

## Course Withdrawals and College Student Success

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### Executive Summary

Course withdrawals may lead to financial burdens for students, institutions, states, and the federal government. Understanding consequences of course withdrawal is key to understanding its implications and developing interventions to improve student success. Since no research has examined course withdrawal behaviors and their relations to student degree outcomes within a statewide or nationally representative sample, I addressed this gap by using statewide administrative data from the Texas Education Research Center (ERC). The study sample comprises four fall cohorts of first-time degree-seeking college students attending any public two-year college or public university in the state of Texas. This study estimates the relationship between course withdrawal and student outcomes in the Texas public higher education institutions (broken into analytic samples of students who attended only community colleges, transferred from community colleges to public universities, and attended public universities).

The findings from this study demonstrated that credit withdrawal rates (total withdrawn credits divided by total attempted credits) are usually consequential degree attainment. There is nuance in findings for degree attainment. Up to about a 4% withdrawal rate (typically one or two course withdrawals), each additional withdrawal rate was associated with a higher probability of earning a degree among community college-only and university samples. However, further course withdrawals diminished a student's probability of earning a degree.

### What We Studied

Among the most pervasive problems in postsecondary education are those concerning student persistence, ranging from challenges with term-to-term persistence to issues with course withdrawal (which may foreshadow future stop-out or drop-out behaviors). Course withdrawal has been linked with retention to the second year (Akos & James, 2020), community college credential completion or upward transfer (McKinney et al., 2019). Complete College America (2012) estimates that roughly 10% of attempted credits among baccalaureate recipients are either course withdrawals or no-credit repeats.

Despite widespread attention in the literature to student persistence (e.g., Bean, 2005; Tinto, 1975, 1994), we know little about the effects of course withdrawal. Yet course withdrawals may increase in the current context of the COVID-19 pandemic, which has served to widen existing inequalities across socioeconomic and educational attainment levels (Ice et al., 2021; U.S. Bureau of Labor Statistics, 2021) and may ultimately make it difficult for students from the least privileged backgrounds to avoid course withdrawal. Understanding the consequences of course withdrawal is key to understanding its implications and developing interventions to improve student success. Accordingly, in this study, I estimated the relationship between course withdrawal and student outcomes.

College degree attainment has become more important than ever before for individual success and may help individuals overcome existing socioeconomic and educational inequalities (Carnevale et al., 2011; Haveman & Smeeding, 2006). College students enroll in higher education institutions seeking certificates, associate degrees, eligibility for transfer to four-year universities, or bachelor's degrees. However, many students leave before meeting their goals and positioning themselves to be competitive in the job market. According to recent estimates from a nationally representative survey, 44% of first-time degree-seeking college starters did not earn any credential within six years of matriculation (author's calculations, Beginning Postsecondary Students (BPS): 12/17). Scholars have illuminated a variety of factors that affect college degree completion and dropping out (e.g., financial aid [Goldrick-Rab et al., 2016], student engagement [Kuh et al., 2008; Tight, 2020], and campus climate [Johnson et al., 2014]). Yet, little research has addressed a basic factor of a college student's journey toward a degree or credential: withdrawal from courses.

Because course withdrawals often derail students from their educational goals, several lawmaking bodies have developed policies related to course withdrawal. Federal, state, and institutional course withdrawal policies limit the number of course withdrawals. At the federal level, these policies are mostly linked to financial aid. Satisfactory Academic Progress (SAP) for federal financial aid, introduced in July 2011, usually requires students to complete 67% of attempted credits to remain eligible to receive financial aid (Satisfactory Academic Progress, 2021; Schudde & Scott-Clayton, 2016). Moreover, students have to pay back a portion of the Title IV financial aid funds they received if they withdraw from all courses before completing 60% of the semester (Treatment of Title IV Funds When a Student Withdraws, 2021). Subsequently, these students tend to stop attending class sessions altogether and are often burdened with debt due to repayment of financial aid grants or student loans (Treatment of Title IV Funds When a Student Withdraws, 2021).

