

Proposal Summary.

Title

Dual Enrollment and Conditional Credit Acceptance: Effects of Georgia's Articulation Agreement on Timely Degree Completion

Abstract

In this study, we investigate the interrelated effectiveness of articulation policies and dual enrollment. Specifically, we evaluate a statewide articulation agreement in Georgia using a difference-in-differences approach. Our results suggest that articulation can improve degree completion for students who do not enroll in colleges where they participated in dual enrollment.

Proposal Text

Significance of the Study

Research shows that students who take college-level coursework in high school through dual enrollment (DE) have better bachelor's degree attainment outcomes relative to non-participants, including an improved time-to-degree (An & Taylor, 2019; Allen & Dadgar, 2012; Giani et al., 2014; Speroni, 2011). But despite a robust body of literature regarding the effects of dual enrollment, less attention has been paid to explicate the mechanisms that facilitate positive student outcomes, or whether outcomes vary for students according to differences in participation. Some scholars have advanced theories suggesting that the dual enrollment impact can be explained by early exposure to higher education and improved academic ability (An & Taylor, 2015; Karp & Hughes, 2008). Some research also shows that there are differences in outcomes between students who participate in dual enrollment in different locations (e.g., college campus versus in a high school), the course modality, and the number of courses completed (An, 2013; D'Amico et al., 2013; Giani et al., 2014; Liu et al., 2020).

Most studies regarding DE, however, have not parsed the nuanced relationship between credit acceptance and degree completion. Like AP (Evans, 2019), in which exam scores and the policies of each individual college determine whether credits are awarded, credit acceptance for DE is also conditional and unlikely to occur unless program participants enroll in colleges that agree to accept DE course credits. Because credit acceptance for DE depends on the higher education institutions where a student participates and where they enroll, those who participate at two-year colleges may be most at risk of losing the credits earned from DE courses. The issue of credit acceptance is especially important because some estimates show that dual enrollment participation is heavily concentrated at public two-year colleges (Fink et al., 2017).

Articulation agreements between institutions may preserve earned credits, thereby capitalizing on the potential for DE to enhance academic momentum and degree completion. In the literature regarding statewide articulation agreements, scholars have found that students affected by these arrangements are more likely to transfer

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seamlessly and experience improved post-transfer outcomes (Boatman & Soliz, 2018; Spencer, 2021; Worsham et al., 2021). Nevertheless, no studies have examined the role of articulation policies as an underlying mechanism for the success of DE. In other words, we know very little about the role of articulation agreements in facilitating the credit acceptance of dual enrollment coursework across institutions.

Conceptualization of the Study

This research draws heavily upon the theory of academic momentum, which suggests that students who move quickly through academic programs are more likely to persist to degree completion (Adelman, 2006). Academic momentum can be largely defined according to students' initial course-taking and early progress, which affects degree attainment irrespective of student background and academic preparation (Attewell et al., 2012; Martin et al., 2013). Therefore, some scholars posit that early academic momentum mediates the effect of dual enrollment on postsecondary outcomes (Wang et al., 2015). We hypothesize that articulation agreements between institutions may preserve earned credits, thereby capitalizing on the potential for DE to enhance academic momentum and degree completion.

To examine the role of academic momentum, our study investigates the following research questions: (1) Does the introduction of a statewide articulation agreement improve the probability of on-time degree completion for four-year college students who previously participated in dual enrollment at two-year colleges? (2) And to what extent does the policy effect vary by race? To this end, we examine whether there are differences in the effect of dual enrollment according to whether the credit associated with DE courses are accepted by the four-year institution where a student enrolls. Because the credits for coursework taken at a two-year college are not necessarily accepted by four-year colleges and universities, we can examine whether the impact of a statewide articulation agreement will improve credit acceptance and, thus, academic momentum to degree completion.

Specifically, we evaluate the effectiveness of a statewide articulation agreement in Georgia, where there are two higher education systems: four-year colleges and universities in the University System of Georgia (USG) as well as two-year colleges in the Technical College System of Georgia (TCSG). In 2012, the state's Board of Regents approved a statewide articulation agreement, referred to as the Complete College Georgia Articulation Agreement, was introduced to help facilitate credit acceptance for students who transfer from TCSG to USG institutions (USG Academic Affairs Division, 2023; USG Board of Regents, 2023). Because of the agreement, many courses taught at TCSG colleges—in the core curriculum known as Areas A – F—would become transferable to USG institutions for credit. Table 1 presents the coursework offered at TCSG institutions deemed eligible for transfer under the 2012 articulation agreement, which includes only general education subjects. Notably, many of the eligible courses outlined by the articulation agreement are commonly completed by DE participants. Since the cross-system agreement guarantees credit acceptance

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for DE participants at TCSG schools who later enrolled at USG four-year colleges and universities, these students may have experienced considerable postsecondary benefits following the policy introduction that only DE participants at USG institutions were previously afforded.

