: at high school taught by high school teacher. + indicates upward pressure; - indicates downward pressure; - - indicates substantial downward pressure. Public subsidy includes alternative public revenue sources including FTE enrollment subsidies.

With respect to revenues, the colleges varied in how much they discounted tuition. Two colleges had access to local tax base funding; this access helped raise revenues. At all three colleges, DE students generated state enrollment subsidy and performance funding revenue. Finally, all three colleges expected some extra revenue from a higher yield surplus.

This template is illustrative of the financial challenges that community colleges face and of the many balancing factors involved. Other colleges may be able to use this template to weigh the advantages of each type of DE.

Based on the interview evidence and the template in Table 6, estimated efficient DE is derived for the three case study colleges. This efficient DE compares regular college-level courses to DE courses (after economies of scale, performance funding, and yield success are accounted for). As shown in Table 7, it is plausible for all three colleges to make a positive surplus from DE. These surplus gains may be small (at 4%–7%). However, they indicate that DE need not be a loss for colleges, depending on what excess capacity is available and how enrollment management is performed for DE students.

Table 7
Estimated Efficient Dual Enrollment for the Case Study Colleges

	Florida College		Ohio College		Texas College	
	Not DE	DE Composite	Not DE	DE Composite	Not DE	DE Composite
Costs						
DE Implementation	$--	$20	$--	$20	$--	$20
Faculty	$130	$100	$230	$140	$140	$10
Overheads	$180	$140	$250	$150	$180	$20
Materials	$30	$20	$80	$50	$70	$10
Cost per credit	*$330*	*$290*	*$570*	*$360*	*$390*	*$60*
Revenues						
Tuition/fees	$90	$60	$90	$70	$60	$10
Public subsidy	$160	$130	$400	$200	$260	$30
Performance funding	$80	$90	$70	$80	$80	$20
Yield surplus	$--	$20	$--	$20	$--	$10
Revenue per credit	*$330*	*$310*	*$570*	*$380*	*$390*	*$70*
Net Surplus (R - C)	**0**	**$20**	**0**	**$14**	**0**	**$4**
Surplus as % costs	**--**	**7%**	**--**	**4%**	**--**	**6%**

Notes. Uses 2021 IPEDS data per case study college. Estimated amounts based on parameters in Table 5. Net surplus not rounded.

7. Conclusion: Sustainable Dual Enrollment

Dual enrollment is sustainable when community colleges have sufficient revenues to cover costs. This condition is unlikely to hold with steeply discounted tuition for high school students. But many factors on both the cost and revenue side can offset this, and these factors vary significantly depending on how community colleges structure their DE programming and on the state and local context. Therefore, it is critical that dual enrollment systems are organized so as to account for these many factors and their interactions.

DE becomes more efficient as the numbers enrolling in DE grow. Many community colleges have high fixed costs and declining enrollment; with strategic enrollment management, these colleges benefit financially from expanding DE. Critically, colleges can commit to attracting new students by (1) increasing efforts to broaden access to DE through outreach to underserved communities and high schools, and (2) recruiting DE students back to their college after high school by providing quality instruction, advising, and other supports to help students gain exposure to fields of interest and related programs offered by the college.[26] In some colleges that emphasize more efficient pathways through college, DE students may be treated more like regular students (in terms of supports and advising). Community colleges that can attract new students from traditionally underserved groups—even as this may increase recruitment costs—may benefit the most from expanding DE by encouraging students who might not otherwise attend any college after high school to attend their college.

Ideally, systems of dual enrollment can be structured so as to generate a surplus (rather than a deficit). Yield surplus is important in this context because it increases enrollment and enhances efficiency. Extra resources would allow community colleges to invest further into DE at more schools and districts, including those that have traditionally been underserved. Colleges could therefore make investments that would not only be efficient but also be equitable in closing college coursetaking access gaps across high school students.

[26] Not all colleges can do both (1) and (2), but many may be able to do one of them. See Fink et al. (2022).

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