Institutions or states may set specific rules for course withdrawals. In 2007, the Texas legislature enacted a statewide policy that limits students at public colleges and universities to six course withdrawals for academic reasons throughout the entire duration of their academic career (The State of Texas, 2007). For transfer students, the course withdrawals accrued at another public institution in the state of Texas count toward their total course withdrawal quota. Once the six-course limit is reached, students must receive a grade for all courses in which they register<sup>1</sup>. In contrast to such policies limiting student course withdrawals, some institutions allow students to have unlimited course withdrawals, such as The University of Alabama in Huntsville (Nicholls & Gaede, 2014). As federal, state, and institutional policymakers aim to reduce course withdrawals, they lack adequate evidence to shape policies, as there is a little research capturing predictors of course withdrawal or the relationship between course withdrawal and college student success.

## **Purpose of the Study and Research Questions**

The purpose of this study was to conduct an empirically rigorous investigation of the roles that course withdrawals play in college student degree outcomes using Texas statewide longitudinal data to inform higher education constituents. I estimated the relationship between withdrawal rate and student degree outcomes in the Texas public higher education institutions. This study addresses the following research question:

What is the relationship between credit withdrawal rate and student outcomes (degree attainment, associate degree or certificate for community college students and bachelor's degree for transfer students and university students)?

By answering this question, I address a considerable gap in the literature, offering insights that practitioners and policymakers can use to understand course withdrawal and how to better assist students toward their educational goals.

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<sup>1</sup> Course withdrawals made under extenuating circumstances, such as illness or family deaths, are exempt from this rule.

## How We Analyzed the Data

To address my research questions, I used student-level statewide longitudinal datasets from the Texas Education Research Center (ERC). The study sample comprised four fall cohorts of first-time degree-seeking college students starting attendance in Fall 2011-Fall 2014 at any public two-year college<sup>2</sup> (e.g., technical and community colleges) or public university in the state of Texas. To provide adequate follow up to examine degree outcomes, I used the most recent data available for the four fall cohorts over a span of six years.

I applied logit models to examine the direct relationship between withdrawal rate and degree attainment outcomes. The independent variables included in my regression models were drawn from the literature on *academic momentum* and theories of college persistence, which helped me determine appropriate predictors of course withdrawal and student degree outcomes.

### **Significance of the Study**

By addressing the research questions in this study, I contribute to the literature in several ways. The results can inform educational practices and provide valuable insights for college advisors, institutional researchers, and financial aid staff. Finally, even though this study does not directly focus on Texas's limit of six withdrawals, its findings do show the extent to which the policy limits student course withdrawals.

## What We Discovered

To answer the research question, Table 1 shows logistic regression models examining the relationship between credit withdrawal rate (proportion of total credits withdrawn out of all attempted credits) and student degree attainment within six years of initial enrollment. All three models in Table 1 included both the withdrawal rate and the quadratic term of withdrawal rate. Including the quadratic term in the regression models allowed the regression lines to better fit the data, allowing a more precise estimation of the relationship between withdrawal rate and student outcomes, which was also important given the large sample size. It also allowed me to examine whether lower rates of credit withdrawal might have differential correlations with student outcomes than higher rates of credit withdrawal.

Odds ratios are reported in all logistic regression models. A greater than 1 odds ratio indicates a positive relationship between an independent variable and an outcome variable while a lower than 1 odds ratio indicates a negative relationship. If odds ratios from those two withdrawal rate variables (the withdrawal rate and the quadratic term of withdrawal rate) have opposite directions (one greater than 1 and one lower than 1), this indicates a non-linear relationship between withdrawal rate and degree attainment. For example, degree attainment decreases as withdrawal rates increase up to a turning point. After this turning point, degree attainment increases as withdrawal rates increase. However, if both withdrawal rate and the quadratic term of withdrawal rate have the same direction (e.g., both odds ratios are greater than 1), this indicates a linear relationship between withdrawal rate and degree attainment.