Research Design

Data and Sample

We make use of student-level administrative data provided by Georgia's Academic and Workforce Analysis and Research Data System (GA•AWARDS), which are maintained and provided by the Governor's Office of Student Achievement. The data available for this study includes students from Georgia enrolled at public secondary and postsecondary institutions in the state from 2007 - 2020. Using these data, we generate a sample to facilitate our investigation of changes across cohorts of students over time. Specifically, we focus on Georgia residents who enrolled at a USG institution as first-time freshmen between the 2008-2009 and 2015-2016 school years who also participated in DE during their years in high school, which we define broadly according to whether students were observed to engage in any postsecondary course-taking while still enrolled in high school. We also restrict our sample to students who were observed to take early college-level coursework at only a TCSG or USG institution, but not both. The full analytic sample includes 25,337 students from the 2008 through 2015 USG freshman cohorts (see Table 2).

Measures

Because our study is principally interested in on-time degree completion, our outcomes of interest include two dichotomous, dependent variables: one indicating bachelor's degree completion within 4 years from the initial point of entry as a first-time freshman, and the other captures degree completion within 5 years. Following the literature, we employ several covariates to account for alternative student background and academic achievement factors associated with timely degree completion. Specifically, the covariates include a continuous measure of cumulative high school GPA, and dichotomous indicators for gender, race/ethnicity, and income status, which is based on free/reduced-price lunch status in high school.

Empirical Strategy

The goal of this study is to determine whether the 2012 statewide articulation agreement in Georgia improves rates of on-time bachelor's degree completion. We employ a difference-in-differences (DID) approach to address the issue of self-selection for our primary analysis. Using this quasi-experimental research design, we compare, over time, the outcomes of USG freshmen who participated in dual enrollment at TCSG institutions in high school—and thus, eligible to be treated by the 2012 articulation policy—with the outcomes of USG freshmen who participated in the program in high school at USG institutions. We treat students in the USG freshman cohorts of 2008

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through 2011 as the pre-policy group. With this approach, our first difference estimates a change in degree completion rates among dual enrollment participants from TCSG schools, which are then adjusted using a second difference of dual enrollment participants from USG colleges. By accounting for a comparison group of similar students who are unaffected by the policy, this strategy will account for “secular trends” that impacted all dual enrollment program participants in the state. Please see our attachment for a formal specification of the DID model.

In addition to the standard DID models, we also employ an event-study approach to estimate effects for each year by adding leads and lags to equation (1). The event-study approach facilitates a way to empirically examine the parallel trends assumption. If the estimated treatment effects for years before the 2012 policy are significantly different from zero, we cannot conclude that there is evidence in support of the parallel trends assumption. Moreover, the event-study also allows us to understand whether the treatment effects in post-policy years are heterogeneous. We also employ additional regression models to estimate the relationship between our degree completion outcomes with the number of credit hours earned for dual enrollment coursework treated by the articulation policy.

Findings

We begin with a descriptive examination of degree completion trends in Figure 1, which shows that the rate of four-year degree completion for TCSG DE participants increased by more than 10 percentage points between the 2011 and 2015 cohorts, with a steady and positive change in each successive year. The descriptive results nicely foreshadow the results from our DID analysis. Table 3 presents estimates from a series of models for both outcomes of interest (four-year and five-year degree completion). Column 2 shows that, net of other factors, the policy effect on four-year degree completion increased by 5.5 percentage points after the policy introduction and five-year completion increased by 5.8 percentage points on average. Because results using the full sample may have concealed important differences, we also produce estimates of heterogeneous effects across subgroups by race and income status. Table 4 presents the results across each of these four groups and shows that increases in degree completion were largely driven by higher-income students and those identifying as White.

We also produce estimates of the relationship between credit hours earned for treated and untreated dual enrollment coursework (Table 5). As hypothesized, we do not find that credits for untreated coursework have a relationship with the outcomes that is statistically different from zero. However, the results show that the number of credits earned for treated dual enrollment coursework have a positive and statistically significant relationship with the probability of degree completion. Notably, we find that this relationship is consistent across subgroups.

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Discussion

The findings from our study demonstrates that dual enrollment coursework is likely to only have a positive effect on postsecondary outcomes when the credits are accepted by the institution where a student enrolls to pursue a bachelor's degree. By introducing an articulation agreement in 2012, many dual enrollment participants who completed college-level coursework at two-year, technical colleges in Georgia could earn credits that would be accepted at USG colleges and universities if the students chose to later enroll at these institutions. As such, these students would benefit from academic momentum attributed to early credit accumulation and have a higher probability of graduating on-time. Taken together, our study demonstrates that dual enrollment participation alone maybe insufficient to help students realize postsecondary success. Our results provide evidence supporting the hypothesis that articulation agreements can improve the timing of degree completion for dual enrollment students who do not enroll in colleges where they participated in the program. However, our results show that the articulation policy impact is specifically associated with the completion of coursework treated by the policy.

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