Results from Table 1 indicate a non-linear relationship between withdrawal rate and degree attainment for the community college-only and the university samples and a linear relationship for the transfer sample. Figures 1, 2, and 3 illustrate the patterns of results for each analytic sample. Figure 1 shows the non-linear relationship between credit withdrawal rate and degree attainment in the community college-only sample (see Table 1, withdrawal rate: OR= 1.019, SE= 0.002,  $p < 0.001$ ; squared term of withdrawal rate: OR= 0.998, SE= 0.000,  $p < 0.001$ ). A withdrawal rate up to 3.8 percent was associated with an increase in the predicted probability of completing a community college credential (an associate degree or certificate). After a withdrawal rate of 3.8 percent, the predicted probability of community college credential attainments decreases. Similar patterns emerged for the university sample (see Figure 3).

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<sup>2</sup> I use community college and public two-year college are used interchangeably. This study includes technical and vocational colleges under the umbrella of either of those phrases.

**Table 1**

*Logistic Regression Results Examining Relationship Between Credit Withdrawal Rate and Degree Attainment  
(The Full Model)*

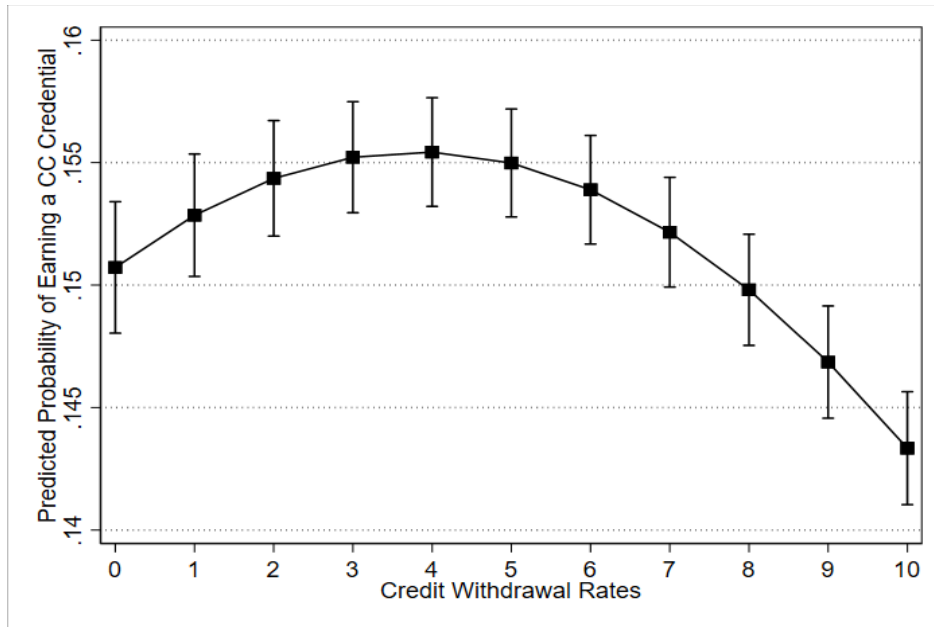
	Community College	Transfer	University
	Odds-Ratio (SE)	Odds-Ratio (SE)	Odds-Ratio (SE)
Withdrawal Rate	1.019*** (0.002)	0.938*** (0.004)	1.070*** (0.004)
Withdrawal Rate (Quadratic)	0.998*** (0.000)	0.996*** (0.000)	0.990*** (0.000)
Race/Ethnicity (Reference =White)			
Hispanic	1.123*** (0.016)	0.920*** (0.021)	0.874*** (0.015)
Black	0.950* (0.020)	1.008 (0.034)	1.085*** (0.025)
Asian	0.851*** (0.027)	0.945 (0.037)	0.932** (0.025)
Native	0.987 (0.076)	1.001 (0.124)	0.914 (0.081)
Mixed	0.931* (0.032)	0.857* (0.053)	0.487*** (0.016)
Unknown	0.537*** (0.026)	0.042*** (0.009)	0.335*** (0.020)
Woman	0.939*** (0.012)	1.031 (0.019)	0.959** (0.013)
Age at the college entry	0.970*** (0.001)	0.949*** (0.003)	0.922*** (0.006)
Student Intent (Reference = associate degree)			
Certificate	1.323*** (0.030)	0.900 (0.061)	
Transfer/bachelor's	0.921*** (0.013)	1.222*** (0.025)	
Improve skills/enrichment	0.875*** (0.023)	0.971 (0.056)	
No respond	0.948* (0.023)	1.135*** (0.040)	
Texas Resident	1.720*** (0.042)	1.032 (0.052)	3.023*** (0.079)
Student initial meta major (Reference = Humanities/Lib. arts)			
Industrial, manuf./construction	1.651*** (0.043)	1.026 (0.080)	1.510*** (0.071)
Natural Sciences	1.201*** (0.038)	1.060 (0.049)	1.047 (0.026)
Business	0.998 (0.022)	1.327*** (0.041)	1.328*** (0.034)
Social/behavioral sciences	0.958 (0.035)	1.162** (0.059)	1.214*** (0.036)
Communications	1.001 (0.054)	0.909 (0.075)	1.234*** (0.050)
Literature/linguistics/fine arts	0.904** (0.029)	0.643*** (0.031)	0.754*** (0.022)

Table 1 (Continued)

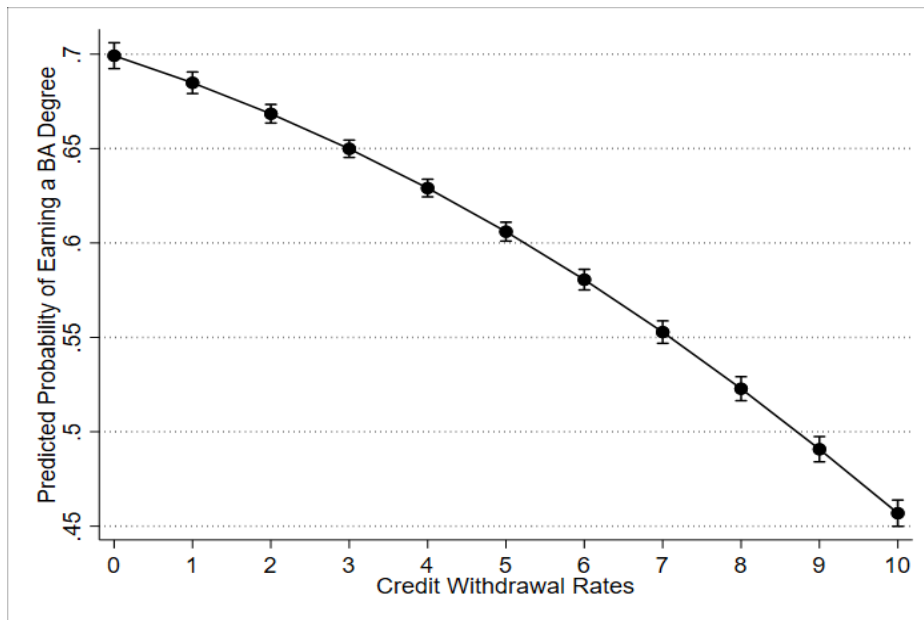
	Community College	Transfer	University
	Odds-Ratio (SE)	Odds-Ratio (SE)	Odds-Ratio (SE)
Math/computer sciences	1.058 (0.037)	0.888* (0.048)	1.042 (0.040)
Education/Social services/policy	1.143*** (0.025)	1.208*** (0.041)	1.165*** (0.042)
Engineering	1.265*** (0.037)	0.916 (0.045)	1.140*** (0.030)
Service oriented	1.136*** (0.040)	0.919 (0.064)	1.080* (0.038)
Health	1.137*** (0.022)	0.820*** (0.029)	0.630*** (0.017)
Undeclared/Undecided	1.005 (0.041)	1.073 (0.057)	0.952 (0.027)
Ever-Pell grant recipients	1.377*** (0.017)	0.773*** (0.015)	1.264*** (0.018)
Worked for Pay in the 1 <sup>st</sup> year	1.075*** (0.013)	1.075*** (0.020)	1.100*** (0.015)
Summer Enrollment in the 1 <sup>st</sup> year	1.860*** (0.024)	1.512*** (0.028)	1.718*** (0.026)
Average Semester Credit Loads (Reference = 15 or more credits)			
Part-time	0.513*** (0.012)	0.569*** (0.018)	0.697*** (0.013)
12-14.99 credits	0.850*** (0.020)	0.782*** (0.024)	0.826*** (0.013)
Ever-Developmental	0.842*** (0.011)	0.786*** (0.015)	0.805*** (0.014)
Cumulative college GPA	4.191*** (0.035)	5.429*** (0.106)	8.594*** (0.103)
Constant	0.009*** (0.000)	0.046*** (0.006)	0.019*** (0.002)
College fixed-effects	YES	YES	YES
Institution fixed-effects	YES	YES	YES
Observations	304,490	79,761	221,101

*Notes.* The table presents odds ratios with standard errors in parentheses from logistic regression models performed on a pooled sample of college students who entered college from Fall 2011 to Fall 2014, where each column represents a separate sample (the community college-only, the community college transfer and university samples). Certificate or/and associate degree were used in the community college-only sample while bachelor's degree was used in the transfer and university samples. All models include student variables (race, gender, age at the college entry, student intention, residency status in initial enrollment, student meta majors, ever Pell grant status, worked for pay in the first year, summer enrollment in the first year, average semester credits in the first year, ever earned developmental education credits, and total cumulative GPA). All models include cohort fixed effects and institution fixed effects. One observation from the community college-only sample, 2 observations from the transfer sample and 7 observations from the university sample were dropped due to multicollinearity when using institutional fixed effects.

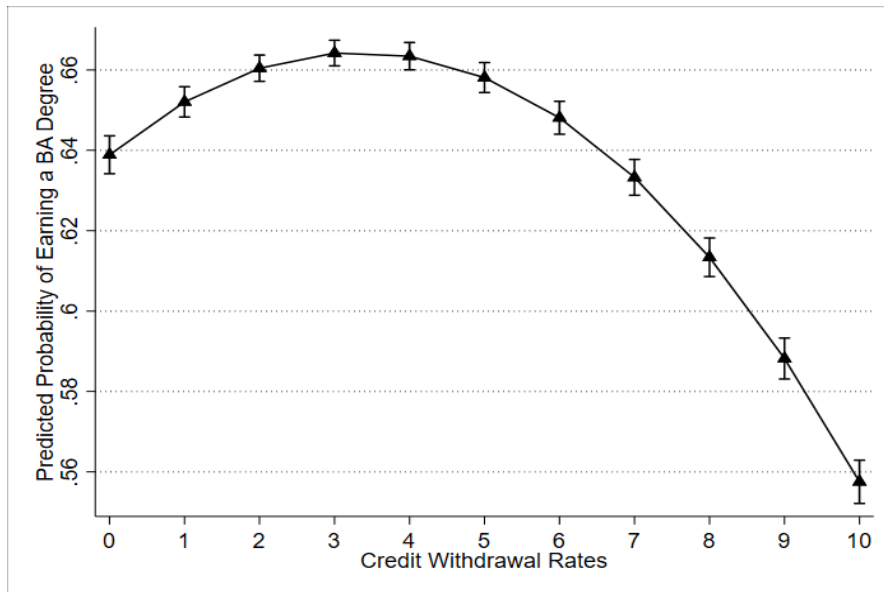
\*\*\* p<0.001, \*\* p<0.01, \* p<0.05



**Figure 1. The Predicted Probability of Completing a Community College Credential over Credit Withdrawal Rates for the Community College-only Sample.**  $N=304,490$ . The figure represents the relationship (presented as average marginal effects with 95% confidence intervals) between credit withdrawal rates and community college credential completions (certificate or an associate degree) within six-years among first-time degree-seeking community college starters. The estimates were drawn from a model presented in Table 1, which included all student time-invariant characteristics, cohort fixed effects, and institution fixed effects.



**Figure 2. The Predicted Probability of Earning Bachelor's Degree over Credit Withdrawal Rates for the Transfer Sample.**  $N=79,761$ . The figure represents the relationship (presented as average marginal effects with 95% confidence intervals) between credit withdrawal rates and bachelor's degree attainment within six-years among first-time degree-seeking community college transfer students. The estimates were drawn from a model presented in Table 1, which included all student time-invariant characteristics, cohort fixed effects, and institution fixed effects.



**Figure 3. The Predicted Probability of Earning Bachelor’s Degree over Credit Withdrawal Rates for the University Sample.**  $N=221,101$ . The figure represents the relationship (presented as average marginal effects with 95% confidence intervals) between credit withdrawal rates and bachelor’s degree attainment within six-years among first-time degree-seeking university students. The estimates were drawn from a model presented in Table 1, which included all student time-invariant characteristics, cohort fixed effects, and institution fixed effects.

The predicted probability of earning a bachelor’s degree increased up to a 3.3 percent of withdrawal rate, but after this turning point, the predicted probability decreased (see Table 1, withdrawal rate:  $OR= 1.070$ ,  $SE= 0.004$ ,  $p< 0.001$ ; squared term of withdrawal rate:  $OR= 0.990$ ,  $SE= 0.000$ ,  $p< 0.001$ ). Even though the models for the community college and university samples had a similar pattern, the point estimates in the model for the university sample appeared to be more precise than the point estimates in the model for the community college-only sample. The 95% confidence intervals were significantly larger in the results for the community college-only sample (see Figure 1) than in those of the university sample (Figure 3).

For the transfer sample, the relationship was straightforward. There was always a negative relationship between withdrawal rate and earning a bachelor’s degree as both odds ratios were lower than 1 (see Table 1, withdrawal rate:  $OR= 0.938$ ,  $SE= 0.004$ ,  $p< 0.001$ ; squared term of withdrawal rate:  $OR= 0.996$ ,  $SE= 0.000$ ,  $p< 0.001$ ). As the withdrawal rate increased, the predicted probability of degree attainment decreased (see Figure 2).

### Discussion/Policy Recommendations

Given the link between course withdrawal rate and degree outcomes, practitioners might benefit from using course withdrawal metrics like those in this study to inform practice and support student success. Also, Institutional Research (IR) offices can use this study’s methodology to develop measures for early detection of negative course withdrawal behaviors. IR offices can identify students with more numerous course withdrawals for additional outreach and targeted advising by academic advisors. Then, responding to early identification measures, student service practitioners can take preventive action to stem excessive course withdrawals.

Leveraging a 4-5% threshold as a marker of excessive withdrawal at institutions—at which point students with an indicator flag might receive outreach for additional advising—could offer a preventative approach to allow for better support to students that may otherwise face negative consequences of course withdrawal. Faculty and advisors can



discuss possible consequences of course withdrawals with students, such as that withdrawal of two or more courses (about 4-5% withdrawal rate) might reduce their chances to earn degrees, and that each course withdrawal can increase time to graduation. Making sure that students understand this information could help them to make more informed decisions about taking and withdrawing from courses.

Texas statewide policy allows students to withdraw from up to six courses for academic reasons (e.g., scheduling conflict, course dissatisfaction, etc.) without any penalty. There is no limit on course withdrawals for non-academic reasons (e.g., mental health issues, death in the family, etc.). Although the effects of the policy were not explicitly examined in this study, more than six withdrawals suggested that at least some were for non-academic reasons. Based on the datasets I used, I could not differentiate between academic and non-academic withdrawals, but I inferred that at least 4% of excessive course withdrawals were for non-academic reasons. These results showed that withdrawing from more than six courses is not common among college students. Nevertheless, college and university IR offices and student services staff could, with additional data collection, determine academic and non-academic reasons for student course withdrawals and respond with appropriate support, if institutions collect data about reasons why students withdraw from courses (Michalski, 2014; Wheland et al., 2012).